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Editorial**Physician Suicide: A Growing Concern?****Mohsin Masud Jan**

Editor

150 years. It has been known since the last 150 years that physician suicide is a growing concern, that those responsible for the provision of medical care, are themselves at an increased risk of committing suicide. Exact numbers are not known, not even in the developed world, let alone developing third world countries like ours. Although physicians globally have a lower mortality risk from cancer and heart disease relative to the general population (presumably related to knowledge of self care and access to early diagnosis), they have a significantly higher risk of dying from suicide, the end stage of an eminently treatable disease process.

Suicide is almost invariably the result of untreated or inadequately treated depression or other mental illness that may or may not include substance or alcohol abuse, coupled with knowledge of and access to lethal means. Depression is at least as common in the medical profession as in the general population, affecting an estimated 12% of males and up to 19.5% of females. Depression is even more common in medical students and residents, with 15-30% of them screening positive for depressive symptoms.

The stigma associated with depression in almost all cultures, seems to be greatly magnified among medical practitioners and thus self reporting likely underestimates the prevalence of the disease in medical populations. Though physicians seem to have generally heeded their own advice about avoiding smoking and other common risk factors for early mortality, they are decidedly reluctant to address depression, a significant cause of morbidity and mortality that disproportionately affects them.

Now, coming to our part of the world, where any psychological illness is already stigmatized to the extent of warranting an exorcism, a mental illness afflicting a medical practitioner is something no one ever talks about. In general, a doctor who falls ill himself, is deemed as unfit to treat anyone else. And so, physician suicide is virtually unheard of in our country. Physicians work long hours, and here in Pakistan, they mostly work in deplorable conditions, having to tend to a large number of patients with meagre resources at their disposal. And more often than not, they remain

unable to cater to and save all patients that show up for treatment. At times, these conditions, the feeling of helplessness that most doctors feel at such incidents, chips away at their sanity. And slowly having your sanity, your humanity, your conscience chipped away at leads to depression, which is the most common cause of suicide among physicians. And Physicians are demonstrably poor at recognizing depression in patients, let alone themselves. Furthermore, they are notoriously reluctant to seek treatment for any personal illness. This holds especially true in the case of potential mental illness.

More often than not, colleagues are reluctant to pick up on signs of depression among each other. Over here, let's just go over the few warning signs, we, as physicians, should all be on the lookout for.

1. Talking about or making plans for suicide
2. Expressing hopelessness about the future
3. Displaying severe/overwhelming emotional pain or distress
4. Showing worrisome behavioral cues or marked changes in behavior, particularly in the presence of the warning signs above. Specifically, this includes significant:
 - Withdrawal from or changing in social connections/situations
 - Changes in sleep (increased or decreased)
 - Anger or hostility that seems out of character or out of context
 - Recent increased agitation or irritability

I believe I have gone on long enough now, so as a conclusion, I would like to end this by imploring all healthcare professionals out there to look out for each other, to have each other's backs. We look out for everyone else, but at times when we need it most, we might not have anyone looking out for us, let's try not to let that happen. The next time a colleague tries to reach out to us, why not lend a hand, be there for that person, God knows, that might be the one thing that brings that person back from the dark abyss he might be in. Let us all strive not to be strangers, especially to the physicians, the healthcare professionals around us.

Homicidal Strangulation: The Leading Cause in All Asphyxial Deaths in Allama Iqbal Medical College, Lahore during the Year 2013

Sadaf Nadar¹, Farhat Sultana², Azhar Masud Bhatti³, Pervaiz A. Rana¹, Javed Iqbal Khokhar¹ and Salman Pervaiz Rana¹

ABSTRACT

Objective: The objective of this study was to find out the commonest cause of death in these asphyxial deaths during the period of study and to compare it with other studies previously carried out on this subject.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at Forensic Medicine Department AIMC, Lahore from January 2013 to December 2013.

Materials and Methods: Total medico-legal autopsies were 221. Out of these 32 were the cases of mechanical asphyxial deaths, which were selected for this study. The documents scrutinized for this purpose was, autopsy reports, police papers and hospital charts.

Results: Out of all post-mortems conducted, the mechanical asphyxial deaths were 32 (14.47%). Amongst them the cases of strangulations were the most 16 (50%), next in number were the cases of drowning 8 (25%). There were 6 (18.75%) cases of throttling, and only 2 (6.25%) cases were of hanging. None of them was the case of traumatic asphyxia. In 32 cases of all asphyxial deaths males were 17 (53.12%). Amongst these 16 cases of strangulation the 3rd and 4th decades showed higher incidence. In all asphyxial deaths male (17) and females (15) show almost equal distribution. Strangulation is the most prevalent cause of death in all 32 asphyxial deaths. Almost all strangulation deaths were homicidal and hanging was suicidal. Similarly all throttling cases were homicidal. Ligature strangulation and throttling were the methods used in homicidal manner (50.00%) while hanging was used for suicide (6.25%). In hanging the position of the knot was at occiput in all cases. In ligature strangulation showed the knot on the front in almost all cases.

Conclusion: Amongst all asphyxial deaths the most prevalent cause was strangulation and manner in all was homicidal, it is one of the commonest causes of deaths in our country. So strangulation remains the most preferred method of homicidal asphyxial killings.

Key Words: Asphyxia, Hanging, Ligature Strangulation, Throttling, Drowning, Manner of Death

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INTRODUCTION

The neck is the most important and vulnerable region because it acts as a conduit for important structures, like Carotid vessels, Vertebral vessels, Esophagus and Trachea. Hence it is the important link between Head, Neck and Chest. This region is most susceptible in many injuries to the neck, especially the mechanical compression.

The resultant compression will lead to mechanical asphyxia. The most common means to achieve asphyxia by compression is either by ligature or manual compression. The weight of the body is the main constricting force in hanging¹. Also any direct blow on neck can cause similar damage or arm locks in wrestling Accidental entrapment in ropes can also cause this compression².

Resultant outcome of mechanical compression depends upon the structures involved, individually or in total and their effects. The methods adopted to cause this blockade, the level of constriction and the quantum of force used will change the final outcome.

Only two kg of weight is sufficient to block jugular veins, resulting in blocking the return of blood flow to the heart and manifesting as cyanosis, congestion and petechiae. To block Carotid vessels a weight of 3.5 kg will be sufficient resulting in occlusion of main blood flow to the brain causing cerebral ischemia. A blow or sudden pressure on baro-receptors in carotid bodies will cause sudden cardiac arrest. The airways can either be blocked indirectly by pushing the base of tongue

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upwards and backwards against posterior pharyngeal wall or by direct external pressure. A weight of 15 kg will be required to occlude hard and rigid structures of trachea. The direct compression of the larynx will also cause the fractures of the hyoid and thyroid cartilages^(2, 3, 4, 5, 6).

Every type of constriction to the air passages will cause reduction in air supply causing tissue anoxia manifesting as vascular endothelial damage, capillary dilatation, increasing permeability of blood outwards and ultimate stasis of blood. This patho-physiology will be visible as cyanosis, congestion, petechial hemorrhageedema and serous effusion. The resulted stasis will further cause reduction in circulating blood volume, and hence a viscous cycle is set causing more and more anoxia.

MATERIALS AND METHODS

Data Source: The source of this data was from the 221 medico-legal autopsies conducted during 2013 in the Department of Forensic Medicine & Toxicology Allama Iqbal Medical College, Lahore. The information was collected from autopsy reports, police documents and hospital records. The parameters which were related to asphyxial deaths were focused as, age, gender, types & level of constriction and whether hyoid bone was fractured or not.

Selection Criteria:

Inclusion Criteria: Those cases where the cause of death was by means of mechanical asphyxia were included.

Exclusion Criteria: The cases having other causes than mechanical asphyxia were excluded

RESULTS

Cause of Death: In total 221 medico-legal autopsies which were conducted during 2013 in the Department of Forensic Medicine & Toxicology, Allama Iqbal Medical College, Lahore 32 cases (14.47%) were of mechanical asphyxial deaths. (Table No. 1)

Table No. 1 Causative Agent (221 cases)

	Total	%age
Blunt Means	30	13.57
Sharp Means	19	8.6
Fire-arms	95	43.13
Poisoning	6	2.71
Burns	5	2.26
All Asphyxial Deaths	32	14.47
Electrocution	2	0.64
Natural Deaths	32	14.47
Total No. of Cases	221	100.00

Types of Neck Compression: In our study out of 32 cases of asphyxia, in 16 the death was caused by ligature strangulation (50%), 8 died by drowning

(25%), 6 were throttled (18.75%) and in 2 the cause of death was hanging (6.25%). (Table No. 2) (Fig. No.1)

Table No.2: Types of Neck Compression (220 cases)

Types	No. of Cases	%age
Strangulation	16	50.0
Drowning	8	25.0
Throttling	6	18.75
Hanging	2	6.25
Total	32	100.00

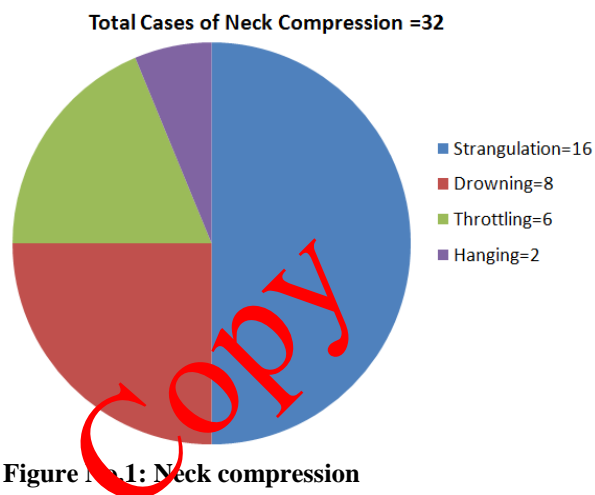


Figure No.1: Neck compression

Table No. 3: Sex Distribution in 32 Cases of Asphyxia

	Type of Asphyxia	Male/%age	Female/%age	%age	Total
1.	Strangulation	7 (21.88%)	9 (28.12%)	50%	16
2.	Drowning	7 (21.88%)	1 (3.12%)	25%	8
3.	Throttling	3 (9.375%)	3 (9.375%)	18.75%	6
4.	Hanging	0 (0%)	2 (6.25%)	6.25%	2
	Total	17 (53.125%)	15 (46.875%)	100%	32

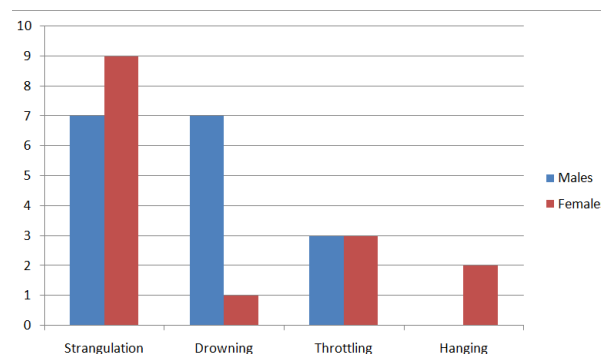


Figure No.2 Sex Distributions of 32 Cases of Asphyxial Deaths

Sex Distribution: The strangulation is equivocal in two genders, 7 males and 9 females. The next higher

number is of drowning 7 in males and only 1 in females showing more exposure of males. The throttling in both sexes in this study had equal in numbers and only 2 females performed hanging. (Table No. 3)

Distribution On Age: In consideration to age the most common age group involved in our study was between 15-25 years. Out of 32 cases, 13 were in this age group (7 of Strangulation, 5 of Drowning and 1 of Throttling). And next to it was the age group of 25-35 years, in which there were 6 cases (4 of Strangulation, 1 of Throttling and 1 of Hanging). The third in number was the age between 35-45 years, having 3 deaths (1 of Strangulation and 2 of Drowning). (Table No. 4)

Table No. 4: Age Distribution in 32 cases

Years	Strangulation	Drowning	Throttling	Hanging	Total
5-15	4	0	4	0	8
15-25	7	5	1	0	13
25-35	4	0	1	1	6
35-45	1	2	0	0	3
45-55	0	1	0	0	1
>55	0	0	0	1	1
Total	16	8	6	2	32

Manner of Death: In all un-natural deaths the manner is homicidal, suicidal or accidental. In this study, out of 32 cases of asphyxial deaths, the homicidal manner was seen in 22 cases which were 68.25% (16 of Strangulation and 6 of Throttling). Suicidal cases were just 2 (6.25%) and accidental manner was seen in 8 cases (25%). (Table No. 5)

Table No. 5: Manner of Death in All Asphyxial Deaths (n=32)

	Homicide	Suicide	Accidental	%age
Strangulation	16	0	0	50%
Throttling	6	0	0	18.75%
Drowning	0	0	8	25%
Hanging	0	2	0	6.25%
Total no. of Cases	22	2	8	
Percentage	68.75%	6.25%	25%	100%

DISCUSSION

Incidence of Death: In our study the asphyxial deaths were 32 out of 221 of total medico-legal autopsies which were carried out at the Department of Forensic Medicine & Toxicology, Allama Iqbal Medical college, Lahore during 2013 with an incidence of 6.9 and 14.47% of all types of deaths.

This incidence in our study is higher than the studies conducted by Rehman et al in 2000 1.6%⁷, Malik SA et al in 1999 1.75%⁸, and by Bashir MZ et al in 2000 1.88%⁹ in asphyxial deaths. In study of Srivastava AK et al in 1987 it was 2.94%¹⁰ of all deaths 24.53% of all asphyxial deaths; in Hussain SM et al in 2008 it was 5%¹¹ of all deaths and 82% of asphyxial deaths, and in

study of Hussain SM 1.17%¹² & Demirci M2009 12.4%¹³ of all and 5.5% of all deaths but lower than that of Azmak D 2006 15.7%¹⁴ in Edirne Turkey.

Type of Neck Compression: In our study the incidence of ligature strangulation is the highest 50.0% (n=16), then is throttling 18.75% (n=6), drowning was 25.0% (n=8) and hanging was 6.25% (n=2). Our study values are showing Ligature strangulation as higher number than hanging in comparison to other studies as, (Hanging 57.0%, Ligature strangulation 21.0%, and Manual throttling 18.0%)⁹ by Bashir MZ et al in 2000, (Hanging 61.17%, Strangulation 21.19% and Manual throttling 17.64%)⁸ in Malik Sa et al 1999, (Hanging & Ligature strangulation 80.70% and Manual throttling 19.30%)⁷ Rehman IU et al in 2000, (Hanging & Ligature strangulation 85.0% and Manual throttling 6.0%)¹⁵ by Sharma BR et al In 2008, (Ligature strangulation 12.40%)¹³ Demirci S, et al in 2008, (Ligature strangulation 19.23%, Manual throttling 46.15%)¹⁰ Srivastava AK et al in 1987, (Hanging 41.80%, Ligature strangulation 2.90% and Manual throttling 2.30%)¹⁴ by Azmak D et al in 2006 (Hanging 69.0%)¹¹ by Hussain MS et al in 2008.

Age Distribution: In all asphyxial deaths (hanging, ligature strangulation, drowning and throttling) the dominant age group in our study is 15-25 (n=13). Next is 5-15 (n=8). And on 3rd number is 25-35 (n=6) in our study. This is quite different from previous studies 57%¹¹, 20-30 age group¹², and average age of 41.9 years¹⁴. In study of Bowen¹⁶ the highest incidence was seen of hanging in 50-59 age groups. In another study of Guarner & Hanzlick¹⁷ average age of 31 years showed highest incidence in USA.

Sex Distribution: In Ligature Strangulation out of total 32 cases of asphyxia, 7 were males (21.88%) and 9 were females (28.12%). Next were cases of drowning, in which 7 were males (21.88%) and 1 was female (3.12%). The cases of throttling were 6, out of them 3 were males (9.375%) and 3 were females (9.375%). Only 2 cases of females were those of hanging (6.25%). While the study of Azmak¹⁴ is showing 83.9% cases were those of males. Bashir MZ⁹ et al shows males 73.07% and females 26.92%.

In Bashir MZ⁹ it is shown that ligature strangulation and throttling 58.9% males and 41.02% females respectively. For Ligature strangulation Azmak D¹⁴ has reported male/female ratio as 1:3 and for throttling as 1:2. 30.77% were males and 69.23% were those of females in study of Srivastava AK¹⁰ indicating higher incidence of females than males.

Manner Of Death: In our study the homicidal manner is higher (22 out of 32: 68.75%) than the study of Bashir MZ⁹ showing 45.05% but is less than of Demirci S¹³ showing 85%.

The suicidal manner is quite low in our study (4 out of 32: 6.25%) than Bashir MZ⁹ showing 45.45% and that

of Azmak D¹⁴; indicating 47%. It is less than of study of Demirci S¹³ showing 15%.

There were eight cases (8 out of 32: 25%) of accidental drowning; Bowen DA¹⁶ reported 5% of accidental auterotic asphyxia.

CONCLUSION

Amongst all asphyxial deaths the most prevalent cause was strangulation and manner in all was homicidal, it is one of the commonest causes of deaths in our country. So strangulation remains the most preferred method of homicidal asphyxial killings.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Knowledge and Practices of Mothers regarding Acute Respiratory Infection having Children Below 5 Years of Age Visiting Pediatric Outpatient Department Bahawal Victoria Hospital Bahawalpur

Aaqib Javed¹, Amna Siddique², and Tahira Iftikhar Kanju³

ABSTRACT

Objective: The aim of study was to assess the knowledge and practices of mothers regarding ARI having children below 5 years of age, attending Pediatric outpatient department, Bahawal Victoria Hospital, Bahawalpur.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted in Pediatric outpatient Department, Bahawal Victoria Hospital, Bahawalpur from 13 May 2016 to 13 June 2016.

Materials and Methods: The data was collected through a pre-formed questionnaire about knowledge of mothers regarding episodes and symptoms of ARI while last portion was about practices of mothers regarding treatment of ARI. Data was entered and analyzed using SPSS 13. All result was presented in percentage and in frequencies.

Results: In this study 100 mothers were included, out of which 10% had poor knowledge, 72% were having satisfactory knowledge while 18% had good knowledge regarding ARI. Out of 100 mothers 23% had poor practices, 36% had satisfactory practices and 41 % had good practices regarding ARI.

Conclusion: The study reveals that most of the mother had satisfactory or good knowledge about ARI. Half of the mothers know all the dangerous symptoms of ARI. However, only half of the mothers had good practices regarding ARI. Utilization of health services was moderate.

Key Words: Mothers; Knowledge; Practices; Symptoms

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INTRODUCTION

Acute respiratory infection (ARI) is the leading cause of death in under 5 children. ARI is an acute infection of any part of respiratory tract and related structures characterized by fever, cough, running nose, sore throat, difficulty in breathing and ear problems.¹ Each child suffers 4-5 attacks a year.² In most children it manifests as a mild disease but in some pneumonia may occur which presents as the main cause of death.³ It is the longest baseline contributor to disability adjusted life years (DALYS).⁴ For majority of the world health status is determined by level of socioeconomic development.

Knowledge, Attitude and practice of mothers play an important role in reduction of mortality in under 5 children. A number of risk factors have contributed to high mortality form of ARI. First is socioeconomic status while second is education especially of mother.³ Other factors like overcrowding, cultural norms and use of antibiotics are also responsible.⁵ According to WHO 63 million children died worldwide in 2013, who were under 5 of age and among them pneumonia was the major silent killer. In Pakistan under 5 years mortality rate was 86/1000 live births in 2013. ARI alone responsible for 17% of deaths among these children.⁶ According to WHO, India has highest estimated absolute number of new cases every year followed by China and Pakistan. South East Asia has the highest incidence of Pneumonia in world.⁷ Incidence of pneumonia is high among developing countries as compared to developed countries. This is due to high prevalence of malnutrition, low birth weight and indoor pollution in developing countries. Scheduling, preventing and treatment of ARI in children require accurate information about knowledge and practices of mothers due to high mortality and morbidity because of ARI in Pakistan, the present study

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aims to evaluate knowledge and practices of mothers regarding ARI. This will ultimately help the policy makers to design the strategies in order to reduce the morbidity and mortality and to achieve the millennium developing goals.

MATERIALS AND METHODS

The data was collected during 3 months from 13 May 2016 to 13 June 2016 in pediatric outdoor Bahawal Victoria Hospital Bahawalpur from the mother coming with child less than 5 Year of age having complaint of cough were including in study. After verbal consent interview was done. The child who were having sick and enough to be admitted in ward and those not giving consultant were excluded from this study. The mother interview was taken by one of the researcher using standard questionnaire including demographic data. The interview was conducting in English, Urdu and with local language regarding to the understanding mother of the child. Data was entered and analyzed using SPSS 13. All result was presented in percentages and in frequencies.

RESULTS

There were 100 mother included in study. The 44 (44%) mothers were between age of 15 to 25 years, 40 (40%) between ages of 26 to 35 years while 16 (16%) were above the age of 35 year. On the Level of the Education among 33 (33%) mothers were literate, 24 (24%) were under Metric, 43 (43) Metric or above. As far the frequency of monthly income among respondents was concerned, 30 (30%) income was less than 10,000 and 45 (45%) income was 10,000 to 20,000 and 25 (25%) mothers income was 25,000. Frequency of episodes of ARI during last 2 months in children observed by the mothers was 7 (7%) having no episodes, 35 (35%) having 1 episodes, 33 (33%) having 2 episodes, 25 (25%) having more than 2 episodes. Frequency of symptoms observed by mothers during last episode in children was 54 (54%) children observed runny nose, 54 (54%) children observed with cough, 16 (16%) observed with vomiting, 8 (8%) children observed with ear discharge, 18 (18%) children observed difficulty in breathing.

Frequency of Symptoms of ARI considered dangerous by mothers in children was 74 (74%) mothers considered Unable to feed as dangerous, 89 (89%) mothers considered Difficult Breathing, 84 (84%) mothers considered Convulsions, and 61 (61%) mothers considered symptoms wheezing considered as dangerous.

The perceived cause of ARI according to Respondents was 40 (40%) mothers considered Exposure to cold is the main cause ARI, 26 (26%) mothers considered intake of Sour/cold Food, 17 (17%) mothers considered due to Germs, 13 (13%) considered Evil Eye and 4(4%) mothers considered after bathing in the cause of ARI.

The 18 (18%) mother used Home Remedies for treatment, 20 (20%) consulted with Hakim / Quack, while 62 (62%) mothers consulted with Doctors or Hospitals. The 36 (36%) mothers used hot liquids for treatment, 42 (42%) use Honey for treatment, 28 (28%) used keep Warm for treatment as home remedies for treatment of ARI. The source of advice for home remedies was 45 (45%) mothers used home remedies as a treatment advised by mother in law, 43 (43%) mothers by themselves, 12 (12%) used advised by their husbands.

The frequency of Allopathic Medicine usage without consultation was 57 (57%) mothers used without consultation while 43 (43%) mothers used with the medicine with consultation. The source of advice for medicine usage was 14 (14%) mothers used by themselves, 24 (24%) used medicine advised by Husbands, 5 (5%) used medicine advised by mother in law. There were 46 (46%) mothers who delayed in taking consultation from doctor, 54 (54%) consulted with doctor without delay time. Reasons for delay in consultation from doctor was 14 (14%) mothers took it as a minor disease, 13 (13%) mothers having no one for a company to go to a doctor, 11 (11%) had lack of time, 10 (10%) mothers could not afford to visit a doctor and 1 (1%) delay was due to some other reasons.

DISCUSSION

Control of ARI is a major public health problem in developing countries. Implementation of cases management protocol requires participation of the community to reduce morbidity and mortality from ARI.

ARI is the leading cause of death in young children in Pakistan responsible for 17% of all deaths under 5 years of age. Globally 4.2 million deaths are estimated to occur in all age groups due to ARI; of these 1.8 million are estimate to occur in a child between 1-59 months. ARI is a major cause of pediatric mortality and morbidity particularly when associated with delays in treatment, thus showing high importance for conducting a survey. Effective ARI health education needs to be based on understanding the prevailing knowledge, beliefs and practices of mothers.⁸

Regarding educational status, our research showed that 33% of mothers were illiterate, 24% had primary education and 43% were matriculate or above. In a similar study conducted in Tehran, Iran in 2014, 56.1% of mothers had secondary school education while 20% had more than high school education⁹.

In our study, 10% of mothers had poor knowledge, 72% satisfactory and 18% had good knowledge. According to similar study conducted in Saudi Arabia in 2013, Knowledge score was found to be poor in 37.8% of mothers, acceptable in 42.8% and good in 19.5% of mothers. Educational level influences that mother's knowledge and practices. Our study showed that knowledge scores were better in mothers who had secondary education or higher education. It is quite

logical as educated others have a better chance to read and know about ARI. These results are similar to those in Saudi Arabia in 2013.¹⁰

Findings of our study demonstrates that middle aged mothers (26-35 years) had more knowledge and had better practice scores than older mothers (> 36 years). This is in contrast to a study conducted in Saudi Arabia in 2013 which indicated a positive correlation between mother's knowledge score and their ages.⁹

Regarding seriousness of disease, our study indicates inability to feed 74%, breathing difficulty 89%, convulsions 84% and wheezing 64%. In a similar study in Rural Nepal in 2013, fast breathing 78%, refuse to feed 39%, fever 78% and chest in drawing 72% was found to be the dangerous symptoms.⁵

Only 17% mothers in our study found germs to be the cause of ARI while rest of them attributed it to causes such intake of sour or cold food, exposure to cold. This shows lack of knowledge of mothers. Similar results were found in Mithi Tharparkar in 2012 where 28% mothers gave the right cause while rest of them gave irrelevant answers.¹¹

Action taken on appearance of disease, our study showed that 18% mothers went for home remedies, 20% consulted a Hakeem/spiritual healer and 62% consulted a doctor. In a study conducted in West Bengal, India in 2013, 70% mothers preferred allopathic medicine while 21.5% chose household remedies.⁴ In a similar study in MithiTharparkar, 36% started home remedies while 64% visited a doctor.¹¹

Preferred home remedies according to our research are Honey 42%, hot liquids 36% and keeping warm 28%. Whereas in study in Rural Nepal in 2013, preferred home remedies were Tulsi Leaf 54%, honey with ginger 18%, saline water gargles 30% and sugar tea 7%.⁵

Our study indicated that 43% mothers used allopathic medicine without consultation of a doctor which leads to development of resistance against pathogenic organisms. Similar study in Rural Nepal inn 2013 reported self-medication by only 7% of mothers.⁵

Our study showed that poor socio-economic status and low levels of education of mothers can also contribute to lack of knowledge regarding ARI. This reflects the need of health education, improving socioeconomic status of people and increasing the literacy rate of mothers in a long term basis.

CONCLUSION

The study reveals that most of the mothers had satisfactory or good knowledge about ARI. Half of the mothers knew all the dangerous symptoms of ARI. However, only half of the mothers had good practice regarding ARI. Utilization of health services was moderate. Different interventions like health education sessions, media campaign, and motivation through LHWs, Banners, and different NGOs etc. are required.

These can further improve knowledge, attitude & especially practice of mothers which can contribute in reducing Child Mortality Rate due to ARI.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Comparison of Active & Conservative Management of Post-Term Pregnancy: A Quasi- Experimental Study

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ABSTRACT

Objective: To compare the maternal and perinatal outcomes of prolonged pregnancy between active and conservative group.

Study Design: Quasi experimental study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics / Gynaecology Unit-1, Mother and Child Health Centre, Pakistan Institute of Medical Sciences, Islamabad from March 2003 to Feb. 2004.

Materials and Methods: There were one hundred cases, fifty in each group with a technique of convenient sampling. Women with uncomplicated pregnancies at ≥ 41 weeks & ≤ 43 weeks were included, excluding the women with obstetrical and medical risks. Women were divided into active and conservative groups. Active group was induced with PGE₂ (Prostaglandin-E₂) and conservative group had follow ups twice weekly till 43 weeks. Pregnancy was intervened during this period if CTG (cardiotocogram) was abnormal, BPP (biophysical profile) was 6/8 with AFI (amniotic fluid index) ≤ 5 and/or woman complained of decreased fetal movements. Maternal outcome measures included duration of labor and mode of delivery and fetal/neonatal outcome measures included intra-partum fetal distress, one and five minutes Apgar score and NICU (neonatal intensive care unit) admissions.

Results: Comparison of both groups management showed that mean duration of labour in active group was prolonged than that of conservative group ($p=0.001$). Interventional deliveries rate was high in active group than conservative group with p value significant statistically. Comparison of intra-partum fetal distress, neonatal morbidity including 1 minute, 5 minute Apgar score and admissions to NICU in both groups was not statistically significant. There was no perinatal mortality in both groups.

Conclusion: Active management of prolonged pregnancy increases the maternal morbidity without improving perinatal outcome.

Key-Words: Prolonged pregnancy, Post-term pregnancy, Postdate pregnancy.

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INTRODUCTION

Post-term pregnancy is defined as a pregnancy that extends to 42 0/7 weeks and beyond¹. The reported frequency of post-term pregnancy is approximately 3-12%². Most frequent cause of a post-term pregnancy diagnosis is inaccurate dating³. Risk factors for actual post-term pregnancy are prior post-term pregnancy, primiparity, male gender of the fetus, and genetic factors⁴.

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Ballantyne for first time in 1902 described post-term pregnancy⁵. Because of global and frequent use of antenatal testing, post term pregnancy got prominence in the last ten years as a probable high-risk condition. Post term pregnancy is labeled as high risk condition as a result of the inability to find the appropriate sensitive antenatal tests rather than from the acceptance of its truly life threatening condition for some fetuses. This is further strengthened by review of publications that state, perinatal mortality is the same among prolonged and term gestations. Management of post term pregnancy is one of the most common clinical dilemmas that obstetricians face. The two methods of management of prolonged pregnancy have advantages and disadvantages. So which method of management to be selected is a question?⁶ The complications of induction include, high rate of operative vaginal delivery, prolonged labor, uterine rupture, uterine hyper stimulation, epidural analgesia, , failed induction, water intoxication, cord prolapse and low Apgar score at 1 & 10 minutes⁷.

Expectant management can result in maternal and neonatal complications, e.g. it increases the chance of operative delivery and can lead to problem of decreased

liquor, meconium aspiration, intra-partum asphyxia, stillbirths and neonatal deaths^{8,9}.

Development of several methods for the assessment of fetal well-being has allowed the obstetricians to consider expectant management. Best way is to assess the fetal well-being by using fetal monitoring modalities. If there is no evidence of fetal compromise, wait for spontaneous labour. In case of fetal compromise intervention can be done in form of induction of labour¹⁰.

MCH center is a tertiary care center where facilities for antepartum fetal surveillance like CTG and Ultrasound based Biophysical profile are available and most of the patients visiting this hospital are well educated and sensible enough to keep record of fetal movements at home. Therefore, at our center conservative management is feasible and possibly can be compared with the active management of such patients. This study was undertaken to compare the maternal and perinatal outcome between active and conservative group in the management of prolonged pregnancy.

MATERIALS AND METHODS

All the women with uncomplicated singleton pregnancies and gestational age of ≥ 41 weeks and ≤ 43 weeks were considered for the study. The gestational age was calculated by last menstrual period, (provided patient was sure of her dates and with regular cycles) urine pregnancy test, or by first or second trimester ultrasound (if patient was unsure of her dates, irregular cycles, lactational amenorrhoea or patient was on oral contraceptive pills). If first or second trimester ultrasound was not available and patient was not sure of her dates, she was excluded from the study. After confirming the gestational age, women were evaluated for other medical and obstetrical risks. Ultrasound based BPP and CTG were done. The women were recruited in the study if their BPP score was 8/8 or 6/8 with normal liquor and CTG was reactive, after taking their written informed consent. We also explained to them the pros and cons of both methods of management and about follow up visits twice weekly to those, in the conservative arm of the study. Women were divided into active and conservative groups.

Active group (group-1): Women of active group were admitted in the antenatal ward and induced with Prostaglandin- E_2 , irrespective of bishop score, at 12.00 mid night in high dependency area adjacent to labour ward (a separate set up for high risk cases). Single inducing agent was used in all women, as different inducing agents have different efficacies. Maximum three tablets were used to induce the labour. In case of failure, second mode of induction (extra amniotic saline infusion with Syntocinon) was used. If still labour could not be induced, induction was labelled failed and Caesarean section was performed.

Conservative group (group 2): Women of conservative group had follow up twice weekly and on each visit had ultrasound based biophysical profile, CTG, and bishop score till 43 weeks, provided they did not go into spontaneous labor themselves. They were directed to keep record of fetal movements at home and advised to report to the hospital if they had decreased movements (less than 10 movements in 12 hours). Pregnancy was intervened during this period if CTG was abnormal, BPP was 6/8 with AFI ≤ 5 and woman complained of decreased fetal movements.

RESULTS

Total of 100 cases (50 in each group) of low risk pregnancies, fulfilling the study criteria were recruited in the study. All the patients regularly paid visits to the hospital and there was no loss to follow up case. Both groups were successfully matched in age, parity, height and weight to rule out confounding factors (Table 1). Mean duration of labor in active group was more than conservative group with p value equal to 0.0001 (Table 2).

Table No.1: Comparison of maternal demographic characteristics

Variable		Active group n=50	Conservative group n=50	P-value
Age (YEAR \pm SD)		27.4 \pm 4.9	27.6 \pm 4.8	0.838
• Primi		22.8 \pm 2.42	22.7 \pm 2.5	
• Multi		30.9 \pm 3.06	30.8 \pm 3.04	
Height (CM \pm SD)		162 \pm 4.8	161 \pm 4.9	0.6
Weight (KG \pm SD)		62 \pm 8.1	63 \pm 8.2	0.75
Parity (%)	Primi	42	42	1
	Multi	58	58	1

Table No.2: Comparison of maternal outcome.

Maternal outcome		Active group n= 50	Conservative group n=50	P-value
Duration of Labour	All patients	9.02 \pm 1.87	5.45 \pm 1.61	0.001
	Primipara	10.47 \pm 1.33	7.03 \pm .83	0.001
	Multipara	8.04 \pm 1.51	4.44 \pm 1.05	0.001
Mode of Delivery	SVD	33	42	0.03
	C- section	12	7	0.03
	Instrumental Delivery	5	1	0.03

Interventional deliveries (instrumental deliveries and C-section) rate was high in active group than in conservative group (Table2). Intra-partum fetal distress monitored by CTG and color of liquor was not much different between two groups (Table 3). One minute and five minute Apgar score was same between the two groups with non-significant p values of .631 and .534, respectively (Figure1&2). Neonate's admissions to

NICU were 12.2% (6) in active group and 16.3% (8) in conservative group and difference is not significant statistically (Table 3). No perinatal mortality was observed between two groups.

Table No.3: Comparison of perinatal outcome

Perinatal outcome		Active group n=50	Conservative group n=50	P-value
Intrapartum CTG	Reactive	43	42	0.94
	Non-reactive	4	5	0.90
	Pathological	3	3	0.94
Intrapartum Meconium Staining of Liquor	No	42	39	0.77
	Grade-I	3	6	0.74
	Grade-II	3	3	0.71
	Grade-III	2	2	0.74
Neonatal Admission to NICU	No	43	41	0.56
	Yes	7	9	0.54

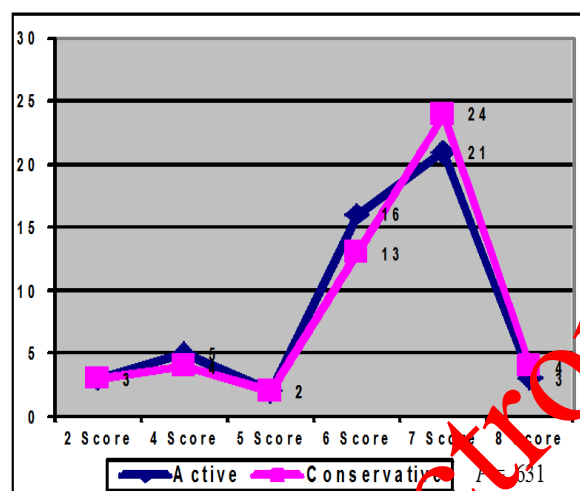


Figure No.1: Comparison of one minute apgar score

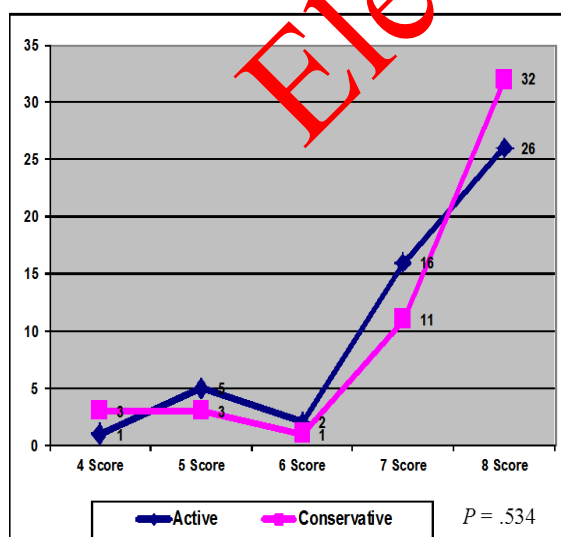


Figure No.2: Comparison of five minute apgar score

DISCUSSION

The two methods of management of prolonged pregnancy, active and conservative management have pros and cons. The correct choice of management remains controversial. Major studies to resolve these questions have been done in many parts of the world. Hannah et.al, concluded that labour induction in management of post-term pregnancy results in better outcome as it results in lower cesarean section rate¹¹. Randomized trial of induction versus conservative management conducted by Maternal-Fetal Medicine Network has supported the validity of either management option¹². A large review of births in United States of America stated that routine induction of labor at forty-one weeks is likely to increase labour complications and operative delivery without significantly improving the neonatal outcome¹³.

To unravel this question we did a prospective study of 100 cases (50 each group) comparing two management options with a hypothesis that conservative approach will decrease the maternal morbidity without increasing the perinatal/neonatal morbidity/mortality.

In our study mean duration of labour in active group (9.02 ± 1.87) was more than conservative group and difference was statistically significant. The rate of interventional deliveries (caesarean section and instrumental delivery) was high in active group as compared to conservative group and this difference was also significant statistically, as evident from the p value 0.03.

Alexander JM et.al & Thorsell M et.al also concluded that there is an increased chance of labor complications (increased duration of labor and operative deliveries) by routine induction at 41 weeks^{13,14}. James C et.al. reported, Caesarean section and instrumental delivery rate do not differ significantly between two groups¹⁵. The data reported by Hermus MA and colleagues and one recent systemic review however showed different results stating that induction group has lower caesarean section rate than observed group^{16, 17}. A recent study concluded that induction of labour in obese women with post-term pregnancy is a safe management option and a reasonable way of avoiding caesarean section¹⁸.

In our study, the difference between the two groups was not significant statistically as far as intra-partum fetal distress, 1 min & 5 min Apgar score and admission to NICU were concerned. Sanchez RL et.al. also reported that no significant differences were observed for NICU admission rates, meconium aspiration, meconium below the vocal cords, or abnormal Apgar scores between two groups¹⁹. Opposite results are reported in systemic review with meta-analysis. It states that a policy of elective IOL for pregnancies at or beyond 41 weeks results insignificantly fewer perinatal deaths (RR=0.31; 95% CI: 0.11-0.88) and significant decrease in incidence of neonatal morbidity from meconium

aspiration (RR = 0.43, 95% CI 0.23-0.79) and macrosomia. (RR = 0.72; 95% CI: 0.54 – 0.98) compared to expectant management. So it concluded that induction of labour is a good option for reducing perinatal morbidity and mortality associated with post-term pregnancies. It should be offered to women with post-term pregnancies after informing them about advantages and disadvantages of induction of labor²⁰.

A Cochrane review of 19 RCTs found that routine labor induction at 41 weeks' gestation resulted in lower perinatal mortality rates but similar cesarean delivery rates. But to avoid or prevent one perinatal death about 500 women were needed to be induced and the number may be higher in current-day practice²¹. In a more recent meta-analysis of 16 RCTs comparing induction at 41 weeks versus conservative management, the induction group had lower cesarean section rates. A non-significant reduction in perinatal mortality rates also was recorded in the induction group. About 6,600 women were entered in this meta-analysis and to find a 50 percent reduction in mortality about 16,000 were required. No significant difference was found in neonatal intensive care unit admissions, meconium aspiration, meconium below the vocal cords, or low Apgar scores¹⁹.

All schools of thought do not agree with routine intervention in prolonged pregnancies. A commentary which was based on a re-analysis of CMPPT data argues strongly against the SOGC guidelines. It describes that the risks of post-term pregnancies are very small and that the benefits of policy of routine labor induction were overestimated because of cesarean deliveries resulting from fetal distress²². While studies consistently demonstrate a rise in morbidity and mortality rate with advancing age, perinatal deaths are rare and actual risk of either mortality or morbidity remain small. Further research is needed to assess more accurately those fetuses, which are really at risk. Currently new methods of evaluation are being analyzed. Doppler flow studies of post term fetuses have been evaluated to identify fetuses at risk. In addition, fetal echocardiography is an area that might further delineate fetuses with considerable risk for perinatal morbidity and mortality. With this new technology, it is hoped that significant morbidity and mortality in post-term gestation can be reduced considerably.

CONCLUSION

Active management of prolonged pregnancy increases the maternal morbidity without improving perinatal outcome.

Recommendation: Further research is needed to assess more accurately those fetuses, which are really at risk. Currently new methods of evaluation are being analyzed. Doppler flow studies of post term fetuses have been evaluated to identify fetuses at risk. In

addition, fetal echocardiography is an area that might further delineate fetuses with considerable risk for perinatal morbidity and mortality. With the use of this new technology, morbidity and mortality associated with post-term pregnancy can be reduced significantly.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Predisposing Factors Associated with Longer Hospital Stay in Children Less Than 5 Years of Age with Severe Lower Respiratory Tract Infection

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ABSTRACT

Objective: To determine the predisposing risk factors associated with longer duration of hospitalisation of children aged 2-59 months with severe Lower respiratory tract infection (LRTI).

Study Design: Observational / descriptive / cross sectional study

Place and Duration of Study: This study was carried out in the Children Hospital, Islamabad from October 2011 to March 2014.

Materials and Methods: We enrolled 606 children aged 2-59 months with severe LRTI and at enrolment, complete history of present illness, physical examination, and necessary laboratory investigations were done. Enrolled children were managed according to the hospital's standard protocols. Multivariate logistic regression analyses was conducted to determine the independent factors associated with longer duration of hospitalisation.

Results: The mean (sd) age of children was 7.45 (8.41) months and 63% were male. Of 606 children, 241 (40%) had longer hospital stay (>3 days). Children whose mothers used biomass energy as fuel for cooking at home (AOR 3.63, $p<0.0001$), children who had history of vomiting (AOR 1.74, $p=0.014$), and duration of illness before presenting to hospital was >7 days (AOR 1.90, $p=0.040$), were unvaccinated (AOR 2.54, $p=0.001$), had lower mean serum calcium levels (AOR 0.08, $p<0.0001$), had positive CRP (AOR 4.57, $p<0.0001$), were severely anaemic (AOR 6.28, $p=0.017$) or were underweight (AOR 1.64, $p=0.013$) had significantly longer hospitalisation compared to their counterparts.

Conclusion: The current study identified independent risk factors which lead to longer hospitalisation in children aged 2-59 months with severe LRTI. Findings of the current study would help paediatricians for better management of severe LRTI in under 5 children.

Key Words: Lower respiratory tract infection, Hospitalisation, Predisposing factors, Child, Biomass energy

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INTRODUCTION

Almost half of the annual 6.2 million under-five deaths occur in five countries including Pakistan¹. The current under-five mortality rate in Pakistan is 89/1,000 livebirths². Most of the under-five deaths (64%) are contributed to the infectious diseases including lower respiratory tract infection (LRTI)³, which is the number one killer of under-five³. The disease burden is present in younger age as 81% of deaths attributed by LRTI is in children <2 years⁴.

Further, childhood LRTI is the major reason for hospitalization in developing countries⁴. The management of LRTI primarily consists in eradicating the organism. Empirical antibiotic treatment given is based on the pathogens that commonly cause LRTI. There is a need for early identification of children with severe LRTI who are at high risk for longer hospitalisation for aggressive management. We conducted this study to determine the predisposing factors resulting in longer hospitalisation in children aged 2-59 months with severe LRTI.

MATERIALS AND METHODS

We conducted a prospective cohort study at the Children Hospital, Pakistan Institute of Medical Sciences (PIMS), Islamabad Pakistan. Children with LRTI were screened to be enrolled at the time of admission. Children with LRTI were ranked from mild to severe LRTI based on the clinical score system⁵ as given in Table 1. Based on clinical severity score, the disease severity can be divided into the following ranks: 0-4.9 points, mild; 5-8.9 points, moderate; and 9-12 points, severe disease. We included children aged 2-59

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months diagnosed to have severe LRTI. Children who had LRTI with congenital heart disease, cerebral palsy, chromosomal defects (Down's syndrome), Edward's syndrome, spinal muscular atrophy or storage disorder were not included. We calculated the data between October 2011 and March 2014.

Ethics: We obtained informed verbal consent from parents/care givers of each child enrolled in the study. The study protocol was approved by the Hospital Ethics Committee, PIMS Islamabad.

Data collection procedure: We screened all children with LRTI based on clinical severity score. We counted the respiratory rate for a minute twice, within 5 minutes when the child was quiet, feeding or asleep. We considered the average value of two readings for each child. Each child was evaluated for audible and auscultatory wheeze, and the general condition at the time of enrolment. In case of wheezing, we provided inhaled salbutamol and reassessed the child after up to three cycles of bronchodilator therapy, which were repeated (if necessary) at 20 minute interval⁶; and often given injectible steroids. We calculated the clinical severity score again and a child whose score was decreased from severe LRTI to moderate LRTI was then discharged from the hospital with oral antibiotics and/or salbutamol. Those children who had severe LRTI even after inhalation, were enrolled in the current study.

We gathered and reported the information about demographic features, vaccination status, feeding pattern, family history of asthma, and a complete history of current illness at the time of enrolment. We recorded the actual temperature and the anthropometric measurements using the standard technique from each enrolled child. We weighed children aged <2 years with minimum clothing using a digital baby scale with a 16 kg capacity and a sensitivity of 10 grams. We measured their lengths in decubitus dorsal on a flat surface with an anthropometric rule scaled in centimetres up to a maximum of 1 millimetre. We weighed children aged ≥ 2 years with a minimum of clothing using an adult scale accurate to 100 grams. We measured the height of the children while standing upright against a vertical rule with a metric scale, reading up to 150 centimetres, marked off in centimetres and fixed to the wall⁷. We assessed the nutritional status by means of z-scores for weight/age, stature/age and weight/stature, taking as reference standard the percentile curves published by the NCHS (National Centre for Health Statistics). The nutritional status was categorised based on World Health Organization criteria as stunting (< -2 height-for-age z-score), wasting (< -2 weight-for-height z-score) and underweight (< -2 weight-for-age z-score)⁸.

We obtained a blood sample for full blood count, C reactive protein (CRP) and serum calcium concentrations and sent to the Department of Pathology for analysis. We managed all children based on the hospital's standard protocols. To summarised, all the enrolled children were kept nil by mouth and we

provided them intravenous rehydration. We also given them oxygen inhalation through nasal prongs. In addition, we also provided them inhaled salbutamol at 6-8 hourly intervals, if necessary. We also provided first line injectible antibiotics - Ampicillin and Amikacin at 8-12 hourly intervalsto all the enrolled children and then we followed up them at 12 hourly intervals till the time of discharge. At the time of follow up, we calculated the clinical severity score of each child and noted on the performa. We decided to discharge a child from hospital with oral medication when clinical severity scores was reduced to < 9 (moderate to mild disease). At the day of discharge we calculated the days of hospitalisation of child.

Potential risk factors and study outcome: The potential factors assessed for duration of hospitalisation were: age and gender, socio-economic status (middle class monthly income $> \text{Rs. } 6000$, lower class monthly income $\leq \text{Rs. } 6000$), history of fever, cough, difficult breathing, poor feeding, vomiting, fits, duration of present illness (in days), vaccination till date (fully vaccinated, partially vaccinated, unvaccinated), feeding practices (exclusive breastfeeding < 6 months of age, non-exclusive breastfeeding < 6 months of age, any feeding after 6 months of age), family history of asthma, presence of wheeze, lethargy, respiratory rate (breaths/min), actual temperature (in $^{\circ}\text{F}$), nutritional status of a child (underweight < -2 WAZ, stunting < -2 HAZ, and wasting < -2 WHZ), CRP, serum calcium concentrations, and anaemic condition of a child based on WHO criteria as child whose serum haemoglobin level was ≥ 11 g/dl was categorised as no anaemia; whose serum haemoglobin level was 10-10.9 g/dl was classified as mild anaemia; whose serum haemoglobin level was 7-9.9 g/dl was classified as moderate anaemia; and whose serum haemoglobin level was < 7 mg/dl was classified as severe anaemia⁹.

The outcome measures were duration of hospitalisation categorised as shorter hospital stay if a child was discharged within 3 days of admission and longer hospital stay if a child was discharged after 3 days of admission, based on clinical severity score.

Sample size and statistical analysis: We used the standard formula for single proportion (10) to calculated the sample size. We assumed 10% prevalence of children aged 2-59 months with severe LRTI would be admitted at the Children Hospital (based on annual hospital admission data) and considered that absolute precision at 2.4%, and with 95% confidence level, the required sample size was 600 children aged 2-59 months with severe LRTI.

We used STATA 13.1 (Stata-Corp, College Station, TX, USA) software to analyse the data. For categorical variables we calculated frequencies and percentages. For continuous variables we calculated the mean (\pm Standard deviation) with median (interquartile range). To identify predisposing factors resulting in

longer hospitalisation, logistic regression was performed. First, univariate or bi-variate regression analyses to identified potential risk factors was performed. Later, multivariate logistic model by considering all variables, which showed p value of <0.2 at univariate analyses, was constructed using a backward elimination technique. We presented results as adjusted odds ratio (OR), 95% confidence interval (CI) and p-value. The significant level was considered at 5%.

RESULTS

Trial profile: During the study period, a total of 11,713 children presenting with respiratory tract infection visited the hospital and of those, 888 (7.6%) children were diagnosed to have LRTI and were admitted. Out of 888, 606 (68.2%) children aged 2-59 months had severe LRTI. Of 606 children with severe LRTI, 365 (60%) children had shorter hospitalisation (≤ 3 days) while 241 (40%) had longer hospitalisation (> 3 days).

Table No.1: Description of clinical severity score used in the current study

Sign/symptoms	0 point	1 point	2 points	3 points
Respiratory rate (breaths/min)	<30	31-45	46-60	>60
Wheezing	None	Terminal expiratory or heard only with a stethoscope	Entire expiration or audible on expiration without a stethoscope	Inspiration and expiration without a stethoscope
Retractions	None	Subcostal	Intercostal or tracheosternal	Severe with nasal flaring
General condition	Normal		Irritable	Lethargic, poor feeding

Baseline characteristics: The baseline characteristics of children aged 2-59 months had severe LRTI and outcome measures are presented in Table 2. The mean (sd) age of children was 7.45 (8.41) months with an interquartile range of 2 to 9 months. The mean (sd) duration of illness before presentation was 4.39 (3.48) days with an interquartile range of 2 to 5 days. Substantial majority of children were fully vaccinated (79.9%). On examination, 157 (25.9%) had wheeze (either audible or auscultatory), and 34 (5.6%) had signs and symptoms suggestive of rickets. The mean (sd) respiratory rate was 63.0 (9.14) breaths per minute and mean (sd) temperature at the time of enrolment was 99.0 (5.86)⁰F. The mean (sd) serum calcium concentrations was 1.12 (0.21). Ninety seven (16%) children had positive CRP and 405 (66.8%) children were anaemic. The nutritional status of children showed that the mean (sd) values of WAZ, HAZ and WHZ were -1.42 (1.66), -1.53 (2.00) and -1.18 (1.79), respectively. Of 606, 213 (35.2%), 217 (35.8%) and 69 (11.4%) children were underweight, stunted and wasted, respectively. The mean (sd) duration of hospitalisation was 4.19 (3.44) days with interquartile

range of 2 to 5 days. Out of 606, 365 (60%) children had shorter hospitalisation (≤ 3 days), whereas, 241 (40%) children had longer hospitalisation (> 3 days).

Table No.2: Baseline characteristics and outcome measures of children age 2-59 months with severe LRTI (n=606)

Variables	n (%)
Age categories	
2 to 5 months	408 (67.3)
6 to 11 months	95 (15.7)
12 to 59 months	103 (17.0)
Gender	
Male	379 (62.5)
Female	227 (37.5)
Fuel used for cooking at home	
Natural gas/ electricity/ LPG	417 (68.8)
Biomass energy	184 (30.4)
Missing	5 (0.8%)
Vomiting	
No	472 (77.9)
Yes	134 (22.1)
Duration of symptom categories (in days)	
Upto 7 days	547 (90.3)
>7 days	59 (9.7)
Vaccination status	
Fully vaccinated	484 (79.9)
Partially vaccinated	51 (8.4)
Unvaccinated	70 (11.5)
Missing	1 (0.2%)
Wheezing	
No	449 (74.1)
Yes	157 (25.9)
Signs and symptoms suggestive of rickets	
No	572 (94.4%)
Yes	34 (5.6%)
Serum calcium levels	
Mean (SD)	1.12 (0.21)
Median (IQR)	(0.58 – 1.25)
C-reactive protein	
Negative	509 (84.0%)
Positive	97 (16.0%)
Anaemic status	
No anaemia	201 (33.2)
Mild anaemia	162 (26.7)
Moderate anaemia	231 (38.1)
Severe anaemia	12 (2.0)
Underweight (WAZ <-2)	
No	393 (64.8)
Yes	213 (35.2)
Stunting (HAZ <-2)	
No	389 (64.2)
Yes	217 (35.8)
Wasting (WHZ <-2)	
No	537 (88.6)
Yes	69 (11.4)

HAZ: Height for age Z-score. LRTI: Lower respiratory tract infection. SD: Standard deviation. WAZ: Weight for age Z-score. WHZ: Weight for height Z-score

Table No.3: Predisposing factors associated with longer hospital stay in children <5 years of age with severe lower respiratory tract infection: findings of univariate and multivariate regression analyses (n=606)

Variable	Shorter stay (≤3 days)	Longer stay (>3 days)	Unadjusted		Adjusted	
	n (%)	n (%)	OR (95% CI)	p	OR (95% CI)	p
Fuel used for cooking at home						
Natural gas/ electricity/ LPG	266 (72.9)	151 (62.7)	1.00 (reference)		1.00 (reference)	
Biomass energy	94 (25.8)	90 (37.3)	1.69 (1.19, 2.40)	0.003	3.63 (2.29, 5.76)	<0.0001
Vomiting						
No	296 (81.1)	176 (73.0)	1.00 (reference)		1.00 (reference)	
Yes	69 (18.9)	65 (27.0)	1.58 (1.08, 2.33)	0.020	1.74 (1.12, 2.71)	0.014
Duration of symptoms categories (in days)						
Upto 7 days	337 (92.3)	210 (87.1)	1.00 (reference)		1.00 (reference)	
>7 days	28 (7.7)	31 (12.9)	1.78 (1.04, 3.05)	0.037	1.90 (1.04, 3.49)	0.040
Vaccination status						
Fully vaccinated	305 (83.6)	179 (74.3)	1.00 (reference)		1.00 (reference)	
Partially vaccinated	33 (9.0)	18 (7.5)	0.92 (0.51, 1.70)	0.812	1.48 (0.73, 2.99)	0.268
Unvaccinated	26 (7.1)	44 (18.3)	2.88 (1.72, 4.84)	<0.001	2.54 (1.43, 4.49)	0.001
Serum calcium levels						
Mean (SD)	1.17 (0.23)	1.06 (0.15)		<0.001	0.08 (0.03, 0.22)	<0.0001
C-reactive protein						
Negative	329 (90.1)	180 (74.7)	1.00 (reference)		1.00 (reference)	
Positive	36 (9.9)	61 (25.3)	3.10 (1.97, 4.85)	<0.001	4.67 (2.79, 7.83)	<0.0001
Anaemic status						
No anaemia	105 (29.9)	92 (38.2)	1.00 (reference)		1.00 (reference)	
Mild anaemia	105 (28.8)	57 (23.6)	0.64 (0.42, 0.98)	0.042	0.67 (0.41, 1.08)	0.099
Moderate anaemia	148 (40.5)	83 (34.4)	0.66 (0.45, 0.98)	0.038	0.75 (0.48, 1.15)	0.185
Severe anaemia	3 (0.8)	9 (3.7)	3.55 (0.94, 13.5)	0.063	6.28 (1.39, 28.3)	0.017
Underweight (WAZ <-2)						
No	250 (68.5)	143 (59.3)	1.00 (reference)		1.00 (reference)	
Yes	115 (31.5)	98 (40.7)	1.49 (1.06, 2.09)	0.021	1.64 (1.11, 2.42)	0.013

CI: Confidence interval. OR: Odds ratio. NS: Non-significant. Adjusted for all baseline characteristics

Univariate and Multivariate analysis: Table 3 presents the findings of uni-and multi-variate analyses of comparison of baseline characteristics of children aged 2-59 months with severe LRTI between shorter and longer hospitalisation. Our multivariate analysis showed that children whose mother used biomass energy as fuel for cooking at home (AOR 3.63, 95%CI 2.29, 5.76, $p<0.0001$), who had history of vomiting (AOR 1.74, 95%CI 1.12, 2.71, $p=0.014$), had duration of current illness for <7 days (AOR 1.90, 95%CI 1.04,

3.49, $p=0.040$), were unvaccinated (AOR 2.54, 95%CI 1.43, 4.49, $p=0.001$), had lower mean serum calcium levels (AOR 0.08, 95%CI 0.03, 0.22, $p<0.0001$), had positive CRP (AOR 4.67, 95%CI 2.79, 7.83, $p<0.0001$), were severely anaemic (AOR 6.28, 95%CI 1.39, 28.3, $p=0.017$) or were underweight (AOR 1.64, 95%CI 1.11, 2.42, $p=0.013$) at the time of enrolment had significantly longer hospital stay compared to their counterparts without these factors after adjusted for other baseline characteristics.

DISCUSSION

LRTI is one of the major killer of under-five³ and it is one of the major contributor for paediatric hospitalisation in developing countries⁴. The current study was conducted to determine the predisposing factors contributing to longer hospitalisation in children aged 2-59 months with severe LRTI. The findings of the current study are important for paediatricians in our local areas for the better management of the children with severe LRTI. These findings are comparable with other studies as well.

In the current study, children aged 2-59 months with severe LRTI, whose mother used biomass energy as fuel for cooking at home had 3.6 times significantly higher odds of longer hospitalisation than those whose mother used natural gas for cooking. Burning biomass fuels and coal in simple stoves with inadequate ventilation result in indoor air pollution, which is responsible for more than 1.6 million deaths annually and 2.7% of the global burden of disease¹¹. A study from Ethiopia reported a significantly higher odds (AOR 2.97, 95% CI 1.38, 3.87) of prevalence of LRTI in children whose mother used biomass energy for cooking compared to those whose mother used clean fuels¹². The biomass fuel could increase the incidence of LRTI by adversely affecting specific and nonspecific host defences of respiratory tract against pathogens¹³.

At the same time, severely anaemic children aged 2-59 months with severe LRTI in our study had significantly higher odds of longer hospitalisation than those without anaemia. Severe anaemia is one of the predictor of mortality in hospitalised children with severe LRTI¹⁴. The odds of longer hospitalisation was significantly lower in children aged 2-59 months with severe LRTI who had higher serum calcium levels compared to those who had lower serum calcium levels. Deficiency of calcium is one of the predictor of LRTI in Ethiopian children <5 years of age¹⁵. A study from Karachi found that 74% of children admitted with LRTI had nutritional rickets¹⁶.

In the present study children aged 2-59 months with severe LRTI who had positive CRP had 4.7 times higher odds of longer hospitalisation than those with negative CRP. Meta-analysis of eight studies found that children with LRTI who had bacterial infection had 2.6 times higher odds of positive serum CRP concentrations than children with nonbacterial infections¹⁷. Differentiating bacterial from nonbacterial pneumonia in children is a major clinical challenge because of the difficulty in obtaining adequate samples for culture and the lack of reliable diagnostic methods for differentiating infection from colonization¹⁸.

The study shows that underweight children aged 2-59 months with severe LRTI had 1.6 times higher odds of longer hospitalisation compared to those with normal weight. Severe malnutrition increases the risk of mortality in children with severe LRTI¹⁶. It is one of the important risk factor for treatment failure after 48 hours

among Kenyan and Indian children with severe LRTI¹⁹. It is reported that 52% of childhood deaths as a result of pneumonia are attributable to under nutrition²⁰.

It was found that children aged 2-59 months with severe LRTI who had duration of illness >7 days had 1.9 times significantly higher chances of longer hospitalisation than those who had ≤7 days of duration of present illness. Delay (between 3 and 7 days) in seeking medical treatment at a health facility is one of the major risk factor for severe LRTI in children, evident from reports from Kenya²¹ and Uganda²². The progress of LRTI is rapid and delayed treatment can lead to increased disease severity and even death.

Children aged 2-59 months with severe LRTI who had history of vomiting stayed at hospital for longer duration than children who did not have vomiting. Several studies from Pakistan have reported history of vomiting as one of the risk factor for treatment failure in children with LRTI^{23,24}.

We found that the odds of children aged 2-59 months with severe LRTI who were unvaccinated was 2.5 times higher odds for longer hospitalisation compared to those who were fully vaccinated. A study from Indian found that children who were unvaccinated (primary measles) 2.6 times higher adjusted odds of longer hospital stay (>48 hours)²⁵.

The strengths of present study are that, firstly the current study was conducted in a tertiary care hospital which covers a wide geographic area. Secondly, an appropriate sample size was collected over the period of three years. Thirdly, multivariate logistic regression analysis was conducted and adjusted for several potential confounding factors to obtain the independent factors leading to longer hospital stay. However, one of the major limitation of the current study was enrolment of children during ARI season (that is between October and March), hence, no seasonal variation was considered during analysis.

CONCLUSIONS

The current study findings show that children aged 2-59 months whose mother used biomass energy as fuel for cooking at home, children with history of vomiting, were unvaccinated, were delayed in seeking treatment at a health facility, had lower mean serum calcium levels, had positive CRP, were severely anaemic or were underweight had significantly longer hospitalisation compared to their counterparts without these factors. These findings are important for the paediatricians of the local area, as they define a high risk group for delayed treatment response and hence resulting in longer hospitalisation. Further, there is a need to develop and implement preventive strategies such as elimination of indoor air pollution, universal coverage of vaccination and improving the nutrition status of the children to reduce the burden of disease in Pakistan. Appropriate selection of these high risk group

children with LRTI for early admission and providing them better management will reduce the mortality.

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Evaluate the Effect of Mirabilis Jalapa Linn. Seeds on Liver Function Tests of Healthy Rabbits

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and Reeta Rani Maheshwari⁴

ABSTRACT

Objective: To observe the effect of Mirabilis Jalapa seeds on Liver function tests of Rabbit.

Study Design: Experimental study.

Place and Duration of Study: This study was carried out in the Department of Pharmacology and Therapeutics, Baqai Medical College/ University for a period of 2 months from 1.10.2011 to 30.11.2011.

Materials and Methods: For this study twenty seven rabbits of either sex were selected and divided in three groups, control group, low dose group and high dose group, each group having nine rabbits. The dose of the drug was calculated according to weight of the animals.

Results: The liver function tests (LFT) were done after 60 days administration of mirabilis jalapa seeds. Total serum bilirubin in control group was 0.69 ± 0.03 , in low dose group 0.71 ± 0.03 and in high dose group 0.73 ± 0.03 with P value 0.197.

Direct serum bilirubin was 0.34 ± 0.02 ; 0.34 ± 0.03 ; 0.31 ± 0.03 with P value 0.687 in control group, low dose group and in high dose group respectively. Indirect serum bilirubin was 0.35 ± 0.04 (control group); 0.37 ± 0.03 (low dose group) but in high dose group it decreased to 0.32 ± 0.02 with P value 0.409. SGPT in control group was 78.7 ± 3.01 ; in low dose group it was 74.1 ± 2.08 and in high dose it was 100.0 ± 2.08 with P value 0.001.

Serum alkaline phosphate (IU/ L) was 44.4 ± 1.53 with low dose it was 26.1 ± 1.14 with high dose it was 114.6 ± 1.14 with P value 0.001.

Conclusions: Mirabilis Jalapa seems to be useful drug and further studies regarding its use are recommended.

Key Words: Mirabilis Jalapa, Liver Function Tests, Rabbit

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INTRODUCTION

Mirabilis jalapa is member of the Nyctaginaceae family. It is found in West Indies and India and known to have five colours; Red, White, yellow, red and white, red and yellow. In 1596, its flowers were brought from the West Indies and shortly afterwards, carried to East. The plant was named Gul-e-Abbas when introduced in Persia during the Shah Abbas reign¹.

Mirabilis jalapa plant leaves are used as demulcent, topical application to the skin as poultice ripens the abscess. Its beneficial effect is observed in urticaria; and in the relief of contusions². Mirabilis Jalapa is also known to have antihemorrhagic and analgesic activity^{3,4}. Antibacterial, antiviral and antifungal activity is also found in this plant^{5,6,7} and its leaves are used in the treatment of disorders like diabetes and inflammation⁸.

MATERIALS AND METHODS

This study was performed in the Department of Pharmacology and Therapeutics, Baqai Medical College, Baqai Medical University, Karachi. Rabbits of either sex were kept in three groups, each group having nine animals. Group one is kept as control group, another group of nine animals were kept on low dose, and a third group of nine animals were given high dose (Total of 27 animals). The total study period was sixty days. The dose of drug was estimated according to weight of the animals.

Dose Calculation: Dose calculated according to Khan et al, mentioned in a book² is 7-12 Gm/day for humans made as guideline. Accordingly the calculated dose remained 250 mg / kilo gram body weight as a low dose and 500 mg/kg as high dose. The duration of this study

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was 60 days. All three groups were kept under observation (one control, low dose & high dose). The drug was given in the form of aqueous mixture of powder orally, once daily to each animal of test groups by a syringe. After 60 days of duration of treatment, the blood of each animal was drawn by cardiac puncture which was analyzed according to variables.

RESULTS

The liver function tests (LFT) were done after 60 days administration of mirabilis jalapa seeds (Table 1). Total serum bilirubin (mg%) in control group was 0.69 ± 0.03 it was 0.71 ± 0.03 ; in low dose and in high dose it was 0.73 ± 0.03 with P value 0.197.

Table No.1: Comparison of LFTs in Controls with Test Groups (Low Dose 250 mg / kg body wt: and High Dose 500 mg / kg body wt: of animals) Rabbits in 60 days Study Duration

Parameter	Controls (n=9)	Mirabilis Jalapa		P-value
		Low dose (n=9)	High dose (n=9)	
	Mean \pm SEM	Mean \pm SEM	Mean \pm SEM	
Serum bilirubin (mg %)				
Total	0.69 ± 0.03	0.71 ± 0.03	0.73 ± 0.03	0.197
Direct	0.34 ± 0.02	0.34 ± 0.03	0.31 ± 0.03	0.687
Indirect	0.35 ± 0.01	0.37 ± 0.03	0.32 ± 0.02	0.409
SGPT (IU/L)	78.7 ± 3.01	74.1 ± 2.08	100.0 ± 2.68	0.001
Alkaline Phosphatase (IU/L)	44.4 ± 1.53	26.1 ± 1.14	114.6 ± 1.14	0.001

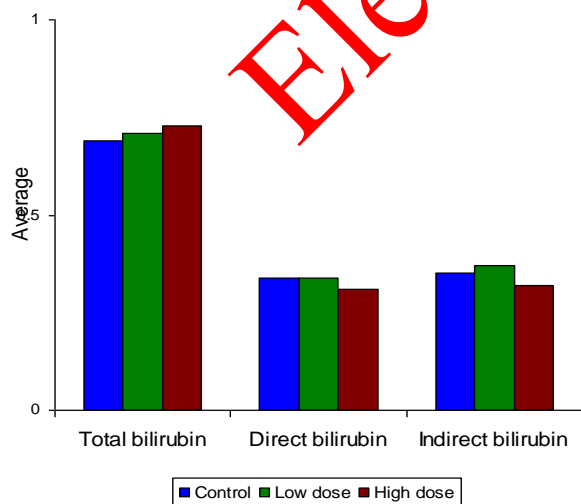


Figure No.1: Comparison of Serum Bilirubin in mg% In Controls with Test Groups (Low Dose and High Dose of Mirabilis Jalapa) Rabbits in 60 Days Duration

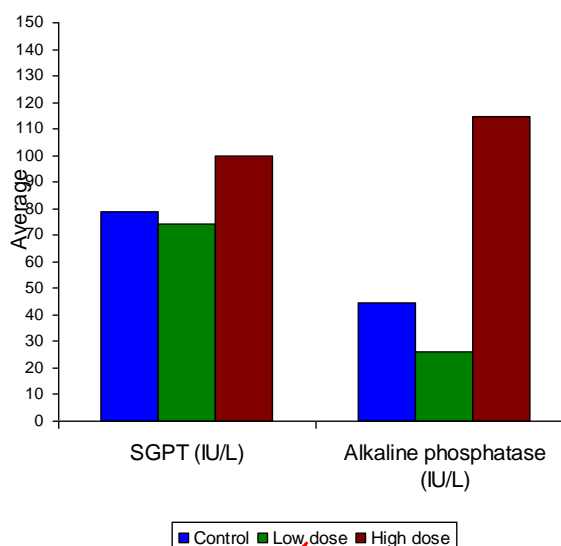


Figure No.2: Comparison of SGPT (IU/L) and Alkaline Phosphatase (IU/L) in Control with Test Groups (Low Dose and High Dose of Mirabilis Jalapa) Rabbits in 60 Days Duration

Direct serum bilirubin (mg %) in control group was 0.34 ± 0.02 ; in low dose it was 0.34 ± 0.03 ; in high dose it was 0.31 ± 0.03 with P value 0.687.

Indirect serum bilirubin (mg%) in control group was 0.35 ± 0.01 ; in low dose it was 0.37 ± 0.03 ; in high dose it decreased to 0.32 ± 0.02 with P value 0.409.

SGPT in control group was 78.7 ± 3.01 ; in low dose it was 74.1 ± 2.08 and in high dose it was 100.0 ± 2.68 with P value 0.001.

Serum alkaline phosphatase (IU/ L) was 44.4 ± 1.53 in control group, 26.1 ± 1.14 in low dose and 114.6 ± 1.14 with P value 0.001 in high dose.

DISCUSSION

Different parts of Mirabilis jalapa such as, roots, shoots, leaves, fruits and seeds were used for different affections⁹. In traditional medicine, the plant roots are utilized for diuresis, purgative action and for healing of wounds. Leaves of plant has anti-bacterial^{10,11}, antiviral, anti-fungal, anti-inflammatory, antispasmodic and antinociceptive effects¹².

We evaluated effect of Mirabilis jalapa seeds on liver function of healthy rabbits using low dose and high dose of aqueous mixture of powdered seeds. It is evident from the results that there is no significant change in total, direct and indirect bilirubin levels in all three groups that is control as well as low dose and high dose group (P-value being non- significant). It is important to remember that the study animals were healthy rabbits, thus, no change in serum bilirubin levels show that Mirabilis jalapa seeds are not hepatotoxic especially in low dose. A study conducted by Jyothi et al 2013, shows hepatoprotective effect of

Mirabilis jalapa leaves extract against hepatotoxic effect of Anti-tubercular drugs¹³.

Similarly, it is clear from comparison of serum levels of hepatic enzymes SGPT and Alkaline Phosphatase in all three groups that in the low dose group there is slight decrease in serum SGPT level, while there is significant decrease in serum Alkaline Phosphatase levels confirming the hepatoprotective role of Mirabilis jalapa at a low dose. Whereas, in high dose group, serum levels of both the hepatic enzyme increased significantly when compared to control group.

CONCLUSION

Mirabilis Jalapa seems to be useful drug and further studies regarding its use are recommended for longer duration to evaluate and confirm hepatoprotective effect of Mirabilis jalapa in healthy as well as diseased animals.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Management of Trigeminal Neuralgia Pain by Peripheral Absolute Alcohol Nerve Block among Oral & Dental Patients at Victoria Hospital/Quaid-e-Azam Medical College, Bahawalpur

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ABSTRACT

Objective: To determine peripheral absolute alcohol nerve block for the management of trigeminal nerve pain and its complication among oral and dental patients

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at Dept of Oral and Dental Surgery along with few referral from the Neuro-Surgery at Bahawal Victoria Hospital a tertiary care hospital attached with the Quaid-e-Azam Medical College, Bahawalpur in Southern Punjab from January 2013 to December 2015.

Materials and Methods: A total of 125 patients have been included Before administering the peripheral alcohol nerve block 1.8ml of lignocaine local anesthesia injection was given to anaesthetize patient nerve involved. The study subjects consists of the patients suffering from trigeminal neuralgia diagnosed clinically based on specific signs and symptoms of neuralgia pain. The study variables were duration of pain relief by peripheral nerve block and any complication, duration of re-injection to measure repeated nerve block, study subject age, gender, area of residence, socio-demographic characteristics, patients history of therapeutic treatment. Data was collected on specifically designed questionnaire and analyzed on SPSS 20.0 and presented in tabulated form as frequencies of the above mentioned variable along with their percentages, mean and standard deviations.

Results: Total of 125 patient hospital records who received absolute alcohol with history of re-injection has been included in this study. Peripheral absolute alcohol nerve block was effective ranging from minimum of 3 to 17.45 months, the mean duration of pain relief was 8.35 months with standard deviation of 4.5 months and there was gradual decrease in the pain relief after repeated re-nerve block from our study data set. Some of the patients were referral from Dept of Neurosurgery of our institution who were not fit for neurosurgery, so advised for local peripheral absolute nerve block. There was no significant report of complication except mild to moderate pain, swelling, trismus, burning sensation, dysesthesia, fibrosis of soft tissues and only 04 subjects report of injection site infection.

Conclusion: Absolute alcohol nerve block to be less invasive in dental office management and relatively more efficacious for neuralgia pain relief to reduce patient morbidity and cost effective for patients who do not have relief on conventional carbamazepine drug therapy and being disease of elderly age who are usually medically compromised as not being fit for surgery or willing for relatively costly and invasive neurosurgery procedure.

Key words: Absolute alcohol, Nerve block, Trigeminal neuralgia, Pain management

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INTRODUCTION

Trigeminal Neuralgia has been described as lancinating, paroxysmal attacks of annoying pain in the distribution

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of 5th cranial nerve in its one or more branches called tic-douloureux from literature search due to neurovascular origin zone.¹ From the ancient history the neuralgia pain has been reported to exist since hundred years to be recognized as most severe type of the pain experienced by the humans as crippling disease condition for the patients with fear of its recurrence.² It has been noticed as relapsing attack of pain in the beginning which last for shorter duration of time to months as pain free interval with gradually shorter duration of time, in which patients feels difficulty in eating, talking with very compromised condition with much anxiety and depression state of life.³ Despite that fact that due to lot of advances in pain management, neuralgia pain still remains an unsolved issue as

successful pain relief for most of the patients. Still the drug of choice is carbamazepine as standard first line diagnostic and therapeutic drug as well along with baclofen, phenytoin, gabapentine and sodium valproate.⁴

It has been noticed that initial pain relief by the above mentioned drugs decreases gradually with appearance of these drugs side effects, it is not possible for the patient to continue them and has to opt for neurosurgery or some injection.⁵ According to literature search carbamazepine alone have been found to be effective around 70 percent for the treatment of trigeminal neuralgia by Taylor et al. in their study for 16 years follow up among 143 patients, however there are reports of this drug resistance as well, which require further surgical or some injectable treatment.^{5, 6} among the surgical operative treatments are the neurectomy of nerve involve, radiofrequency called thermal rhizotomy, nerve balloon micro-compression, gamma knife nerve surgery and the most common treatment by neuro surgery called micro-vascular decompression MVD that have relatively high rate of long term success for patients who are medically fit.⁷ The medical treatment option with nerve block with some injectable chemical like absolute alcohol, anhydrous glycerol, phenol and tetracaine etc have also been in use for trigeminal neuralgia management.⁸

The use of peripheral nerve block with absolute alcohol most common by the dental surgeons for the medically unfit patients who cannot go under invasive surgical procedure because of their serious morbidity and at the same time more cost effective for the non-affording patients as well.⁹ The rationale of our study is based upon the fact that the intensity of the trigeminal neuralgia pain is very severe, which require early diagnosis with immediate remedy in dental surgery. As it is disease of relatively older age with comorbid and infirm medically condition, when patients are not fit for surgical procedures.¹⁰ There have been report of recurrence of the trigeminal neuralgia pain even after neuro-surgical procedure¹¹ while the peripheral absolute nerve block is relative simple, more cost effective, minimal invasive technique with immediately pain relief for the patients ranging from period of about 6 to 16 months with almost no major complication on repeated use.^{11, 12}

MATERIALS AND METHODS

This study has been conducted using a retrospective hospital based upon patient record attending Dept of Oral and Dental Surgery along with few referral from the Neuro-Surgery at Bahawal Victoria Hospital a tertiary care hospital attached with the Quaid-e-Azam Medical College, Bahawalpur in Southern Punjab – Pakistan. A total of 125 patients have been included as our study subjects regardless of age and gender for data analysis from 1st January 2013 to 31st December 2015

who fulfill our study inclusion and exclusion criteria based on a semi structured questionnaire specifically develop for this purpose. The diagnosis of the trigeminal neuralgia patients was base upon detailed oral and dental clinical examination according to standard protocol in collaboration with Neuro Surgery Dept of our institution with the help of few investigation like panoramic OPG X-Rays, CT Scan and MRI where indicated to rollout any local pathology or brain lesion either primary or secondary and at the same time any history of trauma for trigeminal nerve injury as well in consultation with Neurosurgeon.¹³

We have included subjects with history of trigeminal neuralgia of the maxillary and mandibular division of the TN nerve, the case of ophthalmic division was excluded from our study data analysis. It was revealed from our study that the subjects remained under treatment of different dept physicians and surgeon for their pain relief on different medication regimen. Most of the patients have used maximum doses of the medication like carbamazepine, baclofen and gabapentine along with phenytoin sodium and majority of them either do not have proper record of their follow up or some with missing information presenting with history of drug resistance but no history of absolute alcohol injection.¹⁴ A written informed consent of the patients was obtained as part of ethical concern on the structured questionnaire before administering them absolute alcohol injection along with record keeping of other study variables and parameters for data analysis purpose later on SPSS 20.0

Standards operating procedure was developed for the administering of the absolute alcohol nerve block and its peripheral infiltration at the site of neuralgia pain first confirmation by the local anesthesia of lignocaine 2 percent about 1.8ml with adrenaline dilution of 1:100000 at least for 20 to 25 minutes before as diagnostic evaluation and later on absolute alcohol injection was given as nerve block or infiltration at the same site of trigger zone very carefully and slowly about 1 to 1.5ml solution.¹⁵ As all this process of local anesthesia and absolute alcohol injection was carried out by the principal investigator himself or trained senior dental surgeon at dental outdoor. An intraoral approach was used for administering the inferior alveolar nerve block and peripheral infiltration for the infra-orbital and mental nerves with a dental syringe needle of 25/27 gauge short or long depending upon for nerve block and local infiltration accordingly.¹⁶ The study subjects were issued follow up cards along with brief history sheet with first follow up with in 24 to 48 hours, then within a week time, followed by 4-6 week, then after 2-3 months and after every 6 months. The efficacy of the absolute alcohol injection was measured as efficacious if it remained effective to keep patient pain at least for about 2-3 months.¹⁷

RESULTS

From our hospital record we had total of 152 patients and there were 27 patients with loss to follow, so their information was excluded from the data analysis from our data set. The remaining 125 had their record of follow up and they were given total 257 injections of absolute alcohol ranging from 2-4 injection per patients. The study subjects age range from 33 to 76 years and with mean age of 46.5 years with standard deviation of 8.35 years. The overall success rate came out to be 86.7% while the ineffective rate was 13.3%. Out of these 125 subjects 55.2% were males and 44.8% were females, 28.8% of the patients belong to urban area and 71.2% were from the rural areas, majority of the patients with in 4th (17.6%) to 5th (34.4%) decade of life (Tables 1).

It is evident from the results of our study that most of the time mandibular division of the trigeminal nerve was involved 54.4% as compared to the maxillary division 39.2% terminal branches, while only 6.4% of the times it was involved in both maxilla and the mandibular division. Similarly the most of the terminal branch involved was the inferior alveolar nerve 47.2% and next was the infra orbital nerve 35.2% while the other long buccal, sub-mental and supra orbital nerve were 5 to 6% involvement in neuralgia pain (Table 2). Our study results also revealed that the right side of the nerves infra orbital 38 (77.55%) was mostly involved as compared to the left side 11 (22.44%) similarly inferior alveolar nerve 45 (66.17%) on the right side while only 12 (17.64%) on the left side (Table 3). The peripheral absolute nerve block injection remained effective from 3 to 16 months for the infra orbital nerve while it was effective from 6-22 month for the inferior alveolar nerve block and the overall effectiveness was 86.77 % both in the maxillary and the mandibular divisions (Table 4).

Table No.1: Socio-demographic distribution of trigeminal neuralgia patients

Variable	No.	%age
Study subjects (n=152)		
Three year follow-up	125	82.3
Loss to follow-up	27	17.7
Gender (n=125)		
Male	69	55.2
Female	56	44.8
Area of residence (n=125)		
Urban	36	28.8
Rural	89	71.2
Age (n=125)		
3 rd decade	8	6.4
4 th decade	22	17.6
5 th decade	43	34.4
6 th decade	36	28.8
7 th decade	16	12.8

Table No.2: Distribution of site and nerve involvement in neuralgia

Variable	No.	%
Site involvement (n=125)		
Maxillary division	49	39.2
Mandibular division	68	54.4
Both divisions	8	6.4
Nerve involvement (n=125)		
Infra-orbital	44	35.2
Supra-orbital	7	5.6
Inferior alveolar	59	47.2
Long buccal	7	5.6
Sub-mental	8	6.4
Effectiveness of therapy (out of total 257 Inj.)		
Effective	223	86.7
Ineffective	34	13.3

Table No.3: Distribution of the nerve side involvement in trigeminal neuralgia pain

Nerve side in TN involvement	Maxillary nerves	Mandibular branches of nerves		
	Inferior orbital (n=49)	Inferior alveolar (n=57)	Submental (n=8)	Long buccal (n=7)
Right side	38	45	5	5
Left side	11	12	3	2

Table No.4: Distribution of neuralgia pain management effectiveness out of total 257 injections

Total injection (n=257)	Maxillary nerves	Mandibular branches of nerves		
	Infra orbital (n=77)	Inferior alveolar (n=96)	Submental (n=36)	Long buccal (n=48)
Effective (n=223)	67	54	31	41
Ineffective (n=34)	10	12	5	7
Duration of effect (months)	16 months (3-16 months)	22 months (6-22 months)	11 months (2.5-11 months)	9 months (2-9 months)

DISCUSSION

There has been consensus about the fact that it is most annoying pain as per its intensity and is usually initiated from the terminal branches of the nerve involved as the trigger zone. It has also been determined that the use of anticonvulsant drugs like carbamazepine have its diagnostic and therapeutic value as medical treatment of neuralgia pain, similarly it is common practice in oral and dental surgery the use of peripheral injection of local anesthesia 2% lignocaine for the diagnosis of acute pain of trigeminal neuralgia.¹⁸ Later on followed by the absolute nerve block for the identified peripheral trigeminal nerve involved as trigger zone for neuralgia pain relief for relatively longer time duration in our study settings where appropriate neurosurgery treatment option is not available or within the access of the patients due to affordability or morbid conditions,

the peripheral absolute nerve block is still consider to be better option for patients immediate pain relief.¹⁹ The dental surgery literature review also reveals the indication for absolute alcohol nerve block for neuralgia pain among older age patients, usually unfit for surgery, socioeconomic some cultural reasons, long waiting time for surgery, when patients refuse it for multiple reasons, e.g., females with pregnancy, such patients are consider to be suitable candidate for this minimal invasive procedure as routine dental outdoor just by injection of alcohol.^{18, 19} It is also quite well known from the scientific literature that frequent use of absolute alcohol injection is highly toxic for the tissues that is why safe techniques have been developed for its administration so that it should not be directly injected into the vein and the repeated multiple injections leads to soft oral tissues fibrosis as well.²⁰ Another complication evident from the literature, which is also pointed out by our study results is the fact that there is gradual reduction in the efficacy following its repeated use in terms of shorter duration of pain relief.²¹

There are important findings from the results of this study which are in consistent with the finding of other studies as well. The overall efficacy of the absolute alcohol injection is 86.77% from our study results which is close to the results of Gallagher et al. published in Ireland Journal of Medicine in 2005, according to their results the pain relief was at least for 10 months by absolute alcohol nerve block for inferior alveolar and infra orbital nerves.^{12, 22} The overall maxillary division was anesthetized 39.2% and the mandibular division around 54.4% this finding from our study is also in consistent with the results other studies as well.²² The result of our study that there is gradual decrease in the time period for the effectiveness of the absolute alcohol nerve block is also evident from Khetab et al from their study on 242 subjects follow up for pain management of trigeminal neuralgia published in Pakistan oral and Dental Journal in 2005.²³ The results for studies of McKenzie, Stookey Ransohoff et al reported the evidence of localized soft tissue fibrosis at the site of the repeated absolute alcohol injections, which is consistent to our study results as well.^{7, 24}

CONCLUSION

The management of trigeminal neuralgia by peripheral absolute alcohol nerve block to be better option as being simple, safe and can be carried out at dental office which gives relief to patients from the annoying pain for a minimum of 2.5 months to about 16 months. Although, there has been gradual decrease in the period of pain relief on repeated history of alcohol injection but no any serious side effects other than mild to moderate swelling and soft tissue fibrosis. It has also been determined that even the patients prefer for absolute alcohol reinjection if the pain reoccurred in spite of invasive surgery as it proved be safe for the

elderly patients who are usually medical compromised and also not willing to go for neurosurgery procedure in our setting.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Clinical Effect of Augmentin as Intracanal Medicament Compared with no any Medication on Endodontic Flare-Up in Cases of Symptomatic Apical Periodontitis- A Pilot Study

Khawar Karim¹, Kelash Kumar¹, Seema Naz² and Naresh Kumar¹

ABSTRACT

Objective: To assess the clinical effect of Augmentin as intracanal medicament on endodontic flare-up in comparison with no any intracanal medicament in cases of symptomatic apical periodontitis.

Study Design: Comparative study

Place and Duration of Study: This study was conducted at the Operative Dentistry Department, Dental OPD Liaquat University of Medical and Health Sciences, Jamshoro from June to October 2015.

Materials and Methods: Total 50 patients requiring endodontic treatment were selected in this study. The patients were assigned into two groups by lottery method. The teeth of patients in group I were treated with Augmentin as ICM after cleaning and shaping and temporarily restored. In group II, the teeth were left with empty canals after complete cleaning and shaping and restored with temporary filling. Next appointment was given to patients after 24 hour and after one week to assess the level of inter-appointment pain.

Results: The mean age of the patients was 30.42 ± 7.754 . The males and females were 42% and 58% respectively. The types of teeth were anterior and posterior 58% and 42% respectively. Teeth with pulpal status with irreversible pulpitis and pulp necrosis were 46% and 54% respectively. The mean value of preoperative pain level was 8.24 ± 0.797 , pain after 24 hours was 4.54 ± 1.606 and after 7 days was 1.10 ± 0.931 . The association of study group and effectiveness on pain (control of pain) showed that in group I, 70% effective and 25% not effective, as compared to group II 30% effective and 75% not effective with P value 0.001.

Conclusion: It is concluded that "The patients in which Augmentin was used as intracanal medicaments showed a greater decrease in pain levels over the observation period when compared to the control group."

Key Words: Augmentin, Intracanal Medicaments, Endodontic flare-up, Symptomatic Apical Periodontitis

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INTRODUCTION

The occurrence of post treatment pain of mild or moderate intensity during and after endodontic treatment is not uncommon event, even the treatment has followed standard protocols. But occurrence of one of such unusual and unpleasant event is called endodontic "flare-up", characterized as acute exacerbation of pain and swelling, occurring after few hours or days, during or after endodontic treatment.^{1, 2} There are many factors responsible for flare-up, including microbial, chemical and mechanical. Microbial injury accompanied with procedural mishaps

such as over-instrumentation of the root canal, extrusion of the canal irrigants and filling materials are amongst the main reasons of postoperative pain.³ In addition to these factors, patients complaining moderate to severe pain preoperatively are at more risk of having five times more moderate to severe pain post operatively.⁴ Also demographic factors (age, gender) and general health like (presence of any allergy) also may influence the occurrence of flare-up.^{5, 6}

It is well known that bacteria play an important role in the growth and establishment as well as progression of endodontic disease. Endodontic infection is caused by population of mixed microorganisms but predominantly involved organisms are gram negative rods.⁷ Because of the complex anatomy of the root canal system, chemical and mechanical shaping is often not enough to decrease the count of microorganisms in the complex root canal system.⁸ The use of antimicrobial intracanal medicaments (ICM) has been recommended during root canal treatment to decrease or eliminate existing bacterial populations, particularly in cases of pulp necrosis and symptomatic apical periodontitis thereby decreasing postoperative pain.⁹

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Microorganisms which remain after chemomechanical preparation and disinfection involve rottenly in failure of endodontic treatment. Various strategies have been recommended in literature to decrease or eliminate the root canal bacterial load, including the use of various advanced instrumentation techniques, irrigation methods and intra-canal medicaments.¹⁰ Several different intracanal medicaments are in use since last many decades. Common were formocresol, camphorated para-chlorophenol, eugenol, iodine potassium iodide, beachwood creosote, calcium hydroxide, eugenol, and a combination of various. Among all these calcium hydroxide has still been widely used as a choice of material but it is not effective against all microorganisms responsible for persistent endodontic infections.^{7,8}

The systemic use of Augmentin (combination of amoxicillin and clavulanic acid) is an adjunct to endodontic treatment is not uncommon among dentists. However, studies on its local applications as intracanal medicaments have not been conducted. Therefore the purpose of this pilot study is to assess the local effect of Augmentin as intracanal medicament on endodontic flare-up. This study will help us to conduct further studies on use of Augmentin on a broader scale. If local application of Augmentin will be found effective then its unnecessary systemic uses and adverse effects will also be avoided.

MATERIALS AND METHODS

This study was conducted at operative dentistry dental OPD Liaquat University of Medical and Health Sciences Jamshoro, from 1st June to 1st October 2015. 50 patients were selected for this pilot study and divided in two groups of 25 each, by lottery method as Group A (Augmentin as ICM) and Group B (No Any ICM). All teeth either anterior or posterior which diagnosed as having symptomatic apical periodontitis, with or without apical radiolucency and with pulp necrosis, of either gender, between 15 to 60 years of age were included in study. Exclusion criteria for the study were teeth with immature root development (open apex), severe periodontal disease and patients with any systemic medical conditions. Before start of the treatment, preoperative pain was recorded on proforma by using Visual analogue scale (VAS). In all teeth after access preparation, rubber dam applied and canal were negotiated with 15 K-file and working length taken with apex locator and confirmed on radiograph. Cleaning and shaping performed with protaper rotary instrumentation with simultaneous irrigation of sodium hypochlorite (NaOCl). In group A canals were dried with paper points and paste of Augmentin (375 mg mixed with 1ml of normal saline) inserted with lentulospiral up to working length and rest of the cavity is sealed with cotton pledged and temporary

cement(cavit). In group B the canals were left empty and restored temporarily.

The patients were informed for revisit to record the level of pain after 24 hours and after one week. The effect of both the groups compared and taken as effective if teeth became asymptomatic.

Data were analyzed in statistical software SPSS 16. Frequency and percentage were computed of categorical variables like gender, group of study, type of tooth and pulpal status, while mean and standard deviation were calculated for quantitative variables like age and pain. Chi-square test was used to compare proportion difference between groups of study and effectiveness of medicaments used to control pain. Repeated measure ANOVA test was applied to compare mean difference between study groups and pain level (pre-operative and post-operative i.e after 24 hours and after 7 days). P value ≤ 0.05 was considered significant at 95% confidence interval.

RESULTS

Fifty patients were selected in this study and equally divided into two groups by lottery method. Twenty five patients in group I were treated with Augmentin as ICM and twenty five in group II were left with no any ICM. The mean age of patients was 30.42 ± 7.754 and Frequency and percentages of gender, type of tooth, pulpal status is shown in Table-1.

Table No. 1: Age, Gender, Type of Tooth and Pulpal Status

Base line characteristics of patients	N (%) /50	Mean \pm SD
Age		30.42 \pm 7.754
Gender		
Male	21 (42)	
Female	29 (58)	
Type of tooth		
Anterior	29 (58)	
Posterior	21 (42)	
Pulpal status		
Irreversible pulpitis	23 (46)	
Pulp necrosis	27 (54)	

Table No. 2: Association between group of study and effectiveness (control of pain).

Groups of Study	Control of Pain		Total	P-Value
	Effective	Not Effective		
case group=1 augmentin	21 70.0%	5 25.0%	26 52.0%	0.001
Control Group=2 No Medicaments	9 30.0%	15 75.0%	24 48.0%	
Total	30 100.0%	20 100.0%	50 100.0%	

When the association was checked between group of study and effectiveness (control of pain), the results have shown that there was 70% reduction in pain in Augmentin group while 30% effectiveness observed in no medicament group, which is statistically significant P value is 0.001. Table-2.

When Augmentin was used as intracanal medicament, it was effective in reducing postoperative pain to 60% of cases.

Pain level checked preoperatively and post operatively (i.e. after 24 hours and after 7 days) as give in (Table-3)

Table No.3: Pain level pre-operatively and postoperatively (i.e. after 24 hours and after 7 days)

	Mean	Std. Deviation	N	P-Value
Pre-operative pain level	8.24	.797	50	
Pain level after 24 hours	4.54	1.606	50	0.001
Pain level after 7 days	1.10	.931	50	

DISCUSSION

Endodontic Flare-up is a complication that a dentist frequently encounters during endodontic treatment. The main presenting characteristic of flare up is the pain which is most commonly associated with micro flora of root canal.¹¹ and also with other mechanical or chemical factors related with treatment. Pharmacologically it is treated often by the use of analgesic and systemic antibiotics. The most commonly used antibiotic prophylactically as well as therapeutically among dentist is Augmentin these days due to its broad spectrum antimicrobial action against many endodontic pathogens. The systemic use of Augmentin is not without various adverse effects, one of such is gastrointestinal upsets, also the patient's compliance is utmost important for taking the drug.

Torabinejad et al.⁹ have proposed that the use of antimicrobial intracanal dressing may prevent occurrence post treatment pain, thus the use of intracanal medicament during root canal treatment can noticeably remove microorganism from the root canal system and theoretically may prevent occurrence of post treatment pain, if the antimicrobials are not cytotoxic to the tissues when extruded periapically.

In this study Augmentin is used locally as intracanal medicaments to reduce or eliminate the bacterial count in the pulp canal and to remove the microorganisms from the areas such as canal ramification, fins, and isthmuses, where conventional instrumentation and irrigation has no access. The results of the present study suggest that the proposed incorporation of Augmentin as intracanal medicament can reduce post-operative pain level in comparison to the control group. Group 1 (Augmentin group) have shown the decrease of pain

70% as compared to control group (No Medicament) in which pain reduced to 30%. At baseline, the mean pain level was slightly higher for the experimental group than for the control group.

In the present study, patients having preoperative pain level with mean value 8.24 ± 0.797 . After 24 hour of intracanal medicaments pain reduces to 4.54 ± 1.606 and after 7 days it reduces to 1.10 ± 0.931 .

In the present study, the pain status was high on VAS preoperatively and postoperatively after 24 hours and after 7 days it decreases gradually with time. In this study the gender of patient had no significant influence on post treatment pain. There was statistically significant difference between experimental group (Augmentin Group) and control group regarding the intensity of postoperative pain. This result is in agreement with some previous studies.¹³ Previous studies described the occurrence of postoperative pain reduced gradually with time, pain levels showed an even reduction in the successive days of Augmentin group.¹⁴

The findings of this study are encouraging. The patients in which Augmentin was used as intracanal medicament appeared to showed a greater decrease in pain levels over the observation period when compared to the control group. Furthermore use of Augmentin systemically has been decreased during this study which ultimately reduces the adverse effects of the drug. A larger study is necessary to allow a more precise assessment of Augmentin as intracanal medicament and its comparison with commonly used intracanal dressing materials.

CONCLUSION

Reduction of the microbial count from the root canal system is an indispensable criteria for the successful result of endodontic treatment. The literature reports that mechanical and chemical instrumentation, irrigation protocols, and use of intracanal inter appointment antimicrobial dressings are all important for this purpose. However, all of the available materials for root canal irrigation and medication have limitations, and the range of research is still continuing in the search of ideal materials. The results of this study strongly hold up the recommendation of intracanal use of Augmentin for the relief of endodontic flare-up.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Knowledge, Skill and Attitude of Community Midwives Regarding Intrauterine Devices for Family Planning in Lahore

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ABSTRACT

Objective: Study was designed to assess the knowledge, skill and attitude of community midwives before and after three days training workshop on the subject insertion of intrauterine device, as a tool for family planning.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at Community Medicine, Sharif Medical & Dental College, Jati Umra, Lahore and Department of Public Health, The University of Lahore from January 2015 to June 2015

Materials and Methods: An intervention study was conducted by collecting data from designing structured questionnaire which was answered by the midwives taking part in the training to evaluate their basic knowledge, skill and attitude towards use of intrauterine devices. This study was based on three phases. 1) assessment 2) intervention 3) evaluation. Thirty community midwives in the community based maternity homes of Lahore was selected as subjects. Data through a pretested questionnaire was collected and analysed by statistical package for social sciences (SPSS).

Results: 50-70% of community midwives had the basic knowledge of IUD, insertion skill and its benefits, before going through the training. After the training, knowledge of IUD, its insertion skill and advice to women increased up to 85-100% among the participants. Results clearly show that the knowledge of the community midwives regarding use of IUDs use as a family planning tool was minimal and increased after getting the training.

Conclusion: Study finding suggested that training is essential for the community midwives for improving their knowledge, technical skill for insertion of IUD, and aptitude for counseling to the families upon follow up visits.

Key Words: Family planning, Community midwife, IUD, Knowledge, skill and attitude

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INTRODUCTION

World population has been stabilized in developed countries. Pakistan, which is the 6th most populous country in the world, still grapples with control of fast growing population. Estimated population of Pakistan is 192 million and is expected to be 295 million in the year 2050. Family planning promotion is a priority for the government of Pakistan in order to reduce population expansion.

Pakistan family planning statistics show that 3.6% of fertile women of reproductive age use intra uterine devices². There are three types of IUDs; 1) Copper T 380A (Nova-T) and multiload 375 copper releasing IUD, 2) Progestasert / Levo Nova, LNG-20 are progesterone releasing devices, 3) Lippes loop.

These are effective, safe, long lasting, and rapidly reversible methods of contraception. These IUDs can stay for 5–10 years depending on the type³. These methods do not have any hormone-related side effects and does not adversely affect to breast feeding. These benefits have led to its immense popularity worldwide. It requires a trained health professional for its insertion into the women.

Research has demonstrated that long-acting intrauterine devices (IUDs) are cost-effective and sustainable way of fulfilling its need and prevent the unwanted pregnancies in the community. IUDs have been suggested as an effective and efficient method for family planning. However, despite being one of the first modern methods introduced in Pakistan, the IUD remains one of the least known and least used contraceptive method. Barriers to IUD access in Lahore include a lack of trained medical staff, limited supply of IUDs, limited provision of IUD insertion services and poor counseling skills due to lack of knowledge among the community midwives.

Training is essential to improve provider's knowledge, technical skill of IUDs insertion, management of side effects and attitude enhancement for counseling to the families. In 2008, a comprehensive training program was started by Green Star Net Work in Pakistan⁴. In 2001, 45 international experts developed a consensus

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statement about the IUDs, which emphasized the relative underutilization of this very effective long-term contraceptive method and proposed a set of recommendations to decrease barriers for use of IUDs. Chen L et al (2008) reported, "Providing educational opportunities for providers through workshops and mentoring liberalized their attitudes for IUD use, as well as improved their technical competence and attitude". Training could stimulate providers to include IUD more frequently in their counseling sessions to women and therefore increasing demand for this method.

In 2005, U.S. Agency for International Development (USAID) reported that IUD insertion training courses had been conducted worldwide. However many of the trained nurses/ midwives had failed to develop the competence and confidence to insert the IUDs after getting the training. Various reasons were identified but the most common reason was the inadequacy of the training to infuse the required confidence among the trainees⁵. In 2006, Family Health International in Kenya made a study and found that a lack of up-to-date pre and in-service training left many providers ill-prepared to offer IUDs to their clients⁶.

This study assesses the provider's knowledge and perception for the use of IUDs in Lahore. It identifies variables that significantly correlate with community midwives' IUD knowledge, perceptions, and explore differences in knowledge and perceptions of the side effects among the users.

MATERIALS AND METHODS

This was an intervention study, carried out in Lahore from January 2015 to June 2015 to meet the objective with a baseline assessment. Intervention was done by conducting training followed by the evaluation. A survey method was used for collecting the data. In first step, we completed a baseline assessment of knowledge, skill and attitude by using a pre-structured questionnaire. Second step was an intervention, which was done by providing knowledge, skill and attitude related to IUDs insertion, through a three days training workshop. Third step was an evaluation, where outcome of the training was assessed after 15 and 30 days of the training workshop by using a check list, as an evaluation tool to assess the skill related to IUD insertion. The performance check list was taken from Pathfinder International trainer's guideline to intrauterine device⁸.

Each community midwife was working in maternity home with collaboration of maternal & neonate child health (MNCH) unit which is responsible for taking care of 35000--50000 population of Lahore. 15 community midwives were taken from urban area, and 15 from adjacent rural area of Lahore, Total 30 community midwives were selected for this study.

Baseline data was collected by using a pre-structured questionnaire (Global Health E learning) that had two parts. The first part consisted of demographic data (name, age, where they were trained, training period, experience, catchment area, postal address, phone no. and email of the community midwives). The second part consisted of five questions for short answers / open-ended responses related to knowledge, skill, and attitude. Performance related to IUD insertion and removal was assessed before the training and during two follow up visits after completing the training using a check-list (source: Pathfinder International, 2008).

Evaluation was done on two follow-up visits 15 days apart after training workshop. Responses of midwives were evaluated through a performance activity recorded on check-list, as following:

1. Pre-insertion task has 10 sub points on history, examination, infection prevention and hand washing.
2. IUD insertion skill has 7 sub points on examination and procedure of insertion.
3. Post-insertion task has 5 sub points on technique of de-contamination, disposal of waste products and complete client's records.
4. Post-insertion counseling has 4 sub points on teaching to check device string, experience with side effects, and assure time of removal.
5. Follow-up counseling has 2 sub points on building relationship and diagnosing any side effect.
6. Follow-up examination has 4 sub points on pelvic examination, how and when to perform.
7. Infection prevention skill has 11 sub points on preparing de-contaminating solution, gloves, instruments, and other methods of disinfection.

The responses were completed in a logical and consistent order. Data was analyzed by using SPSS version 16.

For conducting this research, Participant's consent was taken prior conducting the study. Participants were well informed; however their identity was kept confidential. Questionnaire was translated in Urdu for the better understanding of the community midwives.

RESULTS

Participants were identified with lack of knowledge, and poor communication skills related to history, infection control and sterilization. On baseline assessment phase, mean for number of experience years was 16.5 years, training period as midwife was 1.5 years, and population in the catchment area was 30.5 thousands. Five questions were used during the baseline assessment.

In response to the first question that tested the basic knowledge of community midwives, 90% defined IUDs very well; rest of the 10% did not have the clear idea of IUDs. The second question was designed to test the skill. 50% knew the action of IUD and rest of the 50%

had no relevant knowledge. Third and fourth question again tested the knowledge and the skill of community midwives. 70% had insertion skill and knowledge of physical examination. 60% knew the advantages of the use of IUDs insertion. Fifth question was designed to check the attitude of community midwives by asking about their perception of IUDs. 90% had believed that IUDs utilization is more effective, safe, long lasting, and rapidly reversible.

The intervention was in form of a three day training workshop, which was based on theory and practical sessions. Pre- and post-test assessment comprised of 12 multiple choice questions related to IUD insertion, removal of IUD, counseling skill, and infection prevention techniques. The pre-test was taken first day of the training workshop. The training emphasized on the following aspects during theory and practical sessions:

- Importance of giving the client information, she needs to choose the method.
- Screening the clients with a preliminary pelvic examination to rule out pregnancy, pelvic inflammatory disease (PID) and endo-cervical infection.
- Counseling that changes in menses, heavier bleeding and situations that would require a follow up visit to the clinic.

- Follow aseptic technique, including hand washing, careful preparation of the cervix, sterilization of equipment to be used in IUD insertion and removal.

Second and third day consisted of practical sessions related to communication skills and practice by role-play exercise. At the end of third day a post-test was conducted using the same questionnaire as in the beginning of the workshop to evaluate the training. Results showed increase in knowledge and skills about IUD insertion.

Knowledge, Skill & Attitude Base

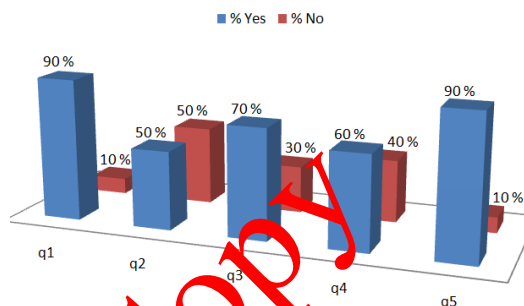


Figure No.1: Community midwives knowledge, skill and attitude of IUDs before training.

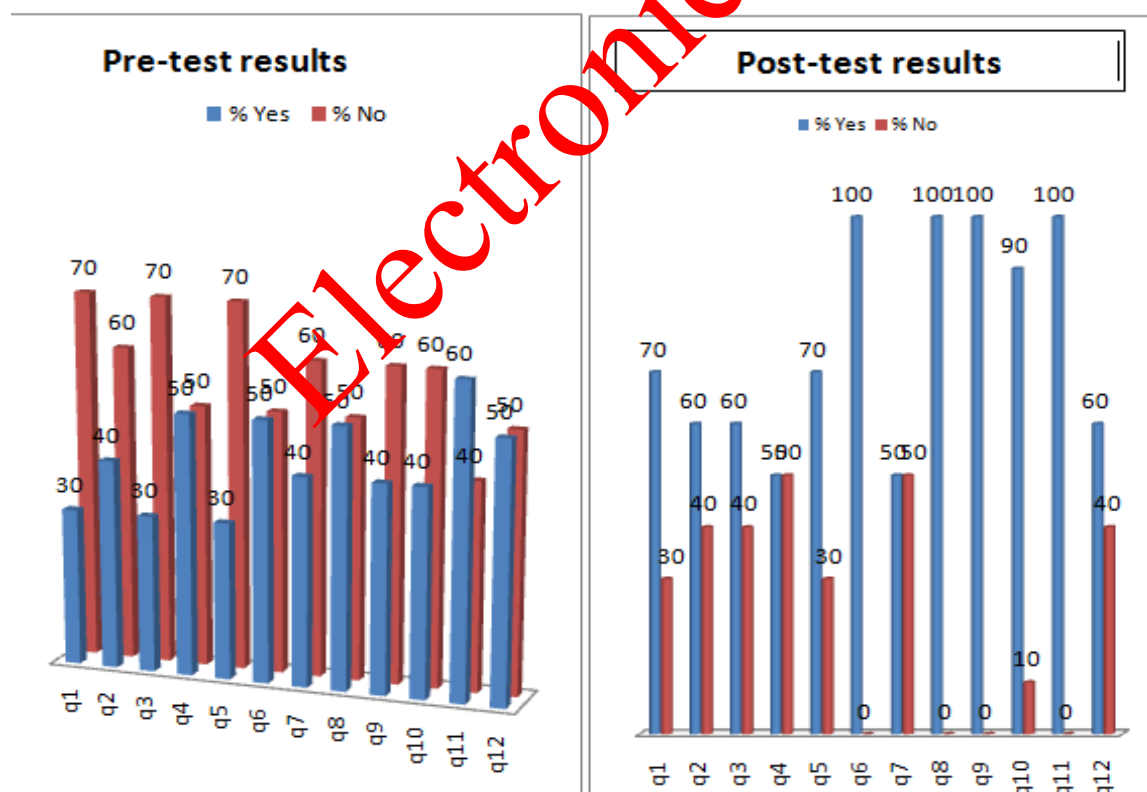


Figure No.2: Assessment of knowledge, skill and attitude of IUDs insertion, during training of community midwives in Lahore.

DISCUSSION

This study is significant in number of ways. First, a baseline of provider's knowledge, attitude, and perception regarding use of IUDs in Lahore was established. Second, a 3 days training workshop was conducted to impart knowledge, skill and develop professional attitude among the participants, for improving to deliver the better services. Results visibly show that knowledge of the community midwives regarding use of IUDs, as a family planning tool was minimal and increased after getting the training. The community midwives' attitude became increasingly attractive and professional especially while identifying and managing the side effects associated with insertion of IUDs.

Providing educational opportunities to providers through workshops and mentoring to liberalize their attitude for using IUDs has improved their technical competence⁷. Therefore, training could stimulate providers to include IUD more frequently in their counseling session with women and thereby increasing demand for the method. Participants also listed the specific problems, which they face such as lack of equipment and supplies for controlling infection and ways to overcome these barriers. They also admitted that they had gained knowledge, acquired skill and demonstrated competence in clinical practice. It will bring meaningful changes in the skill and future medical practice.

Community midwives demonstrated poor understandings of percentage of side effects associated with IUDs; for example, 85% of community midwives named the clinically rare side effect of spotting, indicating that it may be unduly stressed in previous training. Further, our finding that between 20% and 35% of community midwives consider common side effects of painful menstruation, cramping, and excessive bleeding unacceptable suggesting that providers may not have the skill and tools needed to help clients for managing these side effects. Later results were changed to almost 100% on the knowledge, skill of IUD insertion and infection prevention techniques, after the training.

Pelvic inflammatory disease among users of intrauterine device is most strongly related to the insertion process rather than the device itself⁹. Clients' believe that IUDs cause pelvic inflammatory disease is associated with lower IUD use¹⁰. Study shows that there is a lack of information and abundant misinformation about the IUD¹¹. Most family planning clients who had never used an IUD reported a negative impression of the method, mainly because of fear resulting from rumors and myths they had heard¹². Therefore there is dire need of training before and after the job placement.

CONCLUSION

Study was based on three phases, (assessment, intervention and evaluation). Findings of the Study suggested that training is essential to improve provider's knowledge, technical skill for IUDs insertion, and guidance for counseling during follow up visits.

For community midwives in Lahore and in other areas where insertion of IUDs by lower-level health workers is permitted, strategic efforts to train them for the insertion of IUDs and improving perceptions, addressing to barriers, and building motivation. Despite training, their knowledge, particularly with regard to medical eligibility for the use of IUD remained low. Therefore concept of training should be expanded to reduce potential barriers for using IUDs. Use of IUDs should be included in pre-service curriculum, on-job training, peer-to-peer education, client advocacy, and continually promoting that IUDs can be used safely by many women. Medical education and job tools for healthcare providers are essential for the quality care but they may not be comprehensively prepared to develop the interest in the IUD on the part of clients^{8,12}. Limitations of the research were that, firstly it was a small group study and only conducted in Lahore, so results cannot be generalized. Secondly attitude of midwives could not be directly observed onsite while in medical practice.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Assessment of Diagnostic Laproscopy in Chronic Abdominal Pain at Tertiary Care Hospital

Farkhanda Jabeen Dahri¹, Abdul Hakeem Jamali¹ and Qambar Ali Laghari²

ABSTRACT

Objective: The objective of this study was to find out the diagnosis of diagnostic laparoscopy in patients having chronic abdominal pain.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Surgery Department of PMC hospital and PUMHS Nawabshah from February 2014 to March 2015.

Materials and Methods: All the undiagnosed cases of chronic abdominal pain (by conventional methods and investigations such as clinical examination, urine examination, US abdomen etc), abdominal pain more than 3 months, cases age more than 18 years either gender and clinically diagnosed as chronic were selected in this study, while all the cases with known cause of pain, Acute inflammatory disease, cases having acute intestinal obstruction, coagulation abnormalities, critical illness, severe/decompensated cardiopulmonary failure and medically unfit for anaesthesia and surgery were not selected in this study. Diagnostic laparoscopy was performed in all selected cases and findings were entered in proforma.

Results: Total 45 patients underwent diagnostic laparoscopy majority of the young patients was found. Female were found in the majority 60% as compare to males 40%. 13 (28.88%) patients had pain in right iliac fossa, 08 (17.78%) patients had hypogastrium pain, 10 (22.22%) cases were found with whole abdominal pain, 10 (22.22%) patients had pain in left iliac fossa and 04 (8.89%) patients were noted with pain at right hypochondrium. According to laparoscopy findings, appendicitis and adhesions were most common 14(31.11%) and 10(22.22%) respectively, following by Abdominal tuberculosis, Hernia, Mesenteric lymphadenopathy, Ovarian cyst and Dense adhesions + Thickened gall bladder wall with percentage of 06(13.33), 03(6.67%), 02(4.44%), 04(8.89%) and 02(4.44%) respectively, while 04(8.88%) cases were noted without any disease.

Conclusion: Diagnostic laparoscopy in good tool for diagnosis of chronic abdominal pain, according to the assessment the commonest basis of chronic recurrent abdominal pain in this study was appendicitis followed by abdominal tuberculosis and adhesions.

Key Words: Laparoscopy, Chronic Pain In Abdomen, Diagnosis

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INTRODUCTION

Chronic pain in abdomen is the most common presentation, in common surgical procedures. Despite being exposed to many tests, nearly 40% of cases remain undetected at last.^{1,2} Long lasting abdominal pain is correlated with low standard of life and considerable levels of distressing indications.³ The commonest organic stipulations contain intestinal adhesions,^{4,5} particularly in cases with a surgical history of abdomen, abdominal TB,⁶ biliary basis, appendicular

pathology, mesenteric lymphadenopathy (can as well be because of contagious causes of bowel for example gastroenteritis, colitis or enteric fever despite TB), as well as hernia. Whereas, functional stipulations comprise irritable bowel disorder, FD, as well as a variety of motility diseases. Pain in abdominal wall is as well common and recurrently confused with visceral pain.⁷ It is a secure and useful tool that can set up the cause and permits for suitable intercessions. Pain in abdominal is a frequent complaint of admitted cases. Farther than these 25% cases have indistinguishable pain in abdomen.⁸ In chronic pain in abdomen above 40% of the cases have no exact etiological diagnosis executed finally at diagnostic workup.⁹ Several functional & organic disorders can result in abdominal pain.

Laparoscopic surgery is a method which visualizes peritoneal cavity without any large surgical incisions.¹⁰ It has altered the administration of several surgical disorders.¹¹ At present diagnostic laparoscopy is established as the ideal prime approach to numerous

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disorder processes. As diagnostic modality, Laparoscopy is valuable in 3rd world nations such as Pakistan due to its maximum yield as well as higher economy as contrasted to further examinations such as MRI & CT scan.¹² It permits quick revisit to a regular diet as well as every day activity, exhibits better cosmetic outcomes, is less expensive as contrasted with imaging studies, prevents needless laparotomy as well as can possibly present treatment simultaneously. Although, at first, laparoscopy was believed to be contentious in unjustified abdominal pain because of causal adhesions risk. However, today it is measured as well- recognized as well as proficient means of not just in evaluating every organ in abdomen although surgeons are getting expert in numerous therapeutic methods together with adhesionolysis.¹³ The objective of this study was to detect the assessment of diagnostic laparoscopy in cases with recurrent pain in abdomen.

MATERIALS AND METHODS

This cross sectional study was held at the surgery department of PMC hospital and PUMHS Nawabshah. All the patients of undiagnosed (by conventional methods and investigations such as detailed history, clinical examination, blood counts, urine examination, USG abdomen, plain x-ray abdomen) chronic pain in abdomen for above 3 months of duration in patients of more than 18 years of age, and cases of clinically diagnosed chronic pain in abdomen for above 3 months of duration, non-respondent to the treatment given, were incorporated in the study. While cases with identifiable process that can explain the cause of pain, Acute or inflammatory process, Patients with acute intestinal obstruction, and Patients with coagulation defects, critical illness, severe/ decompensated cardiopulmonary failure and medically unfit for surgery were excluded from the study. Detail history was taken and examination was carried out and after necessary investigations, diagnostic laparoscopy was done to expose the cause of chronic pain in abdomen and findings were recorded on pre-designed proforma. All data was analyzed on SPSS version 19.

RESULTS

Total 45 patients underwent diagnostic laparoscopy majority of the young patients was found as: 16(35.56%) cases were found with 18-30 yrs of age group; while 16(17.77%) patients were between 31-40 years, and 18(20%) patients were with 41-50 years of age group. Table 1

In this series female were found in the majority 60% as compare to males 40%. Figure 1

According to the site of pain, 13 (28.88%) patients had pain in right iliac fossa, 08 (17.78%) patients had pain in hypogastrium, 10 (22.22%) cases were found with whole abdominal pain, 10 (22.22%) patients had pain in

left iliac fossa and 04 (8.89%) patients were noted with pain at right hypochondrium. Table 2

According to laparoscopy findings, appendicitis and adhesions were most common 14(31.11%) and 10(22.22%) respectively, following by Abdominal tuberculosis, Hernia, Mesenteric lymphadenopathy, Ovarian cyst and Dense adhesions + Thickened gall bladder wall with percentage of 06(13.33%), 03(6.67%), 02(4.44%), 04(8.89%) and 02(4.44%) respectively, while 04(8.88%) cases were noted without any disease. Table 3.

Table No.1: Age distribution of the patients (n=45)

Age	No. of patients / (%)
Age group (in years)	
18-30	16(35.56%)
31-40	09(20.0%)
41-50	09(20.0%)
51-60	7(15.56%)
above 60	4(08.88%)



Figure No.1: Gender distribution of the cases n= 45

Table No.2: Site of Abdominal Pain (N=45)

Site of Abdominal Pain	No of Patients/%
Right iliac fossa	13 (28.88%)
Hypogastrium	08 (17.78%)
Left iliac fossa	07 (15.56%)
whole abdomen	10 (22.22%)
Right hypochondrium	04 (8.89%)
Umbilical region	03 (6.67%)

Table No.3: Laparoscopic findings (N= 45)

Clinical presentation	No of patients/%
Appendicitis	14(31.11%)
Adhesion	10(22.22%)
Abdominal tuberculosis	06(13.33)
Hernia	03(6.67%)
Mesenteric lymphadenopathy	02(4.44%)
Ovarian cyst	04(8.89%)
Dense adhesions + Thickened gall bladder wall	02(4.44%)
Normal	04(8.88%)

DISCUSSION

In a number of cases in spite of the entire scheduled laboratory examinations and US cases were not diagnosed. The abdominal disorder is complicated and for investigative diagnosis, patients generally experience diagnostic laparotomy. In such circumstances, investigative laparoscopy is a good option. By this technique can visualize the cavity of abdomen directly, supply sufficient stuff for histopathological evaluation.

In this series young cases were most common and female were found in the majority, while according to the site of pain 13 (28.88%) patients had pain in right iliac fossa, 08 (17.78%) patients had pain in hypogastrium, 10 (22.22%) cases were found with whole abdominal pain, 10 (22.22%) patients had pain in left iliac fossa and 04 (8.89%) patients were noted with pain at right hypochondrium. Similarly Kumar Baria KA et al¹⁴ reported that pain in right lower quadrant was in 50% cases, right upper quadrant 8%, left lower quadrant 2% and periumbilical in 40%, furthermore Kumar Baria KA reported mean age 36 years and female gender most common. Literature review exhibits a range of results of investigative laparoscopy to sustain its application in recurring indistinguishable pain in abdomen. In a few studies above 90% exactness has been reported¹⁵ in diagnosing abdominal pain. In this study, the main cause of chronic pain in abdomen was found to be appendicitis. In our study 14(31.11%) patients had chronic appendicitis was the most common cause chronic pain in abdomen in lower right quadrant. Cause and symptoms of the present study were similar as observed in study of Baria.¹⁶ Reem Al-Bareeq reported In a study that inflamed appendix was observed within 73% patients, while in one more study it was established within 39% cases.¹⁷ In one of the largest series Sulky et al¹⁸ was able to identify pathology in 69 out of 70 patients with either appendicitis or gynaecologic pathology being the main finding. These were greater as contrasted to our study, establishing inflamed appendix cases.

Abdominal TB is widespread in our nation; frequently it has no specific characteristics, clinical features, history and indefinite base line examinations and abdominal U/S. Laparoscopy has turn out to be the examination of preference in such patients causing rapid diagnosis and confirmation-based commencement of anti-TB medications.¹⁹ In our study, abdominal tuberculosis was seen in 06(13.33%) patients, which is similar to study conducted by Hossain et al²⁰.

In this study, adhesions were found to be source of chronic abdominal pain among 10(22.22%) cases. A few authors, who disprove its significance in adhesiolysis as well as consider it contentious and not proof-based, yet argue the laparoscopic contribution in chronic pain of abdomen. Thus, they do not advise it as

a therapy of adhesion in cases with chronic pain of abdomen.²¹ Easter et al²² had 47% positivity with adhesions being the main finding. Investigative laparoscopy makes it likely for the professionals of surgical procedure to visualize superficial anatomy of abdominal organs in details superior as compare to further imaging modality. Nonetheless, laparoscopy has limitations for instance non-visualization of profound parenchymatous organs, procedures of retroperitoneal cavity as well as the internal surface of unfilled organs, and not permitting the professional of surgery to palpate organs.

CONCLUSION

In the conclusion of this study the diagnostic laparoscopy in good tool for diagnosis of chronic abdominal pain in those are undiagnosed on conventional methods of investigations, according to the assessment the commonest basis of chronic recurrent abdominal pain in this study was appendicitis followed by abdominal tuberculosis and adhesions. It should be done as soon as possible to prevent the morbidity and mortality.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Etiology and Clinical Pattern of Patients Presenting With Pancytopenia at Tertiary Care Hospital

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ABSTRACT

Objective: The objective of the study was to evaluate the various cause and clinical presentation in patients having pancytopenia in tertiary care hospital.

Study Design: Descriptive / cross-sectional

Place and Duration of Study: This study was conducted in the Medicine Department of LUMHS, Jamshoro from 2013-2015.

Materials and Methods: Total 80 cases of pancytopenia were enrolled in the study. Patients were included above age of 15 years from both sexes. Pancytopenia was defined as: WBCs ($\leq 4.0 \times 10^9/L$), hemoglobin (≤ 10.0 g/dl) as well as platelet counts ($\leq 150 \times 10^9/L$). All the clinical features and etiological pattern were noted in all cases and entered in the proforma. All the information was entered on SPSS version 18 and was analyzed.

Results: Total 80 cases were studied, who represented pancytopenia. Male were in majority 61 (76.25%). Majority of the young cases was found with mean age of 33.23 years. Most common clinical feature was found general weakness in 19 (23.75%) patients followed by fever (18.75%), dyspnea 11 (13.75%), bone pain 6 (7.5%), anemia 6 (7.5%) and pain in legs in 4 (5%) patients. According to the etiological pattern, aplastic anemia and malaria was found most common in 18 (22.5%) and 11 (13.75%) cases respectively.

Conclusion: Aplastic anemia and malaria was the commonest factors of pancytopenia in this study mostly in young males. The commonest clinical presentation observed was generalized weakness after that fever and dyspnea.

Key Words: Pancytopenia, Etiology, Clinical Pattern

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INTRODUCTION

Pancytopenia is a syndrome in which the altogether 3 main components of blood (platelets, red & white blood cells) are below normal range.¹ It can possibly be a expression of a large range of syndromes, which mainly/secondarily influence the bone marrow. Pancytopenia generally takes place with indications of failure of bone marrow for example bruising, bleeding, dyspnea, pallor and raised inclination to infections. The in vitro diagnostics of pancytopenia is apparent by low range of WBCs ($\leq 4.0 \times 10^9/L$), hemoglobin (≤ 10.0 g/dl) as well as platelet counts ($\leq 150 \times 10^9/L$). The frequency of different syndromes leading to pancytopenia fluctuates as per genetic mutations as well as geographical distribution.

Pancytopenia can be caused by decline in formation of hematopoietic cell within the bone marrow due to infections, toxins, idiosyncratic reaction or excessive usage of drugs, tumoral cells suppression/infiltration¹, autosomal & congenital, radiotherapy / alcohol / chemotherapy / medication as well as parasitic infestation.²

The commonest factor of pancytopenia is suggested to be megaloblastic anemia, after that acute leukemia, aplastic anemia, hypersplenism, AIDS, hepatitis and TB. Aplasia is as well the commonest causative factor of acute pancytopenia². Cases having acute leukemia and aplastic anemia were generally children while adults were associated to megaloblastic anemia. Aplasia is the commonest causative factor severe pancytopenia. Macroovalocytosis, poikilocytosis, anisocytosis, teardrop erythrocytes, fragmentation, and microcytosis were further outstanding on the blood films of cases having megaloblastic anemia.³ It is an expression of several severe & deadly diseases with an broad differential diagnosis. It must be suspicious on clinical basis when a case represents with pallor, inclination to bleed and extended fever. Present study has been carried out to assess the commonest causes and clinical presentation of pancytopenia in tertiary center.

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MATERIALS AND METHODS

This was a descriptive cross-sectional study conducted within 2 years from 2013-2015 on pancytopenia presenting patients attending the medicine department and OPD of Liaquat University of Medical and Health science. Total 80 cases of pancytopenia were enrolled in the study. Cases from both sex were included and above 15 years of age. Patients who were less than of 15 years, pregnant females, received blood transfusions and associated with antiviral treatment and chemotherapy were not included in the study. Complete medical history and physical examination were carried out. Pancytopenia was detected as the existence of anemia (hemoglobin $<11\text{g/dl}$), leucopenia (WBCs $\leq 4.0 \times 10^9/L$), and thrombocytopenia (platelet count $\leq 4.0 \times 10^9/L$). Predesigned proforma was developed to record. Clinical pattern and etiology was assessed through detail history, general physical and systemic examination and routine laboratory investigations. All the demographic characteristics, clinical features and etiological pattern were noted in all cases and entered in the proforma. Data was entered and analyzed on SPSS version 16.

RESULTS

An overall number of 80 cases with pancytopenia were studied. 61(76.25%) patients were males while 19 (23.75%) patients were women. Men to women ratio were 2:1. Majority of young cases was noted and mean age was 33.23 years. Table:1

Table No.1: Age and gender of patients (n=80)

Age and Gender	No. of patients / (%)
Mean age	33.23 years
Male	61 (76.25%)
Female	19 (23.75%)

Table No.2: Clinical features of patients with pancytopenia (n=80)

Clinical features	No. of patients / (%)
Generalized weakness	19 (23.75 %)
Anemia	06 (7.5%)
Dyspnea	11(13.75%)
Jaundice	04(5%)
Fever	15(18.75%)
Bleeding	03(3.75%)
Abdominal pain	05(6.25%)
Bone pain	06(7.5%)
Mass in abdomen	05(6.25%)
Lymphadenopathy	02(2.5%)
Pain in legs	04(5%)

Regarding clinical features, generalized weakness was seen most commonly in 19(23.75%) patients followed by fever (18.75%), dyspnea 11(13.75%), bone pain 6(7.5%) ,anemia 6(7.5%) and pain in legs in 4(5%) patients. Table 2

In this study according to hematological pattern most of the patients 40(50%) had haemoglobin range between 1.5 – 5.0 g/dl. On the leucocyte count majority of the cases 50(62.5%) had total leucocyte count with range of 1,000– 2,500/cumm. According to thrombocytopenia mostly cases 40(50%) had platelet count between $<5,000 - 50,000/\text{cumm}$. Table 3

In this study, the disease processes resulting in pancytopenia in the peripheral blood in order of decreasing frequency were aplastic anemia 18 (22.5%) followed by malaria 11 (13.75%), megaloblastic anemia 09 (11.25%), tuberculosis 07 (8.75%) and hypersplenism 07(8.75%). Table 4

Table No.3: Hematological features of patients (n= 80)

Hematological features	No. of patients / (%)
HB (g/dl)	
1.5 - 5.0 g/dl	40 (50%)
5.1 - 8.0 g/dl	25(31.25%)
8.1 - 9.9 g/dl	15(18.75%)
TLC (cumm)	
490 – 1000	08(10%)
1000 – 2500	50(62.5%)
2500 – 3500	22(27.5%)
PLT (cumm)	
$< 5000 - 50,000$	40(50%)
51,000 - 80,000	18(22.5%)
81,000 - 99,000	22(27.5%)

Table No.4: Causes of pancytopenia (N=80)

Causes of pancytopenia	No. of patients / (%)
Megaloblastic anemia	09 (11.25%)
Malaria	11 (13.75%)
Nutritional deficiency anemia	03 (3.75%)
Aplastic anemia	18 (22.5%)
Tuberculosis	07 (8.75%)
Alcoholism	02 (2.5%)
Typhoid fever	05 (6.25%)
Drug induced	03 (3.75%)
Viral infection	03 (3.75%)
CLD	04 (5%)
Leukemia	06 (7.5%)
Spleen enlarge	07 (8.75%)
undiagnosed	02 (2.5%)

DISCUSSION

Pancytopenia is a crucial hematological challenge that makes the patient inclined to anemic expressions, infections, and a tendency to bleed. In this series commonest clinical feature was found general weakness in 19(23.75%) patients followed by fever (18.75%), dyspnea 11(13.75%). From etiological factors aplastic anemia and malaria was found most common in 18 (22.5%) and 11 (13.75%) cases respectively. We found 76.25% patients were males while 23.75% patients were females. In the studies of Aziz et al⁴, and Jain et al⁵ reported that higher frequency of male were

involved in pancytopenia as compare to female. This difference may be due to the male were more concerned with outdoor activities as well as they generally spent their more time outside doing labor in industries and fields, thus further exposed to farming pesticides & insecticides or radiations. In this study majority of young cases were noted and mean age was found 33.23 years. Similarly Khattak MB et al⁶ reported that out of 90 cases 54 men and 36 were women and mean age 28±15.84 years. In another study of Jha A et al⁷ also found comparable results of age.

Aplastic anemia was the commonest factor of pancytopenia in our study, which was observed in 22.5% cases. Similar results are seen in study conducted by Mussarat et al⁸, in Nepal, in which 29.5% cases had pancytopenia due to aplastic anemia. It is the most widespread factor of pancytopenia accounted from a range of studies worldwide.⁹ The incidence of aplastic anemia varies from 10% to 52.7% as a cause of pancytopenia.⁹

Malaria is caused by microorganisms which live as parasites and transmitted to humans through the bite of a female Anopheles mosquito. When a contaminated Anopheles (female mosquito) bites to a healthy individual than Plasmodium parasites enter into his blood¹⁰. In the liver of the host Plasmodium parasites multiply number of times and start destroying the red blood cells before infection. In this study, 13.75% patients had pancytopenia due to malaria. The elevated prevalence of malaria was perceived in low-earnings group, deficient in hygiene (cleanliness) in the residence or region. In Malaria prophylaxis, taking anti-malarial drugs is good policy to avoid malaria.¹¹ Anwar A et al¹² demonstrated that significant ($P < 0.001$) changes in blood cells count of cases having further he reported that cases had remarkable decreased in platelets and leucocytes than hemoglobin. Megaloblastic anemia, as factor of pancytopenia was seen in 11.25% patients in our study, while in other studies high prevalence of megaloblastic anemia was mentioned as well as by Khunger et al¹³ mentioned 72%, Tilak and Jain et al¹⁴ reported 68%, while 26.42% reported by Subrahmanyam and Padma et al.¹⁵ This wide difference may be due to nutritional anemia within that specific area of study. Tuberculosis was noted in 8.75% of our cases. Tareen et al¹⁶ in their study found that tuberculosis accounts for 17.22% cases of pancytopenia. Mert et al.¹⁷ pancytopenia had found 8% out of 38 cases with milliary T.B. while in other studies also reported comparable results.^{18,19}

In our study, generalized weakness was seen most commonly in 23.75% patients followed by fever 18.75%, dyspnea 13.75%, bone pain 7.5%, anemia 7.5% and pain in legs in 5% patients. These findings were similar to the findings of Memon et al.²⁰ Hayat AS et al²¹ reported that weakness was most common (97.64%) dyspnea (88.23%), fever (52.94%), and

abdominal abdominal pain (50.58%), while ascitis found only (5.88%) and jaundice only in (8.23%) cases. Aziz et al⁴ also found comparable results. In the present study, most of the patients i.e 50% had haemoglobin percentage between 1.5 – 5.0 g/dl. 62.5% cases had total leucocyte count in range of 1,000–2,500/cumm and 50% cases had platelet count between < 5,000 – 50,000/cumm. Agarwal R et al²² also found comparable results regarding hematological pattern.

CONCLUSION

Aplastic anemia and malaria were frequent factors of the pancytopenia and mostly in young males were involved. The commonest clinical factors was general weakness after that fever and dyspnea.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Spectrum of Firearm Fatalities in Larkana Region

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ABSTRACT

Objective: To determine frequency of firearm fatalities in Larkana region.

Study Design: Descriptive study.

Place and Duration of Study: The study was conducted at causality and department of forensic medicine and toxicology Chandka Medical College @ SMBBMU Larkana from 1st June 2013 to 31st May 2015.

Materials and Methods: Out of 1870 dead bodies brought for autopsy at causality Chandka Medical College Hospital Larkana and those 357 (19%) cases were selected in whom death occurred due to firearm as mentioned in police inquest report and autopsy record conducted, with the permission of authorities data was collected and analyzed and cause of death was determined by external and internal examination of body.

Results: Autopsy record shows that among 357 cases males with 309 (87%) were dominated on females with 48 (13%) with Male/Female ratio of 6:1. The victim ages range from 11 years to 70 years and with location of injuries as 127 (35.57%) on Chest, 92 (25.77%) on Head & Neck, 59 (16.52%) on Abdomen, 38 (10.64%) on Head&Chest, chest & abdomen 31 (8.68%) and 10 (2.82%) on limbs and other parts, with manner of homicide in majority (78.15%) of cases

Conclusion: The majority of victims were young males belonging to rural areas with rifled firearm injuries on Chest, and Head & Neck as a cause of death.

Key Words: Firearm, fatalities, young males, Larkana.

Citation of article: Pathan RA, Shaikh SA, Shaikh MR, Kumar K, Khichi ZH, Shaikh AH. Spectrum of Firearm Fatalities in Larkana Region. Med Forum 2016;27(9):45-48.

INTRODUCTION

The Firearm begins with invention of gunpowder which was discovered by Chinese and it is considered as one of four earliest inventions. The first portable Firearm is "Gonne" used in battle¹. The first practical Pistol single shot wheel lock originated in Germany during 1520.² In 1718 a tripod mounted single barreled flint lock gun fitted with a multi shot revolving cylinder "Puckle gun" was invented by James Puckle of London England.³

Firearm is any instrument or device designed to propel a projectile by means of expansive force of gases generated by combustion of an explosive substance.⁴ Firearm is categorized as, (a) According to condition of barrel 1. Smooth bore firearm eg . Shot gun 2. Rifled (non smooth) firearm 3. Country made firearm 4. Air gun 5. Paradox gun. (b) According to muzzle velocity

1. Low velocity (up to 1200 ft./sec) eg. revolver pistol
2. Medium velocity (between 1200 -2500 ft./sec)
3. High velocity (more than 3000 ft./sec) eg. Machine gun.⁵ Firearm consists of, 1. Barrel. A hollow metal cylinder for occupying propellant charge its lumen is called bore with (a). Muzzle end & (b). Breech end. 2. Action consists of Bolt, Striker or hammer & Trigger. 3. Butt / Grip back side of stock in shoulder. 4. Magazine⁶.

The cases of firearm fatalities have been remarkably increased in the recent years and still increasing day by day this is due to increasing population, poverty, unemployment, frustration, social and political disputes, tribal and land disputes, irrigation water disputes and moreover easy availability of firearm weapons with no check and balance and issuance of the unauthorized gun license. The aim of this study is to control over this menace in Larkana& Pakistan.

MATERIALS AND METHODS

This descriptive study was conducted at causality and department of forensic medicine and toxicology CMC @ SMBBMU Larkana from 1st June 2013 to 31st May 2015. Non probability (purposive) sampling was done and from total of 1870 autopsies only those 357 cases were selected in which death was caused by firearm, while in cases in which death due to other causes like mechanical, explosive and thermal injuries, asphyxia and poisoning were excluded. The comprehensive and

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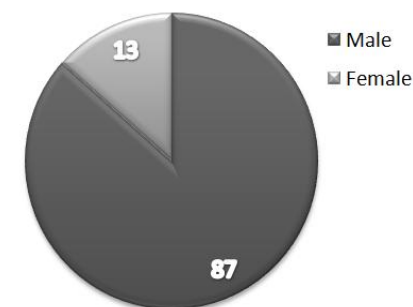
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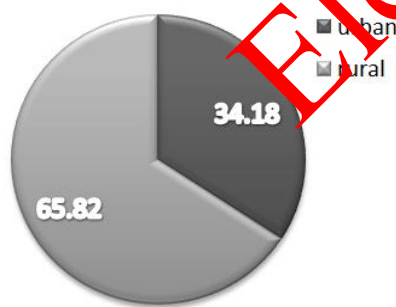
elaborated post mortem examination (autopsy) including external examination like age, sex, and number of injuries noted and internal examination for presence of any firearm residue like pellets bullets was carried out. The finding were entered into proforma and data was analyzed about gender, age, area of body involved, number of injuries and whether victim belongs to urban or rural area. Autopsy record of all 357 cases of firearm fatalities was collected and data was entered and analyzed by using SPSS version 17 software. Frequency of age and gender of victim along with body parts injured by firearm were determined and shown in number and percentage.

RESULTS

Among 1870 dead bodies brought for autopsy at casualty CMCH Larkana 357 (19.09%) were selected in which death was caused by firearm. From autopsy record which shows 309 (87%) males and 48 (13%) females with male to female ratio of 6:1 shown in the Pie Chart number1, the ages of victim were grouped from 11 to 70 years with maximum number of fatalities among 20 to 29 years 123 (34.05%) with the least among 60 to 70 years 17 cases (4.7%) as shown in the Bar Chart.



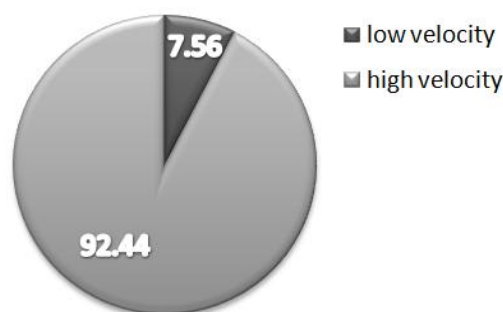
Pie Chart No.1: Male / female ratio



Pie Chart No.2: area

Regarding distribution of injuries and body part involved the maximum number of victims had received injuries on Chest 127 (35.5%) followed by on Head & Neck 92 (25.77%), abdomen 59 (16.52%), Head and Chest 38 (10.64%), Chest and abdomen 31 (8.68%) and limbs 10 (2.80%) as shown in the Table number1. The majority of victims 235 (65.82%) belongs to rural areas as shown in pie chart number 2, with manner of the

death as homicidal in 279 (78.15%) cases, suicidal 45 (12.60%), accidental 20 (5.61%) and intruder 13 (3.64%) as shown in the Table number2.



Pie Chart No.3: Type of weapon



Pie Chart No.4: No of firearm entry wound

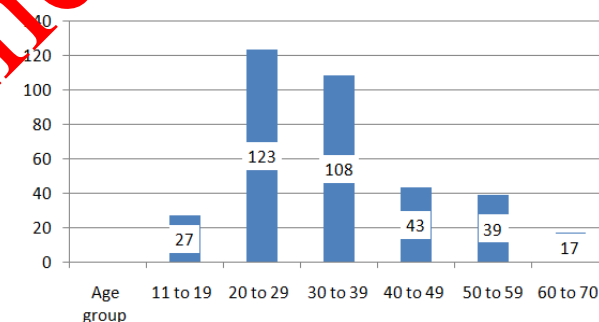


Chart:

Table No.1: Distribution of Injuries (n:357)

Area of body involved (n= 357)	Frequency	%age
Chest	127	35.57
Head & Neck	92	25.77
Abdomen	59	16.52
Head & chest	38	10.64
Chest & Abdomen	31	8.68
Limbs	10	2.82
Total	357	100

The use of high velocity weapon (Rifle and Kalashnikov) were responsible for 330 (92.44%) and only 27 (7.56%) by low velocity (Pistol and Revolver) as shown in Pie Chart number 3.

Among 303 (84.88%) victims had multiple firearm injuries when only 54 (15.12%) had single firearm

injury as shown in Pie Chart number 4, and with the recovery of the firearm bullets/pellets in 47 (13.16%) subject.

Table No.2: Manner of death n=357

Manner of death	Frequency	Percentage
Homicide	279	78.15
Suicide	45	12.60
Accident	20	5.61
Intruder	13	3.64
Total	357	100

DISCUSSION

The violent injuries are 8th leading cause of death in world⁷. While study conducted by Jiaquan Xu and Others reveals that it is 10th leading cause of death in USA²⁰. Every year approximately 1.6 million deaths in world occur as a result of violent trauma by Gunshot and more than 5.8 million people die due to violent injuries by other weapons and Road traffic accidents. The Gun related fatalities are mostly by hand guns like (Pistol, Revolver and rifles).⁸ The firearm injuries cause high death rate and significant morbidity as well as increased physical and psychological incapacibilities among individuals, families and communities.⁹ The number of licensed Firearm owners in Pakistan reported are 7000000, and still many possessing unlicensed and unauthorized guns. A study conducted in four districts (Rawalpindi, Abbottabad, Sialkot and Bannu) of Pakistan, 2025 autopsies were conducted during the January 2010 to 2014. Proportion of firearm injuries was 60.7%¹¹ which is very high compared to our study which is 19%

The study conducted in Multan indicates that in majority of cases of firearms deaths there was male dominance with male/female ratio of 3:1 among ages from 21 to 30 years.¹² And in our study majority of them (65.82%) belongs to rural areas. This is due to that males (landlords and farmers) keep the weapon of firearm for their own protection and safety of land so the minor dispute especially on land give rise to the catastrophe of firearm fatalities. This ratio is inconsistent as compared to the study of author in respect of male/female ratio but consistent with author's study, Arif A.¹² and others and Chotani HA.¹⁴ and others in respect of age. In another study conducted at Karachi, Pakistan shows that firearm is most common cause of death in young males in Karachi and this picture of violent death is consistent with other low income countries.¹³ This study is also matching our results. This is not astonishing because of certain reasons like males are more than half of population and engaged in working in different categories whereas the women are confined to home because of our customs and they are injured or killed by protecting their males. And it is estimated that males are more indulged in criminal activities because of emotional disturbance,

erratic decisions, aggressive behavior, poverty and unemployment even due to honor stigmata.

The study of 240 cases conducted at Allama Iqbal Memorial Teaching Hospital Sialkot reveals male and female ratio of 6.2:1 and in 3rd decade of the life.¹⁴ This is consistent with the author's study. Regarding the fatalities among young ages are more because of the secretion of the hormones and at this reproductive age so more prone to develop anger quickly. The study conducted in Lahore from January 2010 to December 2010 of 100 autopsies of firearm fatalities shows manner as homicidal 80%, accidental 10%, suicidal 5% and as a result dacoit attempt (intruder) 5%.¹⁵ This study is almost matching our study but inconsistent with study by Marwah S.¹² and others conducted abroad (India).

Regarding manner of firearm fatalities the picture of Peshawar study is not different from other big cities of Pakistan which show that from June 2005 to February 2006 among 100 cases of homicidal deaths by firearm (33.88%) on Chest and (25.61%) on Head & Neck and (91%) injuries were caused by high velocity firearms weapons with 96% victims having multiple firearm entry wounds.¹⁶ This study also resembles with our study. The males especially in tribal areas almost keep sophisticated/automatic firearm weapons e.g Rifle and Kalashnikov for their personal safety and protection but time comes they use this weapon to kill others (homicide). Another study conducted abroad shows that frequently targeted body regions are Chest, Head & Neck, Abdomen and Pelvis.¹⁷ This study is consistent with the author's study regarding multiple firearm wounds is due to reason that the offender has a idea that the targeted person will be imminently killed by many fires especially on Chest, Head & Neck because of the vulnerability and vitality of these body parts. While study conducted in Peshawar from June 2005 to February 2006 indicate that among 100 cases of homicide death by firearm 25.61% were on Head & Neck. In India the record of firearm fatalities during 2008 reveals that there were 6219 deaths by firearm reported with manner of 4101(66%) by (Homicide), 1639 (26.5%) by accident and 479 (7.7%) by suicide in top three dangerous states of Bihar, Jharkhand & Uttar Pardesh.¹⁸ The 04 years study conducted during 2007 to 2010 in USA shows that there were 121084 firearm fatalities with state to state variation of maximum of 17.9% in Louisiana to lowest 2.9% in Hawaii per 100000 individual per year.¹⁹ This number of firearm fatalities is inconsistent with the number of fatalities (357) at Larkana. In another study conducted in USA during 2013 reports that during 2013 total of 2596993 deaths were reported and registered and that among 15 leading causes of death in USA the firearm was labeled as 10th leading cause of death with 41149 at 1.6%.²⁰

CONCLUSION

Almost every third person in Larkana has weapon of firearm which is responsible for high rate of mortality. Young males are at utmost target with vulnerable sites like Chest, and Head & Neck are mostly involved. The majority of firearm fatalities were caused by Rifled firearm. The proponents contend that guns produce more crime than they prevent. The prevention of firearm fatalities and wounding is one of the most complex and controversial issue arisen in especially in recent years and law effects in reducing crime and firearm related deaths and injuries have been disappointing.

Recommendation: 1. Efforts should be made to control or discourage private gun ownership and especially to eliminate guns from the hands of criminals.
2. To educate the people for safer use of firearms.
3. Strict surveillance on the borders to prevent illegal transport (smuggling) of firearm weapons to Pakistan.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Causes and Awareness Regarding Smoking in Patients attending General Medicine OPD at Tertiary Care Hospital

Waseem Raja Memon¹, Bharat Lal¹ and Abdul Ghani Rahimoon²

ABSTRACT

Objective: To assess the causes and awareness of smoking in general population.

Study Design: Observational / descriptive study

Place and Duration of Study: This study was conducted at General Medicine OPD of PUMHS Hospital Nawabshah from 2015 up to January 2016.

Materials and Methods: Two hundred patients were integrated in the study following receiving verbal well-versed consent. A self-administered questionnaire was filled and information was collected regarding reasons of smoking, and awareness regarding smoking that whether it is harmful, what is passive smoking etc.

Results: When cases were interviewed regarding awareness of smoking than 121(60.5%) answered correctly that smoking is harmful for health while 79(39.5%) answered incorrectly. Passive smoking is risky for health, was answered correctly only by 76(38%) while 124(62%) persons did not know that passive smoking very risky for health. Only 29(14.5%) cases answered correctly about smoking quitting centers in our country. 89(44.5%) peoples smoke to relieve occupational stress, 79(39.5%) participants smokes to relieve domestic stress, 67(33.5%) smoke for the digestive purpose, 111(55.5%) smokes when sitting with friends, 113(56.5%) smokes due to peer pressure and 78(39%) smokes due to habit from childhood and also their parents were smoker.

Conclusion: This study showed that peoples had low level of consciousness regarding injurious consequences of smoking. Common reasons were seen peer pressure, reduce stress and digestive purpose.

Key Words: Smoking, causes, awareness

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INTRODUCTION

Smoking is very commonest avoidable factor of mortality & morbidity all around the world and very dangerous habit which is also risky for nonsmokers.¹ There is a growing evidence which relates smoking to pathology in cardiovascular system, respiratory system and urinary bladder.² In year 2000 roughly 4,830,000 early age mortalities were attributable to smoking in addition to nearly 50% of these mortalities were accounted from under developed countries.³ Smoking is on the decline in the developed countries in contrast to the developing countries where there is corresponding increase in smoking rates.³ Over the last two decades, manufacturing of cigarette has escalated worldwide, averagely 2.2% per annum, outpacing the populace

escalation rate of 1.7%.⁴ During 1995, from the overall populace of 78000,000 in Pakistan, 36% men & 9% women at the age of 15 yrs or elder were observed to be smokers². In Pakistan smoking is the most important factor of mortality and disability which poses a big economic burden not just on the behave of therapy & medical care however as loss of effective & productive work force in early age. On the survey of different universities in 2008 at Karachi 23% candidates were seen with regular smoking.⁵

Nothing active smoking addicts are at escalated risk of death but passive smoking is as well placing a considerable quantity of nonsmoking individuals at escalated risk of eath.⁶ Tobacco is a well-known risk factor of a range of disorders including lung malignancy, CVD as well as lung disorder. Passive smoking is correlated with URTIs as well as asthma. The tobacco consumption is widespread worldwide, particularly in under developed nations such as Pakistan. The cigarettes utilization in Pakistani nation was approximated at 90 billion cigarettes during 2005. Numerous factors have been accounted for the incidence and acknowledgment of smoking in Pakistani nation, including colleague demands, community needs, to alleviate anxiety, frustration, anger and stress, together with nicotine addiction in cigarettes.^{7,8} Although, no difference between occupational and

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domestic stress has been kept while examining stress as the cause, evaluating the two sources independently can possibly construct significant data. Adopting cigarettes from companions has as well been accounted among half of teenage smokers,⁹ hence easy accessibility can possibly be a causative factor in smoking. There is a very high incidence of early morbidity and mortality in young smokers due to smoking related diseases.¹⁰ Aim behind this research work was to evaluate the causes along with awareness of smoking in general population.

MATERIALS AND METHODS

This descriptive, observational study had conducted at PUMHS hospital Nawabshah from 2015 up to 2016. Two hundred cases were integrated in the study following a verbal well-versed consent. All the cases were selected from general medicine OPD. Some patient's attendant were also selected those were smoker and were agree to participate in the study. A self maid ministered questionnaire was filled and information was collected regarding reasons of smoking. And awareness regarding smoking that weather it is harmful, what is passive smoking etc. All information was recorded in the Performa and analyzed in SPSS version 16.

RESULTS

Overall 200 cases were included in the study. Regarding socioeconomic condition, 91(45.5%) participants belonged to poor class while 67(33.5%) belonged to middle class and 42(21%) belonged to upper class. 44(22%) cases were illiterate while 43(21.5%) had received primary education, and 44(22%) were graduate. Table:1

When cases were interviewed regarding awareness of smoking, 121(60.5%) answered correctly that smoking is very for health while 79(39.5%) answered incorrectly. Passive smoking is also harmful for health, was answered correctly only by 76(38%) while 124(62%) persons did not knew that passive smoking has harmful effect on health. Only 29(14.5%) participants answered correctly about smoking quitting centers in our country. Table:2

In this study 89(44.5%) peoples smoke to relieve occupational stress, 79(39.5%) participants smokes to relieve domestic stress, 67(33.5%) smoke for the digestive purpose, 111(55.5%) smokes when sitting with friends, 113(56.6%) smokes due to peer pressure and 78(39%) smokes due to habit from childhood and also their parents were smoker. Table:3

Regarding source of information, 89(44.5%) participants got information from friends and relatives, 19(9.5%) got from medical professionals and 92(46%) received information from media. Table:4

Table No. 1: Demographic data of the cases (N=200)

Variables	Numbers	Percentages
Socioeconomic Condition		
Poor	91	45.5%
Middle	67	33.5%
Upper	42	21.0%
Education		
Illiterate	44	22.0%
Primary	43	21.5%
Middle	69	34.5%
graduate	44	22.0%

Table No. 2: Awareness of patients regarding smoking N=200

Variables	Yes	No
Cigarette smoking is harmful to your health?	121(60.5%)	79(39.5%)
Your health also on risk by smoking near you?	89(44.5%)	111(55.5%)
Smoking causes harm to your health?	99(49.5%)	101(50.5%)
Passive smoking means "Affected non-smoker person."	76(38.0%)	124(62.0%)
Do you know about dangerous diseases by smoking?	38(19.0%)	162(81.0%)
Are there any smoking quitting centers in your country?	29(14.5%)	171(85.5%)
Have you heard about warning against smoking	121(60.5%)	79(39.5%)

Table No. 3: Reasons of smoking n=200

Variables	Frequency (%)
Occupational stress relief	89(44.5%)
Domestic stress relief	79(39.5%)
For digestive purpose	67(33.5%)
Friendship	111(55.5%)
For looking glamorous	99(49.5%)
Any other role model	80(40.0%)
For experience/fun	34(17.0%)
Peer pressure	113(56.6%)
Habit from childhood	78(39.0%)
Borrowed from other	113(56.5%)

Table No. 4. Source of Information =200

Variables	Frequency (%)
Friends	89(44.5%)
Relatives	79(39.5%)
Parents	67(33.5%)
Profession	19(9.5%)

DISCUSSION

In this study, 60.5% persons knew about the hazardous effect of smoking on health. Similarly in a study of Omokhodion FO et al reported that 60.7% peoples knew that smoking has dangerous effect on health.¹¹ In our study most common reason for smoking was peer pressure. In other studies, multiple factors which influence smoking have been identified, but most commonly the youngsters start smoking by the peer pressure.^{12,13} Studies have accounted parental smoking as an effect on starting the smoking. A likely account can possibly be that as a teenager activities pattern, they are further liable to account smoking by associates as an influential cause for smoking as compare to their parents.

In this study, 33.5% participant's smokes for experience, 49.5% smokes for looking glamorous and 44.5% smokes to relieve stress. As well as in many other studies^{11,14,15} reported factors which influence adolescents like smoking for experience, looking glamorous and as a stress relief measure have also been recognized.

In this series 39 % cases smokes due to their childhood habits and their parents were also smoker. Parents are well-known to stimulus their children's conduct; teenage girls having smoker mothers are inclined to acquire chronic smoking as contrasted to those nonsmoking parents.¹⁶ A study from Karachi as well established a considerable correlation between smoking among youngsters & parental smoking, colleague smoking, uncles, and spending free time outdoor.⁹

In our study 55.5% of the cases smoking when sitting with friends and also due to influence of media. Friends and the media effect as a contributory cause of smoking is reflective of reduction in cigarette advertisements, moreover, in study on school-age kids in Lahore & Islamabad¹⁷ as well as one on youngsters in Karachi,⁹ which accounted no significant correlation between watching commercials announcements for cigarettes as well as consumption of tobacco.

An important point in making a strategy to deal with this menace is to consider the fact that cigarettes are freely available in the market and are accessible to everyone without restriction of age. In this study 56.5% peoples borrowed cigarette from others. Although there are rules and regulations of the state which govern the sale of cigarettes to children, but are not being implemented in true letter and spirit. These issues have also been highlighted by Ahsan Rasool et al¹⁴ and Di Franza JR.¹⁵

In this study, majority of information regarding health risks of smoking was got through media and relatives and friends i.e 46% and 44.5% respectively. Most respondents heard of the warning through the media, and a few via cigarette packs and family members. Health workers did not play a significant role in

informing the public of the dangers of cigarette smoking. An earlier study by Desalu et al¹⁸ had also reported that media-radio and TV were most common sources of information regarding the harmful of effects of smoking.

CONCLUSION

We concluded that peoples had low level of consciousness regarding injurious effects of smoking. Common reason for smoking was peer pressure, friendship sitting and also for digestive purpose. Awareness programs should be performed mostly in rural areas and also it is added in the books of primary and middle school, because mostly illiterate and primary to middle educated peoples were unaware. Also some smoking prevent strategies should be created for those who were smoke due childhood habits and for digestive purpose.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Selection of Single-Visit and Multiple-Visit Root Canal Treatment Protocol: A Survey of Endodontic Specialists and General Dental Practitioner of Pakistan

Kelash Kumar¹, Seema Naz² and Khawar Karim¹

ABSTRACT

Objective: The aim of this study is to determine the selection and preference of single- and multi-visit root canal therapy by specialist's endodontists and general dental practitioners of Pakistan and to inquire their motive for selecting the choice of treatment protocol in their practice

Study Design: Comparative study.

Place and Duration of Study: This study was conducted at the Department of Operative Dentistry and Oral Biology, Institute of Dentistry, LUMHS, Jamshoro from May 2016 to August 2016

Material and Methods: A close ended questionnaire was send via emails, WhatsApp and Facebook accounts to 20 specialist endodontists and 150 selected GDPs in Pakistan to investigate their preference and motive for selecting the choice of treatment protocol either single- or multi-visit for their patients. A literature search determined the commonest factors affect the choice of treatment either single- and multi-visit root canal treatment and were written in the questionnaire. The participants were informed to tick their response as agree, neutral and disagree as given in the questionnaire. The data collected were analyzed by the SPSS version 16. Frequency and percentages of variable like practice experience, current method of RCT and preference to the method of RCT were calculated. Chi-square tests were used to evaluate the differences in preference and current method of practice between both the groups of study. The level of statistical significance was set at 0.05.

Results: Response rate was 100% in this study. Amongst all participants 29.4% have experience of less than 10 years and 70.6% have experience of more than 10 years. Generally all participants were practicing 72.4% multi-visit RCT and 27.6% single visit RCT. When both groups were compared by using chi-square test, GDPs preferred multiple-visit endodontic treatment and specialist Endodontist preferred single visit treatment. Also current method of performing root canal treatment by specialist endodontists is single visit procedure as compared to the GDPs, who performed mostly by multi-visit. Most important factor to be considered for multi-visit root canal treatment were outstanding effects of intracanal medication, reduction of postoperative pain and easy collection of fees for multiple visit were 66.3%, 62.9% and 64.7% respectively as compared to single visit root canal treatment, the most important factor considered were low risk and complication of local anesthetics 62.4, treatment can be completed in one visit 52.4%, patient's time limitation 68.6%, dentist time limitation 68.0% and patient preference 60.6%.

Conclusion: In conclusion, most specialist endodontists perform and prefer single visit root canal treatment and GDPs preferred multi-visit root canal treatment.

Key Words: Single visit endodontic treatment, Multiple-visit endodontic treatment, Specialist Endodontist, general dental practitioner, Pakistan

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INTRODUCTION

Endodontic treatment have a great value in the rehabilitation of teeth affected by pulp and/or periapical pathology.¹

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Root canal treatment (RCT) described as the removal of the infected dental pulp and then chemo-mechanical preparation followed by obturation of the root canals of a tooth. Traditionally, endodontic treatment has been performed to take multi-visits to complete, however, the use of advanced endodontic technology and methods of treatment has not only improved the success outcome of endodontic treatment as high as 97% but also shortened the time required for the treatment.^{2,3}

Although, the single-visit root canal treatment is not new concept; the single- versus multi-visit endodontic treatment has been the topic of controversy among dental professionals for many decades, with as yet no exact conclusion to the dilemma. Traditionally, multiple-visits root canal treatment protocol is based on

the theory that only chemo-mechanical canal instrumentation is not significantly enough to sterile the canal completely but it needs intra-canal dressing for few days to cope with the canal microorganisms.^{2, 4} Multi-visit RCT is admitted as a safe and approved protocol of treatment especially for teeth with endodontic periradicular pathology.⁵ However, there are many drawbacks of multi-visits RCT, such as the high risk of reinfection of root canal system through the leaky temporary filling or fracture of temporary restorations and higher postoperative pain occurrence.⁶ Furthermore, to avoid such lengthy and multiple visits of root canal treatment, most of the patients choose the extraction of their teeth. Also some patients when get rid of from pain they usually do not visit their dentist for further treatment after the first appointment. On the other hand Single visit treatment protocol has various benefits i.e. it reduces the number of patient's visits for the treatment, having no any risk of inter-appointment reinfection of canal and also allows the dentist to do the root canal filling, when they are more familiar with the canal anatomy. It also enable the dentist for immediate placement of post and core restorations in the same visit of treatment.^{7,8,9,10} Hence, more dentists are encompassing the single-visit treatment protocol especially in teaching hospitals.⁷ Usually to take the decision that which treatment method should be chosen, clinicians are influenced not only by treatment results and its complications as well as economic concerns but also by factors such as patient and operator convenience, preference, and desires.¹¹ Sathorn et al. reported that the important factor in treatment selection was the human factor itself. Messer¹² described that the clinical judgment of general dentist for endodontic treatment was confusing and did not depend simply on their practical clinical components. The favored method of root canal treatment may not vary across cultures. Australian endodontists usually used and favored multi visit protocol over single visit RCT,¹³ and in the United States only approximately one third of dentists perform one visit RCT.¹³

Little studies had been conducted to determine the selection and dentist's preference for choosing single- or multi-visit treatment methods in Pakistan. Therefore the purpose of this study was to find the preference for single- and multi-visit root canal treatment by endodontic specialists and general dental practitioner in Pakistan, and to sought out the criteria on which the selection is made.

MATERIALS AND METHODS

The study was conducted from May 2016 to August 2016. The sample consisted of two groups; endodontic specialist and GDPs. All were randomly selected to participate in our survey. A questionnaire (Figure-1) was sent to all participants via their Email addresses and social media accounts (WhatsApp and Facebook).

The recipients were asked to complete and return the questionnaire.

A literature studied and a questionnaire with close ended questions was designed. The most important factors considered to affect the selection of treatment either single- and multi-visit root canal treatment were identified and included in the questionnaire. We collected information on participant's interpretation for single- and multi- visit endodontic treatment through total number of 6 closed questions on a single page. The questionnaire included a list of common factors that must influence the decision for selecting the single- or multi-visit root treatment, such as patient choice and high success outcome. The participants were informed to tick their response as agree, neutral and disagree at the end of close ended questions. The data collected were analyzed by the SPSS version 16. Frequency and percentages of variable like practice experience, current method of RCT and preference to the method of RCT were calculated. Chi-square tests were used to evaluate the differences in preference and current method of practice between both the groups of study. The level of statistical significance was set at 0.05.

RESULTS

All participants (20 Specialist Endodontist and 150 GDPs) returned the filled questionnaire and response rate was 100% by the participants. Information regarding their experience of practice, current practice of RCT and preference to method of RCT collected as given in table

Table No.1: Specialist Endodontist, GDPs, Practice Experience, Current Practice and Preference of RCT

Group, Practice Experience, Current Practice and Preference of RCT	N/170 (%)
Group	
Specialist Endodontist	20 (11.8)
GDPs	150 (88.2)
Experience of practice	
< 10 years	50 (29.4)
>10 years	120 (70.6)
Current practice of RCT	
Single visit RCT	47 (27.6)
Multiple visit RCT	123 (72.4)
Preference of RCT	
Single visit RCT	41 (24.1)
Multiple visit RCT	129 (75.9)

Factors affecting the choice of multi-visit endodontic treatment by GDPs and specialists endodontists and should be considered while choosing the method either single or multiple visit RCT are given in frequency and percentages in Table-2 and 3.

Factors considered for the selection of single-visit root canal treatment by GDPs and specialist Endodontists

while choosing the method either single or multiple visit RCT are given in frequency and percentages in Table-4 and 5.

Chi-square test was used to compare group of study (Specialist Endodontist and GDPs) and their current method of RCT and preference to the method of RCT. Figure 1 and 2;

Table No.2: Factors affecting the choice of multi-visit root canal treatment by Specialist Endodontist and GDPs in Pakistan

N		Tooth with guarded endodontic prognosis	Good results of intracanal dressing between appointments	Time needed for reduction of symptoms before obturation	Decrease of post-treatment pain	Quick and easy way of fees collection for multi-visits
170		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
	Agree	10 (58.8)	114 (66.3)	101 (59.4)	107 (62.9)	110 (64.7)
	Neutral	34 (20.0)	50 (29.1)	38 (22.4)	43 (25.3)	39 (22.9)
	Disagree	36 (21.2)	6 (3.5)	31 (18.2)	20 (11.8)	21 (12.4)

Table No.3: Factors affecting the choice of multi-visit root canal treatment by Specialist Endodontist and GDPs in Pakistan

N		Dentists' choice	Patients' choice	Patient time limitation	Dentist time limitation	High success outcome
170		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
	Agree	62 (36.5)	70 (41.2)	82 (48.2)	126 (74.1)	23 (13.5)
	Neutral	11 (6.5)	62 (36.5)	48 (28.2)	37 (21.8)	72 (42.4)
	Disagree	97 (57.1)	38 (22.4)	40 (23.5)	117 (68.1)	75 (44.1)

Table No.4: Factors affecting the selection of single-visit endodontic treatment by Specialist Endodontist and GDPs in Pakistan

N		One visit treatment	Lower risks and complications of anesthesia	Limited instrumental and procedural mishaps	Reduced use of material	Remembering of root canal morphology in same visit
170		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
	Agree	89 (52.4)	106 (62.4)	81 (49.4)	99 (58.2)	69 (40.6)
	Neutral	54 (31.8)	35 (20.6)	36 (21.2)	36 (21.2)	52 (30.6)
	Disagree	27 (15.9)	29 (17.0)	50 (29.4)	35 (20.6)	49 (28.8)

Table No.5: Factors affecting the selection of single-visit endodontic treatment by Specialist Endodontist and GDPs in Pakistan

N		Dentists' choice	Patients' choice	Patient time limitation	Dentist time limitation	High success outcome
170		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
	Agree	63 (37.1)	103 (60.6)	117 (68.8)	115 (68.0)	46 (27.1)
	Neutral	56 (32.9)	39 (22.9)	25 (14.7)	32 (18.3)	57 (33.5)
	Disagree	51 (30.0)	28 (16.5)	28 (16.5)	23 (13.6)	67 (39.4)

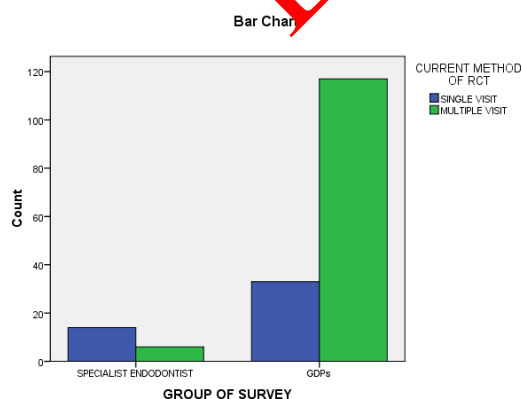


Figure No.1: Specialist Endodontist and GDPs and their current method of RCT.

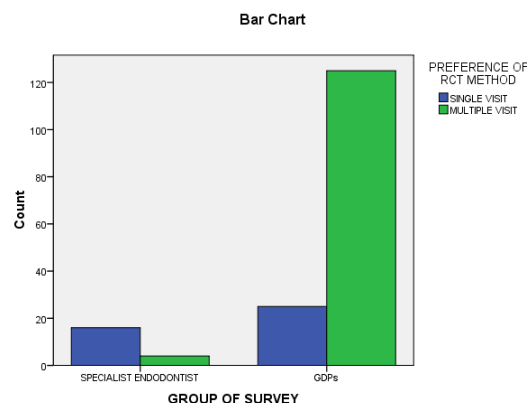


Figure No.2: Specialist Endodontist and GDPs and their preference to the method of RCT.

DISCUSSION

In this survey 170 participants selected randomly amongst which 150 were GDPs and 20 were specialist Endodontist. Evans described that a low response rate will be obtained when a survey is done with non-random samples as compared to random samples which results in high response rate.¹⁴ A questionnaire (Figure-1) was sent to all participants via their Email addresses and social media accounts (WhatsApp and Facebook). The recipients were informed to completely fill and return the questionnaire.

Overall response rate was 100% in this study. Amongst all participants 29.4% have experience of less than 10 years and 70.6% have experience of more than 10 years. Generally all participants were practicing 72.4% multi-visit RCT and 27.6% single visit RCT. When both groups were compared by using chi-square test, GDPs preferred multiple-visit endodontic treatment and specialist Endodontist preferred single visit treatment. Also current method of performing root canal treatment by specialist endodontists is single visit procedure as compared to the GDPs, who performed mostly by multi-visit. Most important factor to be considered for multi-visit root canal treatment were good results of use of intracanal dressing between appointments, decreased of post-treatment pain and quick and easy way of fees collection for multiple visit were 66.3%, 62.9% and 64.7% respectively as compared to single visit root canal treatment the most important factor considered were low risk and complication of anesthesia 62.4%, one visit treatment 52.4%, patient time limitations 68.6%, dentist time limitations 68.0% and patient's choice 60.6%. The present study findings are agree with the results published by Gatewood et al.¹⁵ in a survey of 568 actively practicing diplomats of the American Board of Endodontics reported that teeth with normal periapex completed in one visit were 34.7% and for teeth with apical periodontitis were only 16.2%. Whitten et al.¹⁶ reported that endodontists favored single-visit therapy, whereas GDPs usually used to follow the multi-visits treatment protocols.

Also the study findings are in agreement with previous studies in which specialist practitioners routinely used single-visit therapy protocol 20.5% and on the other hand only 9.0% of General Dentists performed the same method of therapy.¹⁷

Our results are consistent with the findings in previous studies by Dechouniotis et al.¹⁸ and McCaul et al.¹⁹ in that they compared GDPs and endodontists practical aspects, and their results showed that most of the GDPs were dissimilar in selection criteria for the choice of treatment techniques and they presented diverse reasons for treatment selection, although endodontists were more consistent in their selection strategies for single- or multi-visit endodontic treatment; this might be

because of their specialist training and educational qualification and experience.

In general, the finding of this study is that all participants preferred the multi-visit root canal treatment due to common factors such as post-treatment pain, tooth with guarded prognosis assessed during the treatment time, quick and easy collection of fees and dentist time constraint. However according to this study the success rate of multi-visit treatment is low as compared to single visit treatment. Furthermore, the GDPs mostly prefer and practice multi visit treatment protocol due to their training and educational qualification. One stronger motive why endodontists usually practice single-visit treatment is that it enables them to better remember the root-canal morphology, in this study the finding is 40.6%. This not only improves the success outcome of the endodontic treatment by reducing the treatment time but also decreases the risk of instrumental and procedural mishaps.

Despite a vast discussion on the dilemma of single-versus multi-visit root canal treatment as published by Sathorn et al.^{20, 21, 22, 23} and Figini et al.²⁴ single-visit root protocol is still not a routine treatment method by endodontists practicing in Australia. The role of expert leaders in advocating and implementing changes has received a great deal of concentration in the medical literature and to some extent in the dental literature. General practitioner are often inspired by specialists as they are more expert due to their qualification and experience as reported by Robertson et al.²⁵ Amongst specialists, however, peer influence is more likely to occur.

Currently various studies reported that single-visit endodontic treatments could be implemented for needy patients to retain their dentition before more devastating damage occurs to their dentition. This could be a valid reason to promote these short time treatment techniques and further studies could be carried out to assess and determine the criteria for selection of better choice of treatment either single or multi-visit endodontic treatment.

CONCLUSION

In conclusion, most specialist endodontists perform and prefer single visit endodontic treatment as compared to GDPs who usually perform single visit. The commonest reasons for choosing multiple-visit treatment for GDPs were the extraordinary results of inter-appointment antimicrobial dressing and that the tooth to be undergone having guarded prognosis. The commonest reasons for choosing single-visit therapy for both specialist's endodontists and GDPs is that the treatment is completed shortly.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Effect of Smokeless Tobacco on the Outcome of Swiss Albino Mice Pregnancy & Changes in their Offspring's Body Weight; An Experimental Study

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ABSTRACT

Objective: To study the harmful effects of smokeless chewing local tobacco on Swiss Albino mice pregnancy outcome and observe the effect on their offspring's body weight.

Study Design: An Experimental study

Place and Duration of Study: This study was conducted at Anatomy Department Al- Tibri Medical College, Isra University Karachi during June 2015 to December 2015.

Materials and Methods: Twenty pregnant Swiss albino mice and their 40 offspring male and female equal number, Selected randomly. The mice were divided into Experimental and control groups. Inclusion criteria were the healthy offspring of two weeks age. At the time of birth initial weight was taken and the final weight was taken after two weeks. Exclusion criteria was unhealthy, less or more than two week's age. Independent sample t-test was used for analysis of data through SPSS version 20.0.

Results: Total of 20 female Swiss albino mice divided equally into two groups experimental and control. Experimental group was kept on 5% smokeless tobacco. Twenty offspring from experimental and twenty offspring from control group of both sexes were taken. Initial and final weights of both groups were recorded. Significant difference was observed in initial and final weights of offspring with P-value=0.01.

Conclusion: Tobacco which is frequently used in our region without any knowledge of its harmful effects. It is proved that smokeless tobacco not only reduces the weight of offspring but during pregnancy it effects the growing fetus leading to stillbirth and neonatal deaths.

Key Words: Smokeless tobacco, Swiss albino mice, Harmful effects.

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INTRODUCTION

Tobacco the known killer of its users was a main crop of America, it is being cultivated since the prehistoric period. Americans used tobacco as medicinal and ceremonial prospect¹. We did know it when Christopher Columbus discovered new world along with tobacco in 1492². Later on tobacco was supplied to European royalty when it took place of cash crop. With the passage of time tobacco became important symbol for religious and political communities, separate rooms called withdrawing rooms now known as drawing rooms were built for smoking and Smokeless

Tobacco (ST), it is used in snuff, chewing products and smoking in pipes and cigarettes, in those days people used to say it is the cure for all no one was knowing about its hazards³. Later on many chemical compounds were extracted including carcinogens like nicotine, arsenic, lead, chromium and nickel^{4,5}. According to WHO tobacco is the only main cause of death today worldwide which can be prevented⁶. In recent years about 5.4 million people are dying every year due to tobacco use⁷. In Pakistan smokeless tobacco is being used in pan, ghutka, naswar and many other preparations^{8,9}. From different reports and records it is observed that 20% males and 17% females use ST worldwide^{10,11}, in Pakistan about 13% females and 34% males consume tobacco in various forms¹², it is also observed that ST is as harmful as smoking, more over for females it is not only dangerous for them but also to their generation^{13,14}. Swiss albino mice are small mammals, resembles humans genetically, physiologically and to some extent anatomically, due to their small size, easily maintained, polyestrous, easily handled, need small amount of water and food 4 to 8

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grams per day, and are docile, for these qualities the animals are selected in this study¹⁵.

This study intends to see the effect of Smokeless Tobacco on the outcome of Swiss Albino Mice pregnancy and to see the changes in bodyweight of their offspring by comparing the weights of experimental and control groups. We observe only outcomes of pregnancy in 20 female Swiss Albino mice but our main objective was to observe changes in body weight of their offspring by tobacco which was given to their mothers.

MATERIALS AND METHODS

This experimental study was carried out at Anatomy Department Al- Tibri Medical College Karachi, Isra University and comprised data related to the period between June to December 2015. Simple Random sample technique was used for selection. Twenty pregnant Swiss albino mice were selected randomly then the mice were divided into Experimental and control groups equally. The sample size of offspring selection was done through the statistical software GPower 3.0.10 by taking α error probability = 0.05, Power ($1-\beta$ error probability) = 0.95. Required sample size was calculated as 40 offspring. So we divided 40 offspring into two groups equally into male and female randomly from both groups.

Inclusion criteria: was the healthy, adult Swiss albino mice with same age, size, breed and average weight. Offspring of two weeks age. At the time of birth initial weight was taken and the final weight was taken after two weeks.

Exclusion criteria: unhealthy, less or more than two weeks age. All female mice were kept in cages two per cage with one male to mate. Pregnancy was confirmed by vaginal plug. On confirmation of pregnancy the males were removed. 20 pregnant mice were equally divided into two groups. Group "A" Experimental group while Group "B" Control group. A group was given 5% local tobacco determined by pilot study mixed in lab cake to feed ad-libitum from day one of pregnancy to parturition, group B control group was given tobacco free cake. Cake prepared with 40% flour, 40% poultry feed and 20% dried milk. After making food 5% of total food was removed and 5% Smokeless Tobacco added. During pregnancy regular weight and any abnormal event which occurred was registered there were four stillbirths, three neonatal deaths and one offspring had left hind limb deformity all were observed in experimental group not in control group. Just before delivery all female mice were separated and kept in separate cages. After birth of baby mice 40 offsprings 20 male and 20 female were selected randomly, and tagged. The healthy offsprings were subdivided into four groups, group A1 experimental male, group A2 experimental female, B1 control male and B2 control female. Each offspring was weighed

examined for any abnormality, than followed from day one up to day fourteen.

Animal Protocol: All Swiss albino mice got from Al-Tibri medical college animal house were kept in well ventilated and hygienic room, animals were given water and food ad-libitum and were kept in light and dark for 12 hourly cycles and all protocols were followed as advised by animal house.

Data Analysis: Statistical analysis was done using SPSS version 20.0. The continuous variable were presented in Mean \pm Standard Deviation. To see the significant difference in the mean offspring body weight of two groups (Experimental and Control) Independent sample t-test was applied. P-value ≤ 0.05 was considered to be statistically significant.

RESULTS

A total of 20 female Swiss albino mice divided equally into two groups experimental and control. Experimental group was kept on 5% smokeless tobacco. From twenty mother forty offspring twenty from Experimental and twenty offspring from control group of both sexes were taken. Initial and final weights of all four subgroups were recorded.

Abnormal pregnancy outcomes detected in this study were, stillbirths four 20%, neonatal deaths three 15% and malformation in one offspring 5%, all these abnormalities were observed in experimental group, while no deviation was noticed in control group.

Table No.1: Comparison of mean initial and final weights of Male offspring in grams

Male Offspring	Experimental Group	Control Group	p-Value
	(mean & SD)	(mean & SD)	
Initial weight	1.28 \pm 0.15	1.85 \pm 0.24	0.01
Final weight	9.15 \pm 0.64	12.22 \pm 0.51	0.01

*Data were presented in Mean \pm SD

*P-value < 0.05 considered to be statistically significant

Table No.2: Comparison of mean initial and final weights of Female offspring in grams

Female Offspring	Experimental Group	Control Group	p-Value
	(mean & SD)	(mean & SD)	
Initial weight	1.08 \pm 0.04	1.34 \pm 0.03	0.01
Final weight	8.78 \pm 0.45	11.65 \pm 0.73	0.01

*Data were presented in Mean \pm SD

*P-value < 0.05 considered to be statistically significant

The following results were observed in grams. The results were compared between initial weight (IW) of experimental group with initial weight of control group and other variables like final weight (FW) of experimental group with final weight of control group.

It was observed that Male experimental group initial Mean weight of offspring found to be 1.28 ± 0.15 grams while in control group Mean Initial weight was 1.85 ± 0.24 grams with P-value=0.01 as shown in Table 1 and figure 1.

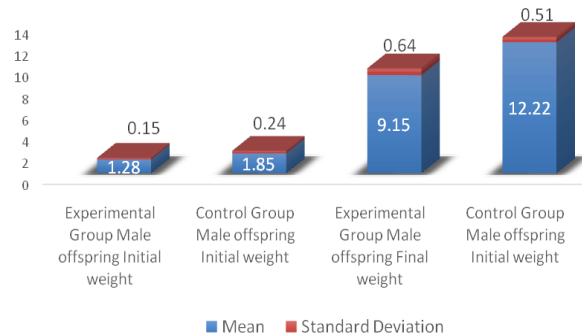


Figure No.1: Comparison of Mean & S.D of initial and final weight (gm) of Male offsprings.

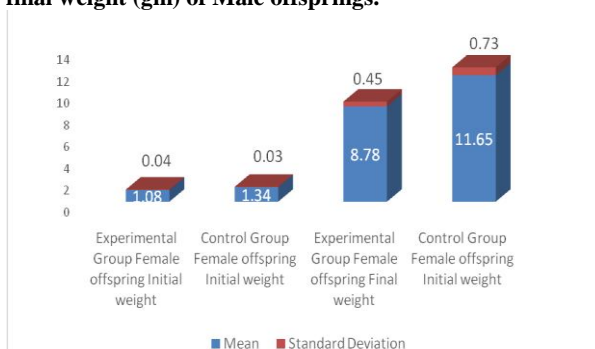


Figure No.2: Comparison of Mean & S.D of weight (gm) of Female offsprings Experimental and Control groups.

Female experimental initial Mean weight was found to be 1.08 ± 0.04 grams while in control group it was 1.34 ± 0.03 grams with P-value=0.01. It was observed that in male experimental group final mean weight was found to be 9.15 ± 0.64 grams while in control group final mean weight of offspring was 12.22 ± 0.51 grams with P-value= 0.01. Female experimental final mean weight was found to be 8.78 ± 0.45 grams while in control group it was 11.65 ± 0.73 grams with P-value=0.01 as shown in Table 2 and figure 2.

DISCUSSION

The use of chewing tobacco is increasing due to ban on smoking, easy to use, cheap to purchase, hide the habit, its use in communities especially in females is rising day by day. This study is designed to observe the effect of local smokeless tobacco on pregnancy outcome and on bodyweight of offspring of Swiss albino mice, to apply the results on human female population for their betterment and information.

The outcome of pregnancy in our study which showed stillbirth, neonatal deaths and deformity in the offspring of tobacco user mothers were in the line of studies of England et al¹⁶. The malformation or deformation of

hind left limb might be due to mechanical force from fetal compression in the uterus.

Many studies were conducted on humans and on animals by using different active principles of tobacco to see their effect on offspring, all were in agreement with the our study in which we had used local chewable tobacco. In our study there was significant decrease in body weight of offspring of experimental mice in comparison to the control group, similar results were shown by Essien and Akpan in 2007¹⁷, they used nicotine, work of EL Meligy et al in 2007¹⁸ and Wickstrom R (2007)¹⁹ showed the same result on Swiss albino mice offsprings by using nitrosamine a tobacco ingredient. In addition to this study of England et al 2015²⁰ and observation of Siddiqui et al 2015²¹ supported present experimental work. Still no study is available to nullify our study.

CONCLUSION

Non smoking tobacco if used during pregnancy has harmful effects on pregnancy outcome in the form of stillbirth, neonatal deaths and decrease of bodyweight of offspring to a critical level.

Recommendations: The potential adverse effects of smokeless tobacco should be communicated to the community especially female population because females in our society are uneducated they do not know about the harmful effects of tobacco and its various preparations. There is need of conceptual work that can save them and their future generations

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Construction Faults Associated with Complete Dentures Made by Clinical Students

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ABSTRACT

Objective: The objective of this study was to evaluate the construction faults associated with complete dentures made by clinical students.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at Prosthodontics; Department Institute of Dentistry; Liaquat University of Medical and Health Sciences Jamshoro from May 2015 to October 2015

Materials and Methods: Total 197 complete denture wearer's patients were recruited in this study. Faults associated with vertical dimension, centric relation, denture base thickness, finishing and polishing were examined and noted in proforma. Data was analyzed by SPSS version 17.0.

Results: Out of 197 patients male and female patients were 56.3% and 43.7% respectively. Vertical dimension was found to be high in 82% patients and centric relation was noted 81% as right and 19% as wrong. According to thickness of denture base plate, 80% were thick and 5% were thin denture base. According to finishing and polishing of dentures, 55% dentures were seen with satisfactory results.

Conclusion: It is concluded that the most common faults in construction of complete dentures were high vertical dimension, thick denture base plates and finishing & polishing.

Key Words: Complete Denture, Faults, Clinical students

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INTRODUCTION

Loss of teeth is measured as poor health outcome and may compromise the quality of life.^{1,2} Although the number of adults losing their natural teeth is shrinking, there are still big numbers of edentulous adults in the population.¹ Conventional complete denture prosthodontics involve complex procedural skills to obtain the management objectives which include function, comfort and aesthetics.^{3,6} However, wearing of newly fabricated dentures may be related to some complains specially soon after the insertion of the prosthesis.^{7,8}

The regular complains with complete dentures are those relating to pathologic injuries brought on by gingival irritability, loss of denture with holding by mechanical means, the increase in food storage under the appliance, insufficient chewing efficiency, problems in speaking, unpleasant looks, prosthesis breakage and separation of teeth from base plate.^{1,9-15)}

This might be results because of certain technical reasons include superficial irregularities, overextension, porosity, increased monomer content, alteration in shape and unsatisfactory finishing and polishing of prosthesis.¹⁶

The greatest observed faults in prosthesis fabrication associated with retention, vertical and horizontal jaw relationships.¹ The purpose of complete denture fabrication is to make prosthesis which give good esthetics, adequate retention and stability, proper speech, sufficient chewing efficiency, maintain good facial support, easy to insert and remove by patient and do not harm the basal structures.² Important necessities for the fabrication of a suitable prosthesis are: A good replica of supporting and retentive tissues of the jaws, Normal vertical dimension, Correct centric relation, Correct position of artificial teeth, An occlusal plane in harmony with the patient's own condylar excursions and Esthetics.¹⁷

Many studies^{1,14,18,19} have been piloted on patients complains after delivery of complete denture. Pain or discomfort^{18,19} was stated by some researchers as the most frequent complaint in new denture wearers while others^{14,20} stated that poor retention and stability were the most common complaints.^{14,20} The theory has been established that the complete denture patients with complains only when there is a real design fault or a tissue problem.^{1,21} Patient complaint related to their

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dentures is a terrifying for the Prosthodontists, and is seen as a root of frustration if it exists ever after adjustment so the purpose of this study is to evaluate the construction faults associated with complete dentures made by clinical students. This study enables us to define the construction faults in complete dentures made by clinical students, thereby it is possible to address the areas where these errors are resulting which help for better future prosthesis and to minimize the complains in complete denture wearers.

MATERIALS AND METHODS

It was a descriptive-cross-sectional study carried out from May 2015 to October 2015 at Prosthodontics department Institute of Dentistry in Liaquat University of Medical and Health Sciences Jamshoro. Total 197 patients complete denture wearers made by clinical students, with completely edentulous maxillary and mandibular ridges were included in this study. Sampling technique was non – probability consecutive sampling technique.

Patients who were not willing to participate in this study, medically compromised patients, denture made with poor quality of material were excluded from this study.

Data Collection Procedure: After fulfilling the inclusion and exclusion criteria, the purpose of this study was explained to all participants in detail. An ethical approval was sought from the ethical review committee of university. A written informed consent was taken from every participant. After one week of delivery of the prosthesis the examination of complete denture made by clinical students was done both extra orally and intra orally. The examination of prosthesis that include construction faults related with complete denture i.e. vertical dimension, centric relation, denture base thickness, finishing and polishing was done. Vertical dimension were checked by measuring the distance between the tip of the nose and chin at rest and also when teeth were in contact. Vertical dimension were taken as normal if the difference between the rest and occlusal vertical dimension was 2 mm. if difference was high than 2 mm then the condition was grouped as high and if the difference was below than that limit then the denture was categorized as with low vertical dimension.

Centric relation were checked by asking the patient to close his/her mouth in centric position, if the centric relation coincide with centric occlusion then the denture was grouped in right centric relation, if the positions didn't coincide then it was categorized as wrong centric relation.

2 mm thickness of denture base were categorized as normal and more than 2 mm were grouped as dentures with thick base plate while the complete dentures

having base plate thickness less than 2 mm were grouped as dentures with thin base plates.

Dentures were categorized as satisfactory according to finishing and polishing if their poly surface was smooth, shiny and properly contoured. Dentures were recorded with unsatisfactory finishing and polishing if they were rough, dull and the gingival contouring was not done properly.

Finally the status of complete denture' construction faults were noted in proforma accordingly.

Data Analysis: Descriptive statistics was analyzed by SPSS version 17.0 software. The qualitative variables like gender, vertical dimension, centric relation, denture base thickness, finishing and polishing were presented as frequency and percentages. The quantitative variables like age were presented as mean \pm standard deviation.

RESULTS

Total 197 patient's dentures were evaluated for construction faults. In this study 56.3% were male and 43.7% were female patients. The male female ratio was 1.2:1.

Vertical dimension (VD) was categorized into three groups normal, high and low. 14.7% patients had dentures with normal VD, 81.7% with high VD 3.6% patients experiencing dentures constructed at low VD (Figure-1)

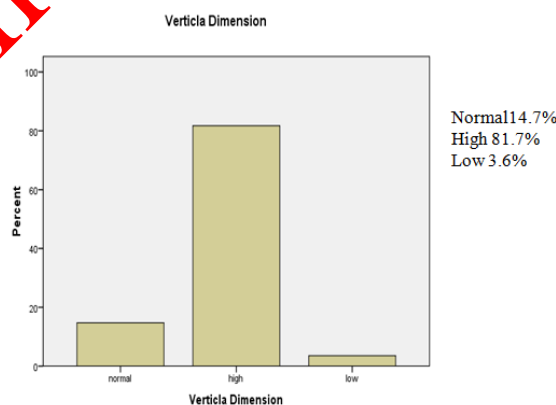


Figure No.1: Vertical Dimension

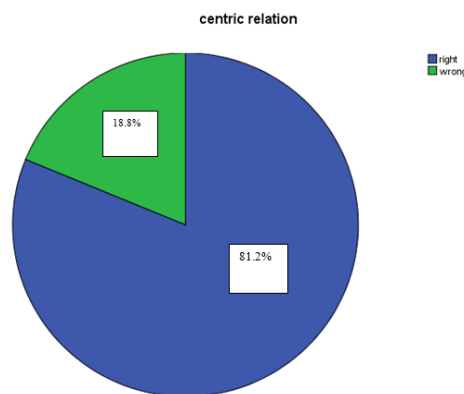


Figure No.2: Centric Relation

According to centric relation (CR) of complete dentures, 81.2% patients having dentures with right CR, and 18.8% had dentures with wrong CR. (Figure-2)

According to thickness of denture base plate, 14.7% patients were found to have dentures with normal thickness, 80.7% patients having dentures constructed with thick, 4.6% patients experiencing dentures fabricated with thin denture base plate. (Table-1)

According to finishing and polishing of dentures, 55.3% patients were found to have complete dentures with satisfactory finishing and polishing and 44.7% patients having complete dentures with unsatisfactory results of finishing and polishing. (Figure-3)

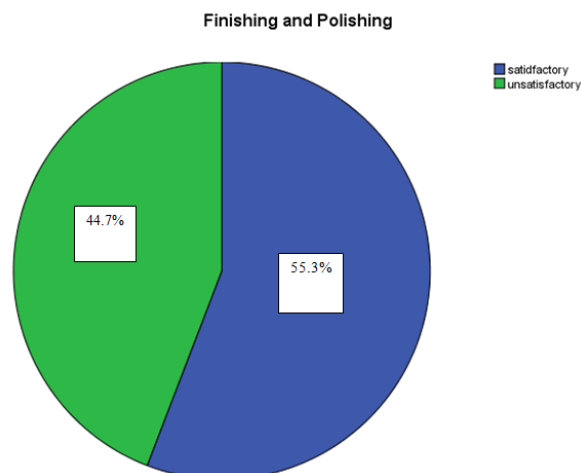


Figure No.3: Finishing and polishing of complete dentures

Table No.1: Thickness of base plate in complete dentures

	Variable	Frequency	Percent
	Normal	29	14.7
	Thick	159	80.7
	Thin		4.6
	Total	197	100.0

DISCUSSION

This was descriptive study in which 197 patients were examined wearing newly constructed complete dentures for the evaluation of construction faults. In this study only four major types of complete denture construction faults were evaluated

In this study males were found to be more as compare to females which is in agreement with Memon MR et al² results. The probable reasons could be females as a rule doesn't look for treatment so effectively when contrasted with males, particularly in this some piece of the nation where females are customarily home-bound. To maintain a harmonious craniofacial system, the dental practitioner must establish an appropriate occlusal vertical dimension.²² Establishing the optimum

occlusal vertical dimension is critical to fabricating a complete denture that will be harmonious with the patient's oral craniofacial system.²² In this study majority of cases were observed with incorrect vertical dimension i.e. 85.1%. while very low percentage of cases with normal vertical dimension (14.7%). These results are same as with Brunello & Mandicos¹⁸ and Aghdaee NA²³ et al results who observed incorrect vertical dimensions cases of 68% and 72.5% respectively.

Centric relation is regarded as a valid reference position for certain clinical treatment modalities.²⁴ However, it is difficult to know that this position has been recorded with the condyle-disc complex in the anatomical position of centric relation. This is an anatomical position, and as such it cannot be substantiated clinically, because no particular technique or system can confirm exactly where the condyle-disc complex is located in the temporomandibular fossa.²⁴

This study results are describing that the the centric relation was right in majority of cases (81.2%) which are in contrasting with the results of Brunello & Mandicos¹⁸ results who find out the incorrect jaw relationships in 94% of cases, Aghdaee NA et al²³ observed 86.6% cases of incorrectly recorded jaw relationships and Memon MR² results concluded 94% cases with incorrect jaw relationships.

Establishing the pleasing aesthetics of a patient is a significant key for the success of all the dentists.²⁵ The thickness of acrylic resin dentures is believed to be a significant factor in determining the magnitude of the shrinkage that occurs during curing.²⁶ The study results are not in agreement with the Jamani KD and Abuzar MAM studies.²⁶ This might be due to methodological difference and technical difference.

During denture construction, all factors including ratio, handling and inclusion of acrylic resin as well as curing, finishing and polishing are fundamental.²⁷ Smooth and highly polished surfaces are of utmost importance for patient comfort, aesthetic, hygiene and restoration longevity. Denture can work as a reservoir, in which surface irregularities increase the probability of micro-organism retention and protection from shear forces, even after denture cleaning.²⁷ In this study the majority of results are satisfactory (55.3%) which are in agreement with the results of Julie C et al.²⁷ Like with other studies, this study also has limitation of restricted sample size, inconsistent data accumulation and lack of availability of records, there are still no reliable methods to predict the outcome of complete denture faults and there are many problems related to construction faults with complete dentures. However, it has been tried to provide some information about the occurrence of some construction faults. It was a single operator based study so operator bias could not be eliminated.

CONCLUSION

This study proposes that in most cases, patients wearing complete dentures present with complaints only when there is actual design fault. Within the light of limitations it can be concluded that the most common faults in construction of complete dentures were high vertical dimension, thick denture base plates and finishing & polishing.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Factors affecting Academic Performance in Middle School Children in Government and Private Schools of Bahawalpur

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ABSTRACT

Objective: The objective of this study was to assess the factors affecting academic performance of middle school children in public and private sector schools of Bahawalpur City.

Study Design: Descriptive / Cross sectional Study

Place and Duration of Study: This study was conducted at the Government Abbasia Higher Secondary Model School and Moon System of Education (private school) Bahawalpur from February 2016 to June 2016.

Materials and Methods: This study was conducted in Middle school (7th and 8th class). The data was collected through a pre-formed questionnaire. Data was analyzed by using SPSS version 15. Percentages and frequencies were calculated. Figures were made.

Results: In this study 200 students were included, out of which Government Abbasia Higher Secondary Model School Bahawalpur, the students with poor academic performance were 28%, fair academic performance were 23%, good academic performance were 49% and in Moon System of Education Bahawalpur (Private School), the students with poor academic performance were 2%, fair academic performance were 23%, good academic performance were 75%

In Abbasia School academic performance of students whose fathers were Illiterate was Poor 73.4%, Fair 13.3%, Good 13.3%. Academic performance of students whose fathers had education Up to Metric was Poor 24.2%, Fair 28.8%, Good 47% and academic performance of students whose fathers had education Above Metric was Poor 5.3%, Fair 10.5%, Good 84.2%.

Conclusion: Our study concluded that that parents' education, socioeconomic status and parents' assistance in homework are directly related with academic performance of students.

Key Words: Factors; Private; Students; Performance

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INTRODUCTION

In this era of globalization and technological revolution, education is considered a necessary goal for every human activity.¹ It plays a vital role in the development of human capital and is linked with an individual's well-being and provides him/her with opportunities for better living. The issue of pupil's performance at school has been of concern since modern education was introduced. Pupils are the heart of an education system without them performing well; all innovations in education are doomed to failure. A wide dissatisfaction is found among parents and teachers about the current situation of schooling in many countries²

Educators, trainers and researchers have long been interested in exploring the variables contributing effectively to the quality of performance of learners.³ These variables are present inside and outside the school environment. Generally these factors include

- * Parental involvement
- * Socio-economic status
- * Extra-curricular activities

These factors are usually discussed under the umbrella of demography. Unfortunately defining and measuring the quality of education is not a simple issue and the complexity of this process is increased due to the changing values of quality attributes associated with different stake holders view point.

1. Parental involvement: When parents have high expectations and provide financial support, guidance and supervision, a child's chance to succeed increase. When monitored by parents child develops positive habits. They are most successful when their parents are educated and try to stay in contact with teachers and other school personnel.⁵ It is observed that a large proportion of parents involve their children in domestic work. It limits the time with studies and they

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are left with no time for revision. This involvement is more difficult and challenging for single parents.⁵

2. Socio-Economic Status: Belonging to a strong financial background, Parents can provide latest technologies and facilities in a best possible way, to enhance educational capability of their children.

Adam stated:- "Low parental socio-economic status has negative effect on academics performance of students because basic needs of students remain unfulfilled and hence they do not perform better"

Children of well-to-do parents have the opportunity to get admission in good schools which offer a sound base for their future career.¹²

Students having financial problems have to face various hurdles and are distracted from their goals and they fail to thrive.

US department of education reported:- "lower socio-economic status results in environmental deficiencies which result in low self-esteem of students and development of specific behavioral patterns in their personalities"

Checchi stated:- "Richer parents spend more resources in education of their children. Once the investment is undertaken they fulfill their parents expectations more responsibly".⁶

On contrary Syed Tahir Hijazi and Raza Nacivi found a negative relationship between family income and student performance.¹¹

3. Extra-curricular Activities: It is self-evident that engagement in extra-curricular activities has a positive influence on performance of children. Student who spend more time in activities as involvement in students club, Athletic teams or social activities have more chance to thrive in the school environment.⁸

MATERIALS AND METHODS

Methods and material: The data was collected during 5 months from February 2016 to June 2016 from Middle school (7th and 8th class) students of Government Abbasia Higher Secondary Model School and Moon System of Education (private school) Bahawalpur. Questionnaire was developed and distributed among students, consisting of two parts. First part had bio data and second had variables parents' education, socioeconomic status, parents' assistance in homework, involvement of students in extra-curricular activities and academic performance of students.

Data was analyzed by using SPSS version 15. Percentages and frequencies were recalculated. All results were presented in percentages and in frequencies.

RESULTS

Sample of 200 children of middle school (7th and 8th class) from government Abbasia higher secondary model school and moon system of education

Bahawalpur (private school) was taken to assess the factors affecting academic performance in middle school children in government and private schools of Bahawalpur.

In Government Abbasia Higher Secondary Model School Bahawalpur, the students with poor academic performance were 28%, fair academic performance were 23%, good academic performance were 49% and in Moon System of Education Bahawalpur (Private School), the students with poor academic performance were 2%, fair academic performance were 23%, good academic performance were 75%.

In Abbasia School academic performance of students whose fathers were Illiterate was Poor 11(73.4%), Fair 2(13.3%), Good 2(13.3%). Academic performance of students whose fathers had education Up to Metric was Poor 16(24.2%), Fair 19(28.8%), Good 31(47%) and academic performance of students whose fathers had education Above Metric was Poor 1(5.3%), Fair 2(10.5%), Good 16(84.2%).

In Moon System of Education academic performance of students whose fathers had education Up to Matric was Poor 2 (3.9%), Fair 14(26.9%), Good 36(69.2%) and academic performance of students whose fathers had education Above Metric was Poor 0%, Fair 9(18.8%), Good 39(81.2%) .

In Abbasia School academic performance of students whose mothers were Illiterate was Poor 21(50%), Fair 13(31%), Good 8(19%). Academic performance of students whose mothers had education Up to Metric was Poor 7(14.9%), Fair 10(21.3%), Good 30(63.8%) and academic performance of students whose mothers had education Above Metric was Poor 0%, Fair 0%, Good 47(100%).

In Moon System of Education academic performance of students whose mothers were Illiterate was Poor 1(10%), Fair 5(50%), Good 4(40%). Academic performance of students whose mothers had education Up to Metric was Poor 1(1.88%), Fair 11(20.8%), Good 41 (77.3%) and academic performance of students whose mothers had education Above Metric was Poor 0%, Fair 7(18.9%), Good 30(81.1%) .

In Abbasia School Socioeconomic Status of children with Poor Academic Performance was Low 78.6%, Middle 21.4%, High 0%. Socioeconomic Status of children with Fair Academic Performance was Low 69.6%, Middle 30.4%, High 0% and Socioeconomic Status of children with Good Academic Performance was Low 22.4%, Middle 59.2%, High 18.4%. In Moon System of Education Socioeconomic Status of children with Poor Academic Performance was Low 0%, Middle 0%, High 100%. Socioeconomic Status of children with Fair Academic Performance was Low 4.35%, Middle 47.8%, High 47.8% and Socioeconomic

Status of children with Good Academic Performance was Low 4%, Middle 40%, High 56%.

In Abbasia School Academic Performance of Students who had their Parents Assistance in Homework was Poor 5(11.1%), Fair 9(20%), Good 31(68.9%)

And in Moon System of Education Academic Performance of Students who had their Parents Assistance in Homework was Poor 1 (1.4%), Fair 16(22.5%), Good 54(76%).

In Abbasia School 30% students were involved in Extra-Curricular activities and in Moon System of Education 76% students were involved in Extra-Curricular activities..

DISCUSSION

In our descriptive cross sectional study conducted in public and private sector schools of Bahawalpur, it was concluded that parents of the students with good academic performance were mostly literate, of high socioeconomic status and they assist their children in homework. Same results regarding parent's education were found in Western Australian Aboriginal Child Health Survey, 2010. In both studies, parents' education was found to be a positive factor in academic performance of children.

In our study we concluded that parents' education, high socioeconomic status and parental assistance in doing homework had strong positive influence on student's academic performance. Same results regarding parents' assistance were observed in a study conducted in California, 2011, where students who received parents' assistance scored higher than others.

In our study we observed that both mother's and father's education, high socioeconomic status and parents' help regarding studies played a very significant role in student's academic performance. Similarly, the study conducted in Faidha Town Council, Africa, 2010 showed that parents' education and family income had positive influence on student's performance. In our study we concluded that students who had parent's assistance in homework, majority of them (68.9% of government school and 76% of private school) performed better than others. Similar results were found in the study conducted in Allama Iqbal Town, Lahore, 2013 which showed that students who received parents' assistance, 40.2% of them had good academic performance.

In our study we concluded that factors that played a significant role in student's academic performance were parents' education, high socioeconomic status and parents' assistance in doing homework. Similar results were found in a study conducted in public sector secondary schools of Lahore, 2012 which showed that high socioeconomic status and parents education ad a positive influence on the students overall academic performance.

In our study we concluded that 49% students of government and 75% of private school had good academic performance. Among parents of government school children, 60% of fathers and 43.3% of mothers were educated, while among parents of private school children, 82.5% of fathers and 60% of mothers were educated. Similarly the study conducted in Sadder Town, Karachi, 2013 showed that 34% of government and 65% of private schools were categorized as good. Among parents of public school children, 65% of fathers and 58% of mothers were literate, while these figures were 62% and 67% respectively in private school children. Overall academic performance of private school children was better that of government school children.

CONCLUSION

Our study concluded that that parents' education, socioeconomic status and parents' assistance in homework are directly related with academic performance of students.

Recommendations:

1. Regular parent teacher meetings should be organized.
2. Incentives should be given to students in school.
3. Guidance and counseling should be encouraged in schools to meet the needs of students.
4. Students with persistent poor performance should be given more attention.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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