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Editorial

Premature Deaths: The Affluent and the Hapless

Mohsin Masud Jan

Editor

Being well-off does not necessarily promise a long and healthy life as both poverty and affluence contribute to the causes of preventable or premature deaths.

One of the more interesting concepts in medicine is of the 'prevention of premature deaths'. Putting aside the effects of trauma and accidents, the two other major causes of preventable deaths are poverty and affluence.

One of the most dangerous points in a human life is birth. This is dangerous especially for the mother but also for the child. Maternal and child mortality continue to be a major problem especially in poor countries including Pakistan. However, it is interesting to note that more than a century ago, child birth was equally dangerous for the rich as well as the poor.

Even in modern medical literature the period before delivery of a child is often referred to as the 'confinement'

That is a serious problem; women that are active until the time of delivery of a child have a better chance of going through an uneventful delivery. The well to do that are confined to bed and away from the time, do worse. Child birth is hard work and those that are used to hard work, do better.

There is an interesting story of an obstetrician in Vienna during the nineteenth century called Ignaz Semmelweis. He made an important observation about the occurrence of puerperal sepsis (infection during child birth that was often fatal). What Semmelweis noticed was that 11 women who had 'street births' or in other words were too poor to come to a hospital had a much lower chance of getting infected than those who delivered their babies in a hospital.

What Semmelweis realized and that is a seminal observation in medical history was that women who delivered babies in the hospital were taken care of by doctors who would come down from the 'autopsy rooms' and deliver babies without washing their hands. As such they transmitted infection from the dead to the living. By instituting the regimen of washing hands before delivering a baby, Semmelweis was able to cut down tremendously on the incidence of infection.

But then being ahead of your time is never good. Since Semmelweis could not prove why washing

hands was good, he was ostracized and rejected by the Physicians who thought that washing hands before delivering a baby was beneath their dignity. Germs as cause of infection; was yet in the future and after being rejected, Semmelweis fell apart and eventually died in a 'mental asylum' after being beaten up.

Today, child birth is still fraught with danger among the poor. First, because of 'child marriages'. When 'children' get pregnant they are often just not physically developed enough to go through a normal delivery. Second, during child birth, medical help, including the possibility of a 'caesarean section,' is not available. Third, the child after a prolonged labor is often not well enough and neither is the mother and without medical help both might not survive.

There are two other factors that increase maternal and child mortality. First is inappropriate nutrition for the mother, most if not all poor women going into child birth are severely deficient in terms of blood strength (anemia) and even a moderate amount of bleeding during delivery of a child can push them into severe medical problems that they might not recover from. And if the mother is not around or is too sick, the child will also have a hard time surviving.

Once the child is born and is well at birth, there are other problems in store. The first is malnutrition. Malnutrition in poor countries remains a major cause of early (preventable) death. But even if a child gets adequate nutrition, the fight for survival has just begun.

Overcrowding, unsanitary surroundings, inadequate access to clean drinking water, lack of education, and almost no access to primary medical care and immunization all contribute to early deaths. Adequate 'education' especially of the mothers could very well, prevent many of these problems.

Overcrowding has an interesting history. Pulmonary Tuberculosis (TB) was the scourge for the last few centuries. TB was called the 'white plague,' it was seen as a 'romantic' disease that infected people of a 'sensitive' nature. To name two victims, first is the famous poet, John Keats, the second of course is Mohammad Ali Jinnah, the founder of Pakistan. Interestingly, even before the definitive antibiotic treatment for TB was discovered, in the middle of the last century, the incidence of TB was rapidly

declining and this was due to the fact that overcrowding became less common especially among the well to do and as such, transmission of this disease from person to person became less common.

And, now, the diseases particular to the well-off; that have become a scourge of the modern world, of these, two are worth mentioning. First is what we call Adult onset Diabetes (Type II Diabetes) that is almost entirely due to the increasing consumption of refined starches and sugars and the entailing obesity. The second is blockages of heart arteries leading to heart attacks.

Besides Diabetes and obesity, the most important predisposing factor for blockages of the heart arteries is a lack of physical activity, once again the result of a life style that can only be sustained by the

affluent. Unfortunately, being well off does not necessarily promise a long and healthy life. In most developing and developed countries, Diabetes and heart disease are now the major causes of preventable deaths, especially among the emerging middle class. Interestingly, it is the newly affluent who are much more prone to dietary excess.

That leaves two types of disease that make up the second tier of preventable or premature deaths. First is 'cancer,' which, frankly if we did not live long enough, most of us would never even develop cancers. It is for this reason that cancers do not come in as a major cause of premature death in poor and developing countries. The other category is of diseases associated with aging. Here, again, you have to live long enough to develop these conditions.

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Mandibular Fracture Fixation with Miniplate and MMF for up to two weeks. A Prospective Study

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ABSTRACT

Objective: This study was conducted to evaluate the complication rate of treatment of mandible fracture using 2.0-mm miniplate and MMF for up to two weeks.

Study Design: Descriptive study.

Place and Duration of Study: This study was conducted at Liaquat University of Medical and Health Sciences Jamshoro, Hyderabad Sindh from May 2004 to April 2006.

Patients and Methods: Fifty patients with single mandibular fracture were evaluated in this study at Liaquat University of Medical and Health Sciences Jamshoro, Hyderabad Sindh. Single miniplate was applied according to Champy's principle of osteosynthesis and secured with four mono cortical screws and Maxillomandibular fixation was applied for up to two weeks. Follow up was done for at least eight weeks after surgery. The incidence of infection, malocclusion, delayed union, nonunion, nerve damage and TMJ dysfunction were evaluated.

Results: Bone union was achieved in all patients. No evidence of malocclusion, delayed union, nonunion, nerve damage and TMJ dysfunction observed. Two cases (4%) developed post operative infection and was healed with in 7 to 10 days after administration of antibiotics and local wound care.

Conclusion: Single miniplate along with Maxillomandibular fixation for up to two weeks has proven to be the most effective treatment modality for mandible fracture.

Key Words: Mandible fracture, Miniplate, MMF, post operative complications.

INTRODUCTION

Fracture of the mandible can be treated by variety of methods.¹⁻⁶ Each method has its inherent complications.⁷⁻¹² These are infection, malocclusion, delayed union, non union, nerve damage, TMJ dysfunction, reduction in ventilatory volume and occurrence of pulmonary atelectasis.

Previously traditional methods of maxilla mandibular fixation were the most popular used for mandibular fracture fixation. These are still today commonly used methods. Maxillo mandibular fixation has considerable disadvantages to the patient of preventing normal jaw function and restricting the diet to liquid or semi solid. Weight loss is common, oral hygiene maintenance is difficult, reduction in ventilatory volume and difficulty in clearing pharyngeal secretions may leads to occurrence of pulmonary atelectasis.¹²

For all these reasons and increased awareness about esthetic and optimized need for earliest functional recovery of life has posed maxillofacial surgeons to innovate surgical techniques to provide better option in the management of mandibular fracture. Rigid internal fixation by miniplates has

challenged the traditional methods of treatment by inter maxillary fixation.

Treatment of fracture mandible by miniplate fixation is most widely used and universally accepted method of fracture fixation. But it has also considerable disadvantages. Postoperative infection, malocclusion and iotorogenic injuries has been reported in previous studies. In this study single 2.0-mm titanium miniplate with 4 mono cortical screws was placed along Champy's line of ideal osteosynthesis via transoral approach plus maxillomandibular fixation for upto 2 weeks for mandibular fractures.

MATERIALS AND METHODS

Single mandible fractures in fifty patients were evaluated at Liaquat University of Medical and Health Sciences Hospital Jamshoro, Hyderabad Sindh. Between May 2004- April 2006. There were 45 male patients and 5 female patients (are shown in figure 1) between 14-48 years of age (mean age 25 years). Fracture distribution was 14 symphysis fractures 24 para symphysis fracture 12 body fractures. Fractures were treated with in 3 days after the incidence of injury. Patients having single mandibular fracture, medically fit for surgery and MMF, having sufficient dentition to allow maxillomandibular fixation and assess occlusion

were included in this study. Patients with bone pathology, immunocompromised states, comminuted and infected fractures were excluded from this study. For maxillomandibular fixation 2% lignocaine with 1:100,000 adrenaline was administered for obtaining local and regional anaesthesia. Extraction of teeth performed if indicated. Maxillomandibular fixation was placed using arch bar in mandible and maxilla. For miniplate fixation under general anesthesia in aseptic condition intraoral mucosal incision was made miniplate fixation was done with 2-mm wide, 7-mm long four monocortical screws along Champy's line of ideal osteosynthesis. Care was taken to avoid injury to teeth and neurovascular bundle during placement of screws. Surgical site was irrigated with normal saline, incision was closed with simple interrupted sutures and no drains were placed. IV Antibiotics were given to all patients. Post operative radiographs were taken in all cases. All patients were kept for follow up for at least two months. During follow up, patients were observed for infection, malocclusion, delayed union, non union, nerve damage, and TMJ dysfunction. Collected data was analysed by SPSS statistical package version 17 on computer. The significance test was chi-square and t-test with p-value ($p > 0.05$).

RESULTS

Bone union was achieved in all patients. No evidence of malocclusion, delayed union, non union, nerve damage, and TMJ dysfunction were observed. Two patients (4%) faced complications of wound infection and were managed by local wound care and antibiotics administration and both were healed satisfactorily within 7-10 days. Details about complications are given in Table:1.

Table No.1: Frequency of complications.

Complications	No: of Patients	Percentage %
Infection	2	4%
Malocclusion	---	---
Delayed Union	---	---
Non Union	---	---
Nerve Damage	---	---
TMJ Dysfunction	---	---

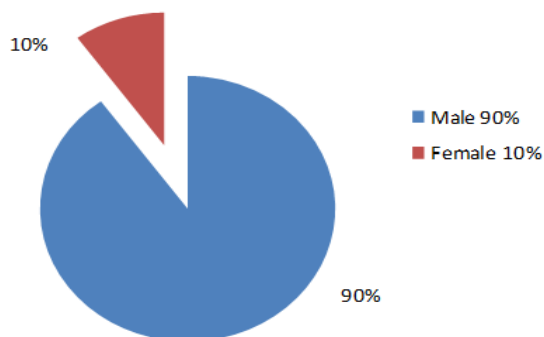


Figure No.1: Male to Female ratio

DISCUSSION

Various studies have been observed on the use of miniplates for the treatment of mandibular fractures¹³⁻¹⁷. Berry CP¹⁸ treated mandibular angle fracture with one miniplate at superior border without MMF, 12% of patients developed complications that required Bone plate removal. Ellis¹⁹ treated mandibular angle fracture with one miniplate at superior border without maxillomandibular fixation, 16% of patients reported complications. In various other studies mandibular fractures treated by miniplate fixation and maxillomandibular fixation for shorter duration found satisfactory bone healing with decreased rate of complications (3.4-6%).²⁰⁻²² In this study one miniplate placed in all regions of mandibular fracture and maxillomandibular fixation for short duration (up to two weeks) has these advantages.

Reduction in implant material, Ideal occlusal adjustment with maxillomandibular fixation, Palpability & thermal sensation of miniplate further decreased by use of single miniplate, Less chances of interference with radiography, Less exposure time during surgery decreases contamination of deeper tissues & Two plates causes greater restriction of post operative occlusal adjustment if required.

Reduction in overall complications minimize the need of second surgery for removal of miniplate. For all these reasons use of single miniplate placement with maxillomandibular fixation for initial few days is superior treatment option for non comminuted uninfected mandibular fractures.

Results in this study regarding postoperative complications are comparable with that of international data, Bolourian R²⁰ and Chirtab A.²¹

CONCLUSION

The use of intra Oral single miniplate secured with 2-mm wide 7.0-mm long mono cortical screws according to Champy's principle of osteosynthesis and maxillomandibular fixation using arch bar in mandible and maxilla for up to two weeks is most effective treatment and has several advantages with least number of complications.

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Complications of Instrumental Vaginal Delivery in Perimiparus Patients and Foetomaternal Outcome

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ABSTRACT

Objective: To find out complications and foetomaternal outcome in the instrumental (forceps and vacuum) vaginal delivery of the primiparus patients.

Study Design: Observational study

Place and Duration of Study: This study was conducted at Gynecological Department of Liaquat University Hospital Hyderabad and Gynecological Department of Isra University Hospital Hyderabad from August 2012 to April 2013.

Materials and Methods: This study contained total 100 number of cases All the perimigravid womens were included in the study and after the admission all require able laboratory investigation were carried out. Forceps and vacuum were used in delivery and this choice between two options (forceps and vacuum) is usually been based on training and traditions. All the instrumental complications and affects on foetomarnal in parimiparus patients were noted during and after delivery and were documented on the attached Performa.

Results: Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases. In the forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Neonatal trauma and cephalic hematoma were most common and no deaths were recorded and in the vacuum assisted deliveries, and no deaths were recorded along with 12% neonatal trauma and 10% cephalic hematoma as in forceps deliveries.

Conclusion: In the conclusion of this study vacuum having less complication as compare to forceps deliveries but there is no highly difference so the operator should use the instrument according to situation.

Key Words: Primigravid, forceps and vacuum, complication.

INTRODUCTION

Primiparous can be identifying as the women who conceived for the first time and also it is high risk group. Since, it is the start of a new life for a woman, this group regarded as a crucial group having need regular assistance in terms of Antenatal, natal and post natal care, and they should help of the this group during pregnancy, labour.¹ Assisted vaginal delivery is known as delivery through vaginally using any instrument for assistance of delivery. The vacuum and forceps are two main options according to the need for facilitate vaginal birth. In the instrumental vaginal delivery use of the vacuum or forceps for increase the forces along the pelvic curve. The vacuum applies for suction on the area of scalp fixed by the suction cup.² Forceps cradle the parietal and molar bones of the fetal skull and apply traction to these areas, as well as laterally displacing maternal tissue.² Uses of both vacuum and forceps simultaneously causes compression of the fetal head. Uses of the both instruments have been compared in many studies.^{3,4,5,6} In the studies of Johansson and Menon³ included 10 such studies from the Cochrane database in a meta analysis. Johanson and Menon found

that vacuum is more likely to fail as the instrument of delivery than forceps. Patients with vacuum delivery had less severe lacerations than those who had a forceps delivery as well as less perineal pain at 24 hours after delivery.³ Many other studies reported no difference in urinary incontinence or anal sphincter dysfunction after five years whether vacuum or forceps were used for vaginal delivery.^{3,4} Neonatal complications rate mostly similar in both instruments.³ Cephalohematomas and retinal hemorrhages are most common in vacuum vaginal deliveries,³ and external ocular injuries and facial nerve palsies are most common in the forceps deliveries.³ Serious complications are rare for both forceps and vacuum deliveries but can lead to neonatal death.^{5,7} In the retrospective study of primigravid women in California⁷ found infants were no more likely to die before discharge when delivered by vacuum or forceps as compare to spontaneous vaginal birth. They were less likely to die if delivered vaginally than by Caesarean section. A neonate delivered by 2 operative interventions (i.e., Caesarean section following a failed vacuum attempt or forceps attempt, or vacuum and forceps birth) is more likely to have a serious injury than one delivered by any one of these

interventions alone.⁵ Indeed, a positive correlation exists between the number of operative interventions in the second stage of labour and the likelihood of death or intracranial injury.⁷ Other research has demonstrated similar results.^{8,9} Purpose of this study to analyze the effects and complications of instrumental, (forceps and vacuum) vaginal delivery of the primiparus patients, at Liaquat university hospital Hyderabad sindh.

MATERIALS AND METHODS

This observational and comparative study was contains total 100 of the case and was conducted at gynecological department of Liaquat university hospital Hyderabad and gynecological department of gynecology Isra university hospital Hyderabad, with the duration of 8 months from August 2012 to April 2013. All the perimigravida women with only vaginal deliveries were included in the study and all the cases with obstetric complications, pregnancy presentation with multifetals, women with multiparity and with other medically severe disorder and fetus with congenital abnormalities were excluded from the study. After the admission of patients physical examination was done as abdominal, vaginal examination, cervical dilatation and head presentation to pelvis assessment, blood pressure etc. All require able laboratory investigation were carried out. Forceps and vacuum were used in delivery and this choice between two options (forceps and vacuum) is usually been based on training and traditions. All the instrumental complications and affects on foetomarnal in parimiparus patients were noted during and after delivery and were documented on the attached Performa.

RESULTS

Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases figure 1.

Results of our study shows that the majority of the cases was found in the age group of 21-25 and the second most common age group was the 26- 30 years of the age, cases of the present study were found equally from both rural and urban areas, 48% from rural areas and 52% from urban areas. Table.1.

Socioeconomic status of the patients of this study, majority of the cases belongs with poor families with the percentage of 85% while 15% cases belong with middle class and upper class families. Table.1.

Anemic patient were found in the majority in this study 65% while few patients were diagnosed with hypertension and diabetics. Table.1.

During the lab investigation of this study HBV and HCV were found 15% and 31% respectively. Figure 2.

In the forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively along with heavy bleeding 19%, UTI 15% and cervical tear were

noted in 7% of the cases, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Table. 2.

Table No.1: Baseline charecteristics of the patients (n=100)

Characteristics	Frequency	%age
Age groups		
> 20	15	15.0%
21 – 25	38	38.0%
26 – 30	30	30.0%
< 30	17	17.0%
Residential status		
Rural	48	48.0%
Urban	52	52.0%
Economic status		
Poor	85	85.0%
Non poor	15	15.0%
Others		
Hypertensive	12	12.0%
Diabetics	04	04.0%
Anemic	65	65.0%

Table No.2: Instrumental effects and Foetomaternl outcome

Foetomaternl outcome and complications	Forceps %	Vacuum %
Maternal		
UTI	15.0%	06.0%
Perineal tear	27.0%	06.0%
Cervical tear	07.0%	05.0%
Vaginal trauma	20.0%	04.0%
Heavy bleeding	19.0%	12.0%
Neonatal		
Neonatal death	0%	0%
Neonatal trauma	17.0%	12.0%
Cephalic hematomas	11.0%	02.0%
Clavicle fracture	03.0%	01.0%
Brachial plexus injury	04.0%	01.0%
Jaundice	06.0%	02.0%

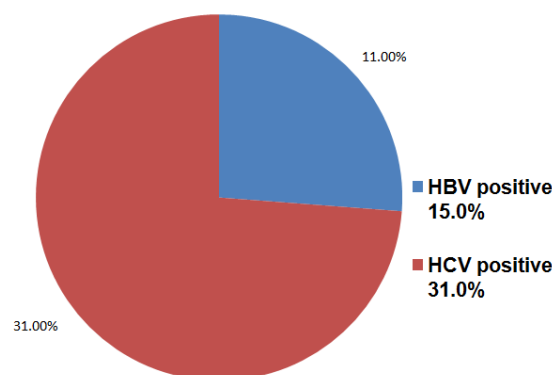


Figure No. 1: Viriological presentation of the cases (n=100)

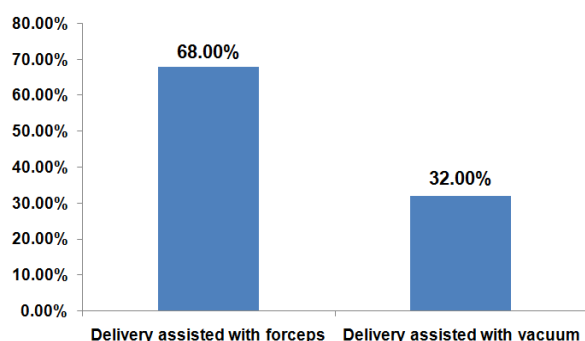


Figure No. 2: Instrumental frequency assisted for delivery (n=100)

Neonatal trauma and cephalic hematoma were most common and no deaths was recorded according to the neonatal outcome in the forceps assisted vaginal deliveries, while in the vacuum assisted deliveries deaths were recorded 0% along with 12% neonatal trauma and 10% cephalic hematomas. Table. 2.

DISCUSSION

This study was performed to determine the foetomaternal complications associated forceps and vacuum assisted vaginal delivery. Present study was contains 100 of the cases, forceps was applied on the 68% of the cases while vacuum assisted deliveries were done in 32% cases. In the study of Aliya islam, was found majority of the cases were assisted by forceps.¹⁰ A study from India (Punjab) reported that comparison of demographic variables of all the mothers delivered via both routes "caesarean and vaginal", 06.45%, 43.08%, 35.38% and 15.38% of mothers who had caesarean deliveries were in <20yrs, 21-25 yrs, 26-30 yrs and >30yrs of age group, while mothers who delivered vaginally had 17.14%, 42.86%, 25.71% and 14.28% for the same age groups respectively.¹¹ While this also showed majority of the cases found in the age group of 21-25 and the second most common age group was the 26- 30 years, cases of the present study were found equally from both rural and urban areas, 48% from rural areas and 52% from urban areas. Socioeconomic status of the patients of this study, majority of the cases belongs with poor families with the percentage of 85% while 15% cases belong with middle class and upper class families. In the comparative study of Kawaljit Kaur et al, reported that mostly mothers belongs with socioeconomic status as 22.86%.¹¹

Anemic patient were found in the majority in this study 65% while few patients were diagnosed with hypertension and diabetics. In the forceps assisted study of Gunvant Vaishnav et al, he found 17.39% of cases with anemia.¹²

In the study of Lashari A.K. et al reported that from 4170 obstetric patients, 250 (6%) were HBV carriers,

and 108 (2.6%) were HCV seropositive.¹³ while in this study during the lab investigation of this study HBV and HCV were found 15% and 31% respectively.

Johanson and Menon¹⁴ included¹⁵ such studies from the Cochrane database in a meta-analysis. Johanson and Menon found that vacuum is more likely to fail as the instrument of delivery than forceps. Women randomized to the vacuum delivery groups, however, were less likely to require a Caesarean section.¹⁴ The risk of maternal injury was greater in the forceps groups.¹⁴ Women who had a vacuum delivery had less severe lacerations than those who had a forceps delivery as well as less perineal pain at 24 hours post-delivery.¹⁴ Other studies demonstrated no difference in urinary incontinence or anal sphincter dysfunction after¹⁶ years whether vacuum or forceps were used for operative vaginal birth.¹⁶ Complication rates to the neonate were similar in both the forceps- and vacuum delivered groups.¹⁴ Cephalohematomas and retinal hemorrhages are more common in vacuum deliveries.¹⁴ External ocular injuries and facial nerve palsies are more common with forceps deliveries.¹⁴ Serious complications are rare for both forceps and vacuum deliveries. In the present study forceps assisted deliveries from the maternal complications perineal tear and vaginal trauma were most common as 27% and 20% respectively along with heavy bleeding 19%, UTI 5% and cervical tear were noted in 7% of the cases, while maternal complications associated to vacuum were UTI, Perineal tear, Cervical tear, Vaginal trauma and Heavy bleeding were with percentage as, 06.0%, 06.0%, 05.0%, 04.0% and 12.0% respectively. Humaz et al reported that maternal and neonatal complication in her comparative study of vacuum and forceps as, cervical tear 5% in vacuum and 6% in the forceps assisted deliveries while neonatal cephalic hematoma 6% and jaundice 8% in vacuum assisted deliveries even as cephalic hematoma 5% and jaundice 3% in forceps assisted deliveries.¹⁷ Neonatal trauma and cephalic hematoma were most common and no deaths were recorded according to the neonatal outcome in the forceps assisted vaginal deliveries, while in the vacuum assisted deliveries deaths were recorded 0% along with 12% neonatal trauma and 10% cephalic hematomas. Study of Aliya islam reported that according to the forceps assisted deliveries neonatal jaundice 6%, cephalic hematoma 4% and neonatal deaths were only 2%.¹⁰

CONCLUSION

In the conclusion of this study vacuum having less complication as compare to forceps deliveries but there is no highly difference so the operator should use the instrument according to situation.

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Morphological and Histological Changes in Placenta of Hypertensive and Gestational Diabetic Women

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ABSTRACT

Objective: To correlate the morphological and histo-pathological changes in placenta observed in normal, diabetic and hypertensive pregnancies.

Study Design: A cross sectional study

Place and Duration of Study: This study was carried at the department of Gynae and Obs Taluka hospital Hala, and Basic health unit Hala from 1st January, 2014 to 30th June, 2014

Materials and Methods: For this experimental study statistical analysis was carried on SPSS-11.0 version. Total 90 cases studied were divided in three equal groups. All placentae were processed through stages for final histo-pathological examination.

Results: The study showed that discoid shape were significantly less 4(13.3%) in hypertensive as compared to 16 (53.3%) diabetic and normal placentae ($p < 0.01$), bilobed in 6 (20.0%) diabetic placenta. In hypertensive placenta 15(50%) had central attachment of umbilical cord, diabetic 22 (73.3%) and normal 30(100%). Central thickness (Mean \pm S.D \pm SEM) of hypertensive placenta $2.2 \pm 0.58 \pm 0.11$ were significantly less ($p < 0.01$) as compared to normal placenta $3.0 \pm 0.03 \pm 0.01$ but diabetic placenta $3.8 \pm 1.15 \pm 0.21$ were significantly high ($p < 0.01$) as compared to hypertensive and normal placenta.

Conclusion: Gestational diabetes and hypertension had significant effect that causes morphological changes in placenta that affects fetal and maternal wellbeing. This study is helpful for those who are concerned for mother and child health.

Key Words: Hypertension, Diabetes, Pregnancy, Placenta

INTRODUCTION

The trophoblast of human placenta is directly exposed to the maternal circulation. It forms the main barrier to maternal-fetal glucose transport. The present study investigated the effect of sustained hyperglycemia in vitro on the glucose transport system of these cells.¹ Preeclampsia is a major contributor to the maternal and neonatal mortality and morbidity.² It is the 2nd largest cause of maternal mortality worldwide and affects 5% to 7% of pregnant women worldwide.³

The results of this study suggest that, in Class C diabetics, placental morphology and placental function are probably not more adversely affected than in other less severe forms of the disease during pregnancy.⁴ Every year around 585,000 women die from complications of pregnancy and child birth, and more than 99% of these deaths occur in less developed regions.⁵ Globally it is estimated that 12% of all maternal deaths are related to the hypertensive disorders of pregnancy.⁶ Maternal mortality ratio in Pakistan is higher than in many parts of the world and maternal health indicators have shown little sign of improvement over the last few decades.⁷ Hypertension is a global epidemic of general population and pregnancy is no exception to this rule.⁸ The hypertensive disorders complicating pregnancy include

fetal distress, intrauterine fetal death and placental abnormalities.⁹ Pregnancy induced hypertension is associated with macroscopic and microscopic changes in the placental structure.¹⁰ Hypertension in pregnancy intensifies morphological changes of aging in placenta and subsequently effecting outcome of pregnancy including fetal distress, growth retardation and fetal death.¹¹ The resulting ischemia causes fetal hypoxia, which may lead to fetal distress and death. In recent years, it has been revealed that there is clear relationship between morbid histological changes of placentae of hypertensive mothers and fetal growth retardation.¹² At term human placenta is flattened mass with approximately circular or oval outline, but the shape is determined by the form of patch of villi finally left on chorionic sac.¹³ Metabolic diseases associated with pregnancy, like hypertension and diabetes are highly common in low socioeconomic groups. During the first half of pregnancy, the placenta not only increases its surface area but reaches its maximum. This accompanies increase in size, length and complexity of branching of villous stems.¹⁴

In gestational diabetes, when metabolic control is good, perinatal mortality should be no higher than in the general population.¹⁵ Foetal hyper-insulinemia is the cause of macrosomia. Even mild disturbances of maternal carbohydrate metabolism can lead to foetal

hyperinsulinemia. Within the chronic hypertensive disease, the most common diagnosis is essential vascular hypertension.¹⁶

MATERIALS AND METHODS

Data Collection Procedures: This study was carried at the department of Gynae and Obs Taluka hospital Hala, and Basic health unit Hala old cases were examined and identified for diabetes and hypertension during pregnancy for the parameters mentioned successively. The gross feature noted for placentae from each group includes shape, diameter, surface area, weight, cotyledons, central thickness and attachment of umbilical cord. Placentae from all groups were studied microscopically for average number of syncytial knots per unit area, amount of chorionic villous collagen, trophoblastic basement membrane thickness, tissue processing for sectioning and staining.

Paraffin Sections: Placentae fixed in 10% formalin were processed for routine paraffin embedment. Sections were cut and mounted on clean gelatinized slides, stained with H&E, Mallory's trichrome, and methenamine silver.

Micrometry: A stage micrometer was used for calibration of ocular micrometer and the counting reticule.

The samples divided into three groups

Group A: This group comprises of 30 placentas from pregnancies, which will not be suffering from any disease, and will be served as control.

Group B: This group comprises of 30 full term placentae from mothers suffering from hypertension.

Group C: This group comprises of 30 full term placentae from mothers suffering from diabetes.

Ethical Consideration: The written informed consent was taken from the patients, consultant and hospital administration of Taluka Hospital Hala and Basic Health Unit Hala old.

Inclusion and Exclusion Criteria:

- For this study only mature placenta were taken, Premature and Post mature placenta were not considered in this study.
- Only diabetic placentae were closely monitored.
- Also hypertensive placentae were taken without any other complications.
- These placentae were preserved in 10% formalin after half hour after the delivery.

Statistical Analysis: The data feeding and analysis was on computer package SPSS (Statistical Packages of Social Sciences) version 11.0

RESULTS

Total 90 placentae, 30 from normal, 30 each from hypertensive and diabetic were observed. The study showed that shape discoid were significantly less 4(13.3%) in hypertensive as compared to 16 (53.3%)

diabetic placenta and normal placenta ($p < 0.01$), bilobed in 6 (20.0%) diabetic placenta. In hypertensive placenta 15(50%) were central attachment of umbilical cord, diabetic 22 (73.3%) and normal 30(100%). Out of 30 cases of hypertensive placenta, 20 (66.7%) showed increased syncytial epithelial knots as compared to diabetic 9 (30.0%) $p < 0.01$ (table 1)

Table No.1: Morphological changes between Normal (Group A) and Hypertensive (Group B) and Diabetic (Group C) placenta

	Group A		Group B		Group C		B vs. C
	Normal placenta (n=30)		Hypertensive placenta (n=30)		Diabetic placenta (n=30)		
	No.	%	No.	%	No.	%	P-value
Shape							
Discoid	30	100.0	4	13.3**	16	53.3	0.001
Small discoid	-		19	63.3	-		-
Star discoid	-		7	23.3	8	26.7	0.765
Bilobed discoid	-		-		6	20.0	-
Site of attachment of Umbilical cord							
Acentric	30	100.0	15	50.0	22	73.3	0.063
Marginal	-		15	50.0	8	26.7	0.063
Hemorrhage	-		16	53.3	17	56.7	0.795
Infarction	-		16	53.3	18	60.0	0.602
Villous edema	-		18	60.0	22	73.3	0.273
Hypervascularity							
Decreased	-		16	53.3**	6	20.0	0.007
Increased	-		9	30.0	15	50.0	0.113
No	30	100.0	5	16.7	9	30.0	0.222
Syncytial Epithelial knots	-		20	66.7**	9	30.0	0.004

Statistically significant ** $p < 0.01$

Table No.2: Comparison of Central thickness (cm), Diameter (cm) and Weight (gm) between Normal (Group A) and hypertensive (Group B) placenta

	Group A		Group B	P-value
	Normal placenta (n=30)		Hypertensive placenta (n=30)	
	Mean \pm S.D \pm SEM		Mean \pm S.D \pm SEM	
Central thickness (cm)	3.0 \pm 0.03 \pm 0.01		2.2 \pm 0.58 \pm 0.11**	0.001
Diameter (cm)	21.1 \pm 3.37 \pm 0.62		19.5 \pm 5.10 \pm 0.93	0.534
Weight (gm)	557.8 \pm 33.85 \pm 6.18		524.4 \pm 154.7 \pm 28.24	0.948

Statistically significant ** $p < 0.01$

Results for Table 2, 3, and 4: Central thickness (Mean \pm S.D \pm SEM) of hypertensive placenta 2.2 \pm 0.58 \pm 0.11 were significantly less ($p < 0.01$) as compared to normal

placenta $3.0 \pm 0.03 \pm 0.01$ (Table 2) but diabetic placenta $3.8 \pm 1.15 \pm 0.21$ were significantly high ($p < 0.01$) as compared hypertensive and normal placenta (Table 3 & 4)

In diabetic placenta (Mean \pm S.D \pm SEM) of diameter $34.5 \pm 7.93 \pm 1.45$ and weight $1478.8 \pm 699.6 \pm 127.7$ were significantly ($p < 0.01$) high as compared to normal placenta diameter $21.1 \pm 3.37 \pm 0.62$, weight $557.8 \pm 33.85 \pm 6.18$ (Table 3) and hypertensive placenta diameter $19.5 \pm 5.10 \pm 0.93$, weight $524.4 \pm 154.7 \pm 28.24$ (Table 4)

Table No.3: Comparison of Central thickness (cm), Diameter (cm) and Weight (gm) between Normal (Group A) and Diabetic (Group C) placenta

	Group A Normal placenta (n=30)	Group C Diabetic placenta (n=30)	P-value
	Mean \pm S.D \pm SEM	Mean \pm S.D \pm SEM	
Central thickness (cm)	$3.0 \pm 0.03 \pm 0.01$	$3.8 \pm 1.15 \pm 0.21^{**}$	0.001
Diameter (cm)	$21.1 \pm 3.37 \pm 0.62$	$34.5 \pm 7.93 \pm 1.45^{**}$	0.001
Weight (gm)	$557.8 \pm 33.85 \pm 6.18$	$1478.8 \pm 699.6 \pm 127.7^{**}$	0.001

Statistically significant $** p < 0.01$

Table No.4: Comparison of Central thickness (cm), Diameter (cm) and Weight (gm) between Hypertensive (Group B) and Diabetic (Group C) placenta

	Group B Hypertensive placenta (n=30)	Group C Diabetic placenta (n=30)	P-value
	Mean \pm S.D \pm SEM	Mean \pm S.D \pm SEM	
Central thickness (cm)	$2.2 \pm 0.58 \pm 0.11$	$3.8 \pm 1.15 \pm 0.21^{**}$	0.001
Diameter (cm)	$19.5 \pm 5.10 \pm 0.93$	$34.5 \pm 7.93 \pm 1.45^{**}$	0.001
Weight (gm)	$524.4 \pm 154.7 \pm 28.24$	$1478.8 \pm 699.6 \pm 127.7^{**}$	0.001

Statistically significant $** p < 0.01$

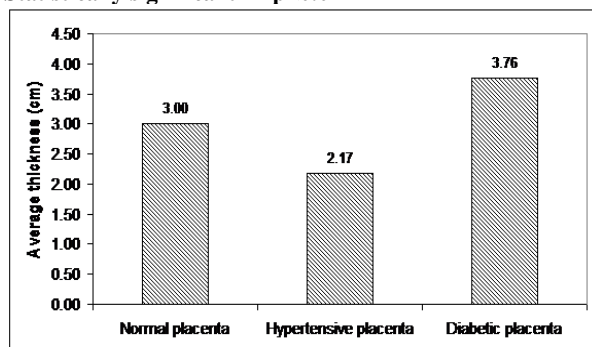


Figure No.1: Comparison of average thickness (cm) between normal, hypertensive and diabetic placentae

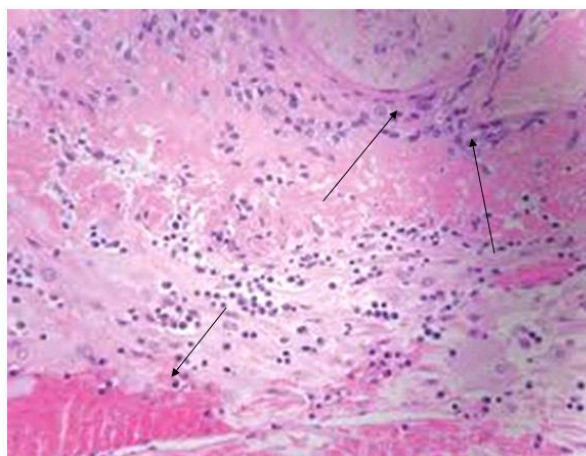


Figure No.1: Photomicrographs 5: Showing hypervascularity in diabetic placental tissue with masons trichome staining at 10x magnification/IPF

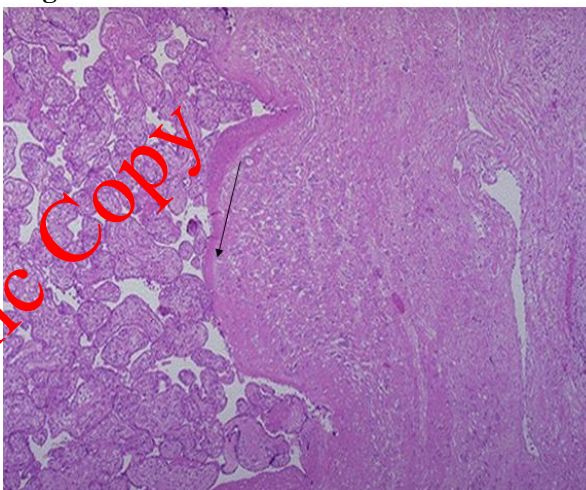


Figure No.2: Photomicrographs 6: Showing villous edema in diabetic placenta staining with H and E at 10x magnification / IPF

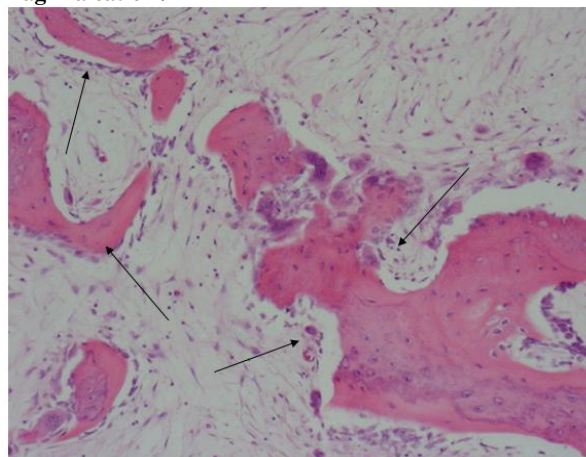


Figure No.3: Photomicrographs 7: Showing villous edema in hypertensive placental tissue at 10 x magnification/IPF with H and E staining

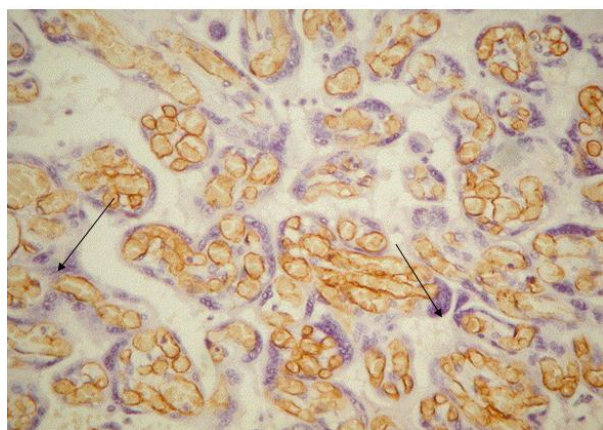


Figure No.4: Photomicrographs 8: Showing infarction in hypertensive placental tissue masons trichome staining at 10x magnification/IPF

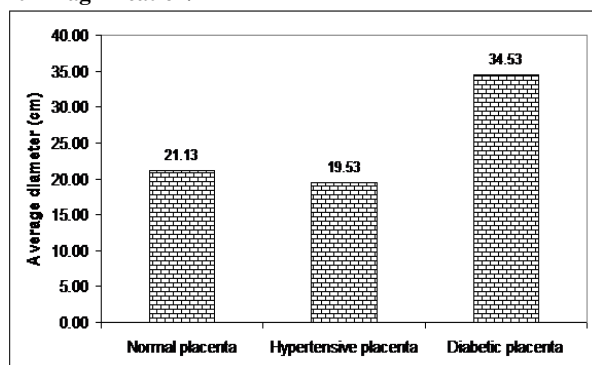


Figure No.2: Comparison of average diameter (cm) between normal, hypertensive and diabetic placentae

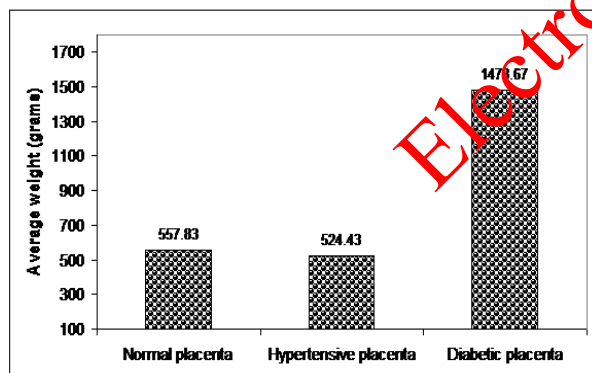


Figure No.3: Comparison of average weight (grams) between normal, hypertensive and diabetic placenta

DISCUSSION

Out of 30 cases of hypertensive placenta, 20 (66.7%) showed increased syncytial epithelial knots as compared to diabetic 9 (30.0%) $p < 0.01$. Central thickness (Mean \pm S.D \pm SEM) of hypertensive placenta $2.2 \pm 0.58 \pm 0.11$ were significantly less ($p < 0.01$) as compared to normal placenta $3.0 \pm 0.03 \pm 0.0$, but diabetic placenta $3.8 \pm 1.15 \pm 0.21$ were significantly high ($p < 0.01$) as compared hypertensive and normal

placenta. In diabetic placenta (Mean \pm S.D \pm SEM) of diameter $34.5 \pm 7.93 \pm 1.45$ and weight $1478.8 \pm 699.6 \pm 127.7$ were significantly ($p < 0.01$) high as compared to normal placenta diameter $21.1 \pm 3.37 \pm 0.62$, weight $557.8 \pm 33.85 \pm 6.18$ and hypertensive placenta diameter $19.5 \pm 5.10 \pm 0.93$, weight $524.4 \pm 154.7 \pm 28.24$.

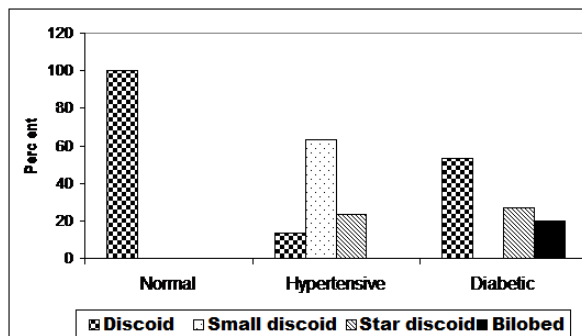


Figure No.4: Comparison of shape and size between normal, hypertensive and diabetic placentae

Our results correlate with the study of (Rahman H et al., 2006). To observe vascular changes in the placenta, a study was carried out on 44 placentas 19 from overt diabetic mothers having no hypertension and 5 from hypertensive diabetic mothers, and 20 from control group having no hypertension or diabetes. In our research In diabetic placenta (Mean \pm S.D \pm SEM) of diameter $34.5 \pm 7.93 \pm 1.45$ and weight $1478.8 \pm 699.6 \pm 127.7$ were significantly ($p < 0.01$) high as compared to normal placenta diameter $21.1 \pm 3.37 \pm 0.62$, weight $557.8 \pm 33.85 \pm 6.18$ and hypertensive placenta diameter $19.5 \pm 5.10 \pm 0.93$, weight $524.4 \pm 154.7 \pm 28.24$.¹⁷

This study matched with the study of (kovo M et al. 2010) Pregnancy-induced hypertension/preeclampsia (PIH) and foetal growth restriction (FGR) share a common placental origin Maternal vascular lesions were more common in the PIH group and combined group (61% and 59%, respectively), compared with the FGR group (16.2%; $P < .001$), and villous lesions were more common in the combined group, compared with the FGR and PIH groups (79.5%, 53.5%, and 46.9%, respectively; $P = .004$). Present study showed Out of 30 cases of hypertensive placenta, 20 (66.7%) showed increased syncytial epithelial knots as compared to diabetic 9 (30.0%) $p < 0.01$. Central thickness (Mean \pm S.D \pm SEM) of hypertensive placenta $2.2 \pm 0.58 \pm 0.11$ were significantly less ($p < 0.01$) as compared to normal placenta $3.0 \pm 0.03 \pm 0.0$.¹⁸

In the study of Marilza VCR et al.2011, changes seemed in HTN and DM placentae include great variability of vascularity manifested by strikingly hypovascular as well as hypervascular terminal villi. In our study, hypervascularity of villi noted in 15 out of 30 diabetic patient placentae. In hypertensive group 30 placentae hypervascularity of villi were present in 9 (30%), in comparison with normal villi. Capillaries of hypo vascular villi had a smaller diameter and

displayed a markedly wavy course whereas in hypervascular villi numerous capillaries occurred in reduced stroma and often had a large diameter. This is true as we noted similar changes in our study.¹⁹

This study showed similarity with the (Guzmán-Gutiérrez E et al., 2011) Endothelial damage and reduced metabolism of the vasodilator adenosine occur and foetal hyper insulinemia associated with deficient insulin response and a metabolic rather than mitogenic phenotype is characteristic of this pathology. These phenomena lead to endothelial dysfunction of the foeto placental unit. In diabetic placenta (Mean \pm S.D \pm SEM) of diameter $34.5 \pm 7.93 \pm 1.45$ and weight $1478.8 \pm 699.6 \pm 127.7$ were significantly ($p < 0.01$) high as compared to normal placenta diameter $21.1 \pm 3.37 \pm 0.62$, weight $557.8 \pm 33.85 \pm 6.18$.²⁰

This study correlates with the (Stansly JL et al., 2011) Endothelial dysfunction has been observed systemically in women with gestational diabetes (GDM). The effects of GDM, however, on uterine artery function and the possible mechanisms that mediate endothelial dysfunction remain unknown.²¹

CONCLUSION

Gestational diabetes and hypertension causes significant morphological changes in placenta that affects fetal and maternal wellbeing. This study is helpful for those who are concerned for mother and child health.

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Priority of Spinal versus General Anesthesia for Caesarian-Section in the Eyes of Gynaecologists and Patients

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ABSTRACT

Objective: To study the Priority of Spinal versus general anesthesia for Caesarian-Section In the eyes of gynecologist and patient in Islam Teaching Hospital Sialkot, Shahina Jamil Hospital Abbottabad and CMH Mangla.

Study Design: Retrospective study.

Place and Duration of Study: This study was carried out at the Islam Teaching Hospital Sialkot, Shahina Jamil Teaching Hospital Abbottabad and CMH Mangla from 1st January 2010 to 28 Feb 2014.

Materials and Methods: 250 cases each for Caesarian Section were taken from government hospitals and private hospitals these were analyzed for type of anesthesia with its preference in the eyes of gynecologists and patients. Fully informed written consent had already been taken for type of anesthesia. Permission was also taken from authorities of above mentioned hospitals for the study.

Results: In government hospitals the gynecologist preferred (74%) spinal anesthesia for Cesarion section as compared to private hospitals where he/she preferred general anesthesia (85.6 %).

Conclusion: It was concluded that the Gynaecologist in the government sector prefers spinal Anesthesia for Caesarian Section but in private practice she / he prefers general anesthesia for Caesarian section. It was seen that the religious women prefer general anesthesia for caesarian section due to modesty reasons but women of modern society listen to the counseling for spinal anesthesia with open mind. The Anesthetist preferred spinal anesthesia for Caesarian section in most of the cases.

Key Words: Gynaecologist, Anesthetist, General Anesthesia, Spinal Anesthesia and Caesarian Section.

INTRODUCTION

A Caesarian section (or Cesarean section in American English), also known as C-section or Caesarean, is a surgical procedure in which incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies.^[1]

It is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk, although in recent times it has been also performed upon request for childbirths that could otherwise have been natural.^[2]

The World Health Organization (WHO) recommends that the rate of Caesarean sections should not exceed 15% in any country.^[3] However, in recent years the rate has risen to a record level of 46% in China and to levels of 25% and above in many Asian countries, Latin America and the USA.^[4]

Caesarean section is recommended when vaginal delivery might pose a risk to the mother or baby.^[5] Not all of the listed conditions represent a mandatory indication, and in many cases the obstetrician must use discretion to decide whether a caesarean is necessary.^[6] Some indications for caesarean delivery are:^[7]

Complications of labor and factors impeding vaginal delivery such as:

- prolonged labor or a failure to progress (dystocia)
- fetal distress
- cord prolapse

- uterine rupture
- placental problems (placenta praevia, placental abruption or placenta accreta)
- abnormal presentation (breech or transverse positions)
- failed labor induction
- failed instrumental delivery (by forceps or ventouse. Sometimes a 'trial of forceps/ventouse' is tried out - This means a forceps/ventouse delivery is attempted, and if the forceps/ventouse delivery is unsuccessful, it will be switched to a caesarean section.
- overly large baby (macrosomia)
- umbilical cord abnormalities (vasa previa, multi-lobate including bi-lobate and succenturiate-lobed placentas, velamentous insertion)
- contracted pelvis

MATERIALS AND METHODS

This study was carried out at the Islam Teaching Hospital Sialkot, Shahina Jamil Teaching Hospital Abbottabad and CMH Mangla from 1st January 2010 to 28 Feb 2014.

250 cases each for Caesarian Section were taken from government hospitals and private hospitals these were analyzed for type of anesthesia with its preference in the eyes of gynecologists and patients. Fully informed written consent had already been taken for type of

anesthesia. Permission was also taken from authorities of above mentioned hospitals for the study.

RESULTS

In government hospitals the gynecologist preferred (74%) spinal anesthesia for Cesarion section as compared to private hospitals where he/she preferred general anesthesia (85.6 %). (Table 1 & 2).

Table No. 1: Priority Distribution of type of Anesthesia for Cesarion section in Govt hospitals

S.No	Priority	Cases	Percentage
01	Spinal Anesthesia	185	74 %
02	General Anesthesia	65	26 %
	Total	250	100 %

Table No. 2: Priority distribution of type of Anesthesia for Cesarion section in private hospitals

S. No	Priority	Cases	Percentage
01	Spinal Anesthesia	36	14.4 %
02	General Anesthesia	214	85.6 %
	Total	250	100 %

DISCUSSION

Pulmonary aspiration of gastric contents (incidence 1:400 for obstetric cases versus 1:2000 for all patients) and failed endotracheal intubation (incidence 1:300 versus 1:2000 for all patients) during general anesthesia are the major causes of mortality and morbidity in mothers for C Section. Large population studies in UK and United States have shown that regional anesthesia for c-section is associated with less maternal morbidity and mortality than general anesthesia. Minimal systemic drug administration, no interference with airways, better fetal apgar^[12] at delivery, less bleeding during surgery, less Post OP pain complaints and less chances of DVT are the additional benefits of regional technique.^[8]

There is surge in the popularity of neuroaxial anesthesia in the west amongst gynecologists, anesthetist and patients. The major concerns with this technique are hypotension and post dural puncture headache (PDPH) which can be minimized with better technique and timely intervention by anesthetist.^[9]

The low cost of spinal anesthesia, less time taken for administration and rapid turnover after surgery minimizes the operation room occupancy (duration of operation room stay is 50% reduced) along with minimal logistic support of gases and assistants make it more conducive to socioeconomic environment of Pakistan. False incrimination of backache associated to past spinal anesthetic is the major hurdle in consent of spinal anesthesia. The low socioeconomic segment of our society have many taboos and misbeliefs due to hearsay. Back ache is more common in ladies because

of gynecological problems, reduced muscle strength, bad postures, obesity, relaxed ligaments and its reduced strength due to multiparity. One group of medicos also propagate that they do not practice spinal anesthesia during surgery for vested interest and help in confirming the false beliefs.^[11]

It should be noted that 25 to 30 % of patients receiving only general anesthesia also complain of backache post operatively and significant percentage of general population has chronic backache.^[10]

In general, gynecologist know that spinal is better for C-Section academically but there are other factors which modify their options. Most of the gynecologist want that patient should not listen when they are talking and panicking during the procedure. Confident and expert gynecologist more often opt for regional technique. Hospital administrators having compromised standards of operation room do not want the patient to know the same, and desires to put the patient to sleep. There is another serious unethical growing demand of gynecologist owned hospitals to comply for administration of spinal anesthesia after Ketamine disassociation to the patients who have not consented for spinal anesthesia which should be resisted and plainly denied. Patient discomfort during surgery depends on level of block and gentle handling of viscera during surgery. Rough handling and inadequate vagal block is the major cause of discomfort for the patient during procedure.

The interesting aspect of obstetric practice shows that in public sector hospitals where free treatment is given gynecologist do not object to spinal anesthesia and even counsel the patient for the technique. Patients who are getting free treatment, they simply do not find courage to argue or choose the type of anesthesia that they may be declined the treatment on this pretext. So they simply comply and have no free choice, they leave the option to treating doctors but the section of gynecologists involved in private practice prefer general anesthesia for the known reasons.

Modesty concerns of the patients are more in religious back ground patients and they want general anesthesia. Presence of male staff in operation room during surgery is another steering factor for general anesthesia. Patients of highly educated, liberal and better socioeconomic group listen to counseling with open mind for spinal anesthesia.

CONCLUSION

It was concluded that the Gynaecologist in the government sector prefers spinal Anesthesia for Caesarian Section but in private practice she / he prefers general anesthesia for Caesarian section. It was seen that the religious women prefer general anesthesia for caesarian section due to modesty reasons but women of modern society listen to the counseling for spinal anesthesia with open mind. The Anesthetist

preferred spinal anesthesia for Caesarian section in most of the cases.

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Seroprevalence of Human Immunodeficiency Virus (HIV) in Southern Punjab

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ABSTRACT

Objectives: To find out the seroprevalence of HIV detected on blood screening in population of Southern Punjab.

Study Design: Observational Study

Place and Duration of Study: This study was carried out at the Department of Pathology, Combined Military Hospital (CMH), Multan from January to December 2013.

Materials and Methods: Serological blood screening of blood donors and candidates coming for recruitment in armed forces of Pakistan at CMH Multan Center was performed. Suspected cases confirmed with third generation ELISA technique. Bio-data of HIV positive cases was collected, analyzed and compared with national and international literature.

Results: A total of 10666 persons were screened out. Only two (0.018%) was HIV positive.

Conclusion: Seroprevalence of HIV/ AIDS is less common in our country as compared to rest of the world especially than that of neighbor countries. Awareness of the disease along with prophylactic and preventive measures are necessary to decrease the prevalence and spread of this disease.

Key Words: HIV, AIDS, Blood Screening

INTRODUCTION

Near about half of a century is going to be completed since detection of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) epidemic¹. A person once infected and becoming HIV positive does not mean that he is suffering from AIDS. The virus continues to involve and damage the immune system of the body and infected person may develop serious infectious disease known as AIDS. Disease spreads from infected individual to healthy persons through blood transfusion, prick of infected needle, barber shop and sex partnership². Spread of the disease can be minimized by protective measures against above mentioned predisposing factors. Globally an estimated 100 million people have been found to be infected with HIV since detection of the disease³. The number of annual AIDS related deaths is decreasing steadily worldwide due to decrease in incidence of the disease which started in late 1990's. Because of rapid awareness programmes, control, treatment, care and support measures in the population, the prevalence of HIV/AIDS is declining⁴. According to WHO, approximately 35 million people are suffering from HIV/AIDS worldwide⁵. The prevalence rate of HIV varies in different regions of world from 9% in India, 5% in Africa, 0.9% in Eastern Europe, 0.6% in North America^{6,7, 8}. The first case of AIDS in India was reported in 1986 and now India is the Country with second largest population of HIV infected individuals⁹.

MATERIALS AND METHODS

This is a retrospective study carried out between January 2013 to December 2013 at Haematology unit of Department of Pathology, Combined Military Hospital (CMH) Multan. All the persons coming for blood screening were included in the study. Majority group consisted of blood donors and other were candidates for recruitment in Armed Forces of Pakistan appearing at Multan Center from different areas of Southern Punjab. Among the Blood donors, majority consisted of volunteers of Armed forces, relative of patients requiring blood at CMH, Department of Paediatric Surgery, Nishtar Hospital and Institute of Child Health Multan. The study protocol consisted of the informed consent, age, address, occupation, education, marital and socio economic status. Five ml blood was taken from each candidate and screened for various serologically positive infective diseases including Human Immunodeficiency Virus (HIV). Seropositivity was confirmed by third generation ELISA technique. All the information were collected on a predesigned performa. Results regarding various infective diseases as Hepatitis B, C and HIV were noted. Bio-data of HIV positive cohort was separated, analyzed and compared with national and international literature.

RESULTS

A total of 10666 persons were screened for HIV. Among these, 6216 persons were blood donors and 4450 were candidates for recruitment in Armed forces

of Pakistan at Combined Military Hospital (CMH), Multan. In blood donors, 5990 (96%) were males and 226 (4%) were females. All the candidates for recruitment were male. This means that out of 10666 persons, 10440 (98%) were male and 226(2%) were female. Age range was between 18-40 years in blood donors while candidates for recruitment were 18-24 years. Out of 6216 blood donors, 2(0.3%) were positive and both were male of 40 years of age. None out of 4450 (0.00%) candidates for recruitment in armed forces was positive for HIV. Similarly no female (0.00%) was positive for HIV. Overall, 10666 persons were screened and only 2 (0.18%) were found positive for HIV. Both of these HIV positive persons were not having full blown AIDS disease.

Table No.1- Prevalence in Blood Donor Group

Total number Screened	HIV +	Percentage
6216	2	0.03%

Table No.2: Prevalence in Recruits Group

Total number Screened	HIV +	Percentage
4450	0	0%

Table No.3: Prevalence as a whole

Total number Screened	HIV +	Percentage
10666	2	0.018%

DISCUSSION

This study was an attempt to define the seroprevalence of HIV in relatively healthy and young population in Southern Punjab. Data consisted of analysis of the results of blood screening in candidates of recruitment in armed forces of Pakistan and blood donors at CMH, Multan during one year from January to December 2013. The testing method consisted of third generation ELISA technique which is used by the majority of the screening centers. As minimum age limit for blood donation and recruitment in Armed Forces is 18 years, so it was not possible to assess the minimum age of acquisition of HIV in this study. It is not necessary for HIV positive persons to develop AIDS, so seroprevalence of only HIV is more than prevalence of actual AIDS disease. In this study seroprevalence of HIV in 4450 candidates for recruitment in armed forces who were otherwise healthy and young between 18 to 24 years age was zero (0.00%). But in 6216 blood donors, 2 (0.03%) persons of 40 years age were HIV positive. None of these two HIV positive cases had any evidence of full blown developed AIDS. Overall, seroprevalence of HIV in both groups screened at CMH Multan was 2 out of 10666 (0.018%). Mujeeb et al have

reported no positive case of HIV¹⁰, while Katepotor et al reported the HIV prevalence of .02%¹¹. Khattak et al reported the prevalence of HIV ranging from 0.02% to 0.04% during his five year study¹². In another center prevalence rate for HIV was 0.003%. However, National AIDS programme in which Kazi et al reported the results of screening of 23,40,000 blood samples throughout the country, HIV positive cases were 0.6% and full blown AIDS cases were 0.007%¹³. According to WHO, approximately 35 million people are living with HIV/AIDS worldwide⁵. The prevalence rate of HIV in adult varies in different regions of the world from 5% in Africa, 0.9% in Eastern Europe and 0.6% in North America⁶. India is the Country with second largest population of HIV infected individuals^{7,9}.

CONCLUSION

From this study it is concluded that HIV/AIDS is not common in our country. Public awareness about disease, its modes of transmission and preventive measures are necessary to decrease the prevalence and spread of this disease.

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Comparison Between Signs and Symptoms of Medulloblastomas and Desmoplastic Medulloblastomas

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ABSTRACT

Objective: To compare the signs and symptoms of Medulloblastomas and Desmoplastic Medulloblastomas.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at King Khalid University Hospital, Rayadh, Saudi Arabia from 1st January 2001 till 31st December 2010.

Materials and Methods: Total of 37 patients were included in the study. After taking written consent from all the patients or their relatives, this study was conducted. Permission was also taken from the ethical committee of the hospital. 37 patients were included in the study.

Result: Percentage of important symptoms of intracranial tumors like headache, reduced vision and hydrocephalus was comparatively higher in medulloblastomas as compare to desmoplastic medulloblastomas. None of the desmoplastic variety had metastasis on presentation, hence all of them completely excised. Unfortunately, we were able to excise only 82.14% of medulloblastomas. 14.28% were partially excised while in 3.57% of cases, surgeon was only able to take biopsy.

Conclusion: Desmoplastic variety of medulloblastoma had better prognosis as compare to Classical Medulloblastoma.

Key Words: Medulloblastoma, childhood tumor, desmoplastic medulloblastomas.

INTRODUCTION

The annual incidence of tumors of the CNS ranges from 10 to 17 per 100,000 persons for intracranial tumors & 1 to 2 per 100,000 persons for intraspinal tumors; about half to three quarters are primary tumors, and the rest are metastatic. Tumors of the CNS account for 20% of all cancers of childhood. Seventy percent of childhood CNS tumors arise in the posterior fossa, a comparable number of tumors in adults arise within the cerebral hemispheres above the tentorium^{1,2}. Unique characteristics of CNS tumors: first, the distinction between benign and malignant lesions is less evident in CNS than in other organs. Second, the ability to surgically resect infiltrating glial neoplasms without compromising neurologic function is limited. Third, the anatomic site of neoplasm can have lethal consequences irrespective of histologic classification. Any mass lesion within the skull is a threat to the integrity of brain function and therefore even histologically benign tumors can threaten life. Finally, the pattern of spread of primary CNS neoplasm differs from that of other tumor. The four major classes of brain tumors are, Gliomas, Neuronal tumors, poorly differentiated neoplasms and Meningiomas. In children, medulloblastomas are located in the midline of the cerebellum, but lateral locations are more often found in adults. The tumor is often well circumscribed, gray, & friable and maybe seen extending to the surface of

the cerebellar folia and involving the leptomeninges. The desmoplastic variant is characterized by areas of stromal response with collagen and reticulin deposition and nodules of cells forming "pale islands" that have more neutrophil and lack the reticulin deposition. Dissemination through the CSF is a common complication, presenting as nodular masses elsewhere in the CNS, including metastases to the cauda equina that are sometimes termed "drop" metastases because of their direct route of dissemination through the CSF³. Intracranial tumors can present with seizures, focal neurological deficit, raised ICP, seizure, endocrine dysfunction or can be incidental findings⁴. In the older age group (50-70) the more malignant cerebellar gliomas (anaplastic astrocytoma, glioblastoma) become more common, as do cerebral metastasis⁵. Comparative studies on markers of biological aggressiveness of classical and desmoplastic medulloblastomas (MBs) are rare in literature. Regarding age distribution and location of tumours, the differences between classical and desmoplastic were documented. The classical medulloblastoma occurred predominantly in children and 80% were midline in location. The tumours of desmoplastic histology were located laterally in majority of cases. These tumours were in an almost equal distribution in children (56%) and adults (44%). Both histological variants of medulloblastoma are not different with regard to biological parameters of aggressiveness⁶. Medulloblastomas are classified into

two chief histological variants, 1-“classical” and 2-desmoplastic^{7,8}. The rare variants of medulloblastoma are large cell, lipomatous, melanocytic and medulloblastoma^{9,10}.

MATERIALS AND METHODS

After taking written consent from all the patients or their relatives, this retrospective study was conducted at King Khalid University Hospital, Rayadh, Saudi Arabia from 1st January 2001 till 31st December 2010. Permission was also taken from the ethical committee of the hospital. 37 patients were included in the study.

Inclusion and exclusion criteria: Only those patients were included in the study whose histopathology confirmed the diagnosis of Medulloblastoma and desmoplastic medulloblastomas. All other were excluded that refused to give consent or histopathology was in doubt to confirm the type of tumor.

RESULTS

Total of 37 patients were included in the study. Age ranges from 6 months to 54 years with majority of patients were between the ages of 6 to 12 years i.e. 40.5% (15). Out of 37 patients, 25 were males and 12 were females with male to female ratio of 67.5:32.4. Out of 37 patients, 75.67% were diagnosed as classical medulloblastomas on histopathology.

Table No.1: Showing the relative percentage of two types of tumors.

Total	37	100%
Medulloblastoma	28	75.67%
Desmoplastic Medulloblastoma	9	24.32%

Table No.2: Showing signs and symptoms at presentation.

Headache	Medulloblastoma		Desmoplastic Medulloblastoma	
	Present in 26 (92.8%)	Absent in 2 (7.2%)	9 (100%)	0 (0%)
Vision	Reduced in 15 (53.57%)	Normal in 13 (46.42%)	Reduced in 3 (33.33%)	Normal in 6 (66.66%)
ICP	Raised in 27 (96.43%)	Normal in 1 (3.57%)	Raised in 8 (98.88%)	Normal in 1 (1.12%)
Cerebellar signs	Nil in 10 (35.71%)	Present in 18 (64.28%)	Nil in 3 (33.33%)	Present in 6 (66.66%)
Cranial nerve palsy	Nil in 20 (71.42%)	Present in 8 (28.57%)	Nil in 2 (22.22%)	Present in 7 (77.78%)
Hydrocephalus	Present in 27 (96.42%)	Absent in 1 (3.58%)	Present in 7 (77.77%)	Absent in 2 (22.22%)

Table No.3: Neurological deficit in both types of tumors.

Neurological deficit	No deficit	Mild neurological deficit but independent	Partially dependent but can look after himself	Totally dependent
Medulloblastoma	1(3.57%)	9(32.14%)	7(25%)	11(39.28%)
Desmoplastic medulloblastoma	0(0%)	5(55.55%)	2(22.22%)	2(22.22%)

In the next table, we discussed the signs and symptoms at presentation in the hospital. It is interesting to note that percentage of important symptoms of intracranial tumors like headache, reduced vision and hydrocephalus was comparatively higher in medulloblastomas as compare to desmoplastic medulloblastomas.

Similarly, desmoplastic variant present with better stage as far as neurological deficit is concerned. Desmoplastic tumors on presentation are less in percentage wise as regard to the mild, Partially dependent but can look after himself or totally dependent on other for their daily routine. More than 39% of classical medulloblastomas are totally

dependant on others as compare to Desmoplastic medulloblastoma tumors which are 22% on presentation.

It is interesting to note that none of the desmoplastic variant had metastasis on presentation. However medulloblastoma had 28.57% chances of metastasis according to our study. 6 out 28 patients had spinal while 2 had local spread.

Table No.4: % of Metastasis at presentation

	Nil	Local	Spinal
Medulloblastoma	20	2	6
Desmoplastic medulloblastoma	9	0	0

As discussed earlier, none of the desmoplastic variety had metastasis on presentation, hence all of them completely excised. Unfortunately, we were able to excise only 82.14% of medulloblastomas. 14.28% were partially excised while in 3.57% of cases, surgeon was only able to take biopsy.

Tumor resection

	Complete	Partial	Biopsy
Medulloblastoma	23	4	1
Desmoplastic medulloblastoma	9	0	0

DISCUSSION

In our study, majority of patients were between the ages of 6 to 12 years i.e. 40.5% (15). Out of 37 patients, Most of the studies conducted on these tumors concluded the same result. According to Remke M et al, Medulloblastoma is a rare primary brain tumor in adults, whereas it constitutes the most common malignant brain tumor in children. Integrated genomics approaches revealed at least four distinct disease variants in children. The transcriptome of adult medulloblastomas differs considerably from pediatric counterparts, both in terms of tumor biology and prognostic impact. Therefore, age-specific classification is required and must be adapted for use in clinical trials of adult medulloblastoma¹¹.

Similarly Yazigi-Rivard L et. al. also mentioned that it predominantly arises in the cerebellum and 4th ventricle¹². While Stagno V and his colleagues conducted a similar study in Uganda and showed a slightly lower age group. He concluded that the mean age in his country was 6.5 years¹³. Similarly Kulkarni AV and his colleagues conducted a study in the Hospital for Sick Children in Ontario, Canada. He also showed median age at tumor diagnosis was 4.9 years¹⁴. Both these studies showed smaller age groups as compared to our study.

Majority of our patients were male with the 2/3rd majority (67.5:32.4). Same conclusion was drawn by Rickert CH who conducted a study in Gerhard-Domagk-Institute of Pathology and Institute of Neuropathology, University Hospital Münster, Germany. According to him, 60.7% of these tumors occurred in boys and the most common entities leading to extraneural metastases were medulloblastomas (56.3%), germinomas (9.8%), glioblastomas (6.9%), ependymomas (3.7%) and pilocytic astrocytomas (2.9%)¹⁵. Very similar results were shown by Stagno V¹³, who calculated the male to female ratio of 59.9:40.1%.

Hydrocephalus is a very important symptom of intracranial tumors. Majority of our patients had hydrocephalus on initial presentation. Though the incidence was higher in medulloblastomas (96.42%) as compared with desmoplastic medulloblastomas where the incidence was slightly lower (77.77%). Shamji

MF¹⁶ mentioned that there was equal incidence of hydrocephalus (69%, $p = 0.57$). Although all the researchers agreed that it is a common symptom with very high percentage at presentation. According to Raimondi AJ and his fellows who conducted a study on 117 children with cerebellar-fourth ventricle tumors, 110 had hydrocephalus¹⁷.

Headache, a very important presenting complaint, can be due to multiple reasons like muscle spasm, decrease vision, frontal sinusitis, hypertension and so on. It is present in 94.6% of our patients. According to Muzumdar D from Department of Neurosurgery, Seth Gordhandas Sunderdas Medical College and King Edward VII Memorial Hospital, Mumbai, India, 75.3% presented with headaches¹⁸. Cannas A et. al mentioned that Medulloblastoma induces unusual headache with clinical picture of basilar-type migraine complicated by ischemic infarcts¹⁹.

Hyperreflexia (72.5 %) and focal motor deficits (62.5 %) were the most common neurologic signs encountered in patients of infra tentorial tumors²⁰. These patients represented 40% of children treated for newly diagnosed medulloblastoma²¹. Authors of this article calculated long tract and cerebellar signs present in 64.9% of our patients which is very near to these two above mentioned studies. We also mentioned that 15 out of 37 patients had involvement of cranial nerves (40.5%). Abducent nerve palsy is another common initial presentation in patients with medulloblastoma²².

Decrease vision is present in 49.6% of patients. Pribila JT from Department of Ophthalmology, University of Michigan, USA mentioned that multiple intracranial meningiomas causing papilledema and visual loss in a patient with Nevroid Basal Cell Carcinoma²³. Besides typical signs and symptoms of increased intracranial pressure, cranial nerve palsies or visual problems were frequently found (in 70% and 30% of the patients, respectively).²⁴

Although desmoplastic medulloblastoma is a variant of medulloblastoma, we try to compare and identify differences between the two. Statistically, some differences are not very important but internationally, researchers agreed that these two types are genetically different. Schroeder K, and Gururangan S²⁵ mentioned that the advent of deep sequencing gene technology has provided invaluable clues to the molecular makeup of this tumor and allowed neuro-oncologists to understand that medulloblastoma is an amalgamation of several distinct disease entities with unique clinical associations and behavior. This review is a concise summary of the pathology, genetic syndromes, recent advances in molecular subgrouping, and the associated gene mutations and copy number variations in medulloblastoma. According to Northcott PA et al²⁶, our integrative genomics approach to a large cohort of medulloblastomas has identified four disparate subgroups with distinct demographics, clinical presentation,

transcriptional profiles, genetic abnormalities, and clinical outcome. Medulloblastomas can be reliably assigned to subgroups through immunohistochemistry, thereby making medulloblastoma subclassification widely available. Olson JM discussed the similar issue in his article published recently in *Cancer Cell*²⁷. In this issue of *Cancer Cell*, they reveal clear genetically defined subclasses of the sonic hedgehog (SHH) subclass of medulloblastoma. This molecular dissection of the SHH subclass is not simply a cutting-edge advance; the data have profound impact on clinical trial design and decision-making. In the last, it is worth mention a very interesting research published in 2013 in *Acta Neuropathol*. DNA methylation profiling enables the robust subclassification of four disease subgroups in frozen and routinely collected/archival formalin-fixed biopsy material, and the incorporation of DNA methylation biomarkers can significantly improve disease-risk stratification²⁸.

CONCLUSION

Desmoplastic variety of medulloblastoma had better prognosis as compare to Classical Medulloblastoma.

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Contemporary Job Trends Among Medical Students in Pakistan

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ABSTRACT

Objective: The purpose of this study was to determine the career preferences of medical students and to identify differences between male and female medical students. These results are helpful in understanding current thinking of medical students and provision of health for all and designing future health policies of the country.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at Islamic International Medical College Trust (IIMCT), Rawalpindi from January 2014 to April 2014.

Materials and Methods: This study was performed at Islamic International Medical College Trust (IIMCT) including 100 students from the first year and 100 students of final year MBBS. The College is a private medical school located in Rawalpindi. Inclusion criteria: All students of 1st year and final year MBBS. Exclusion criteria: Incompletely filled questionnaire excluded from the study

Results: Socio demographic: Response rate was 92.5% with 185 questionnaires out of 200 completed and returned. Mean age of the respondents was 21.5 years, ranging between 20 and 25 years.

One hundred eleven (111) (60 %) respondents came from major cities, eighteen (18) (9.7%) lived abroad, whereas 21 (11.4%) came from rural or semi-urban areas of Pakistan. In our sample a large proportion of the students were females.

Location of practice: Most of the students preferring to settle in an urban setting. Majority of students want to do post graduation, very few opted for general practice and one third thinking of abroad for post graduation and only a few want to locate their practice in rural areas.

Conclusion: Medical graduates prefer clinical specializations over general practice as career. Strategies need to be planned by public and private sector and implemented to stop the brain drain and retain the medical personnel to provide effective health care for all including rural areas.

Key Words: medical students, career choices, general practice, post graduation, rural areas.

INTRODUCTION

Medicine was traditionally considered a male dominated field. The situation has reversed itself and now women form the majority of the medical student body all over the world.⁽¹⁻¹²⁾

In Pakistan, same trend is being reflected and vast majority of the female physicians have given up their careers soon after graduation. Major percent of enrolment in medical colleges in Pakistan is females now. Only a few percent actually practice in any field after graduation.⁽¹³⁾ Today, there are not enough doctors to staff rural health centers and basic health units, which are small clinics that are supposed to fill the gap in the countryside where hospitals do not exist. Balochistan, Gilgit-Baltistan and other conflict zones in the country are also short of medical professionals. The number of registered doctors is 108, 062 while there is one doctor for 1404 person.⁽¹⁴⁾

In many families the prevalent trend is to become a doctor solely to get the title and status. Parents believe that their daughters would get better suitors if they are doctors. Women are not expected to be the head of a family or the bread earner therefore the drive to work progress and attain a better socio economic status is

missing in female physicians. The obvious outcome is that they are not keen to practice medicine afterwards.⁽¹⁵⁾

The private medical colleges in Pakistan are only worried about making a profit instead of ensuring adequate healthcare delivery. "It has become a status symbol for parents to enroll their daughters at private medical colleges, as it makes it easier for them to find a future spouse, it is generally presumed that a large number of girls leave their profession and become housewives.⁽¹⁵⁾ These young women graduate but are then reluctant to work in rural areas. They don't even like doing night duty.

That is why female doctors do not appear to be so enthusiastic and motivated to pursue their career in terms described above. In Pakistan girls succeed to get into medical colleges through open merit and in many medical colleges girls are equal if not more in number. Moreover, higher education in public institutions is almost free. Apart from this girls enjoy the privilege of girls' only medical colleges as well. Hence, there are better chances for girls to get into medical colleges than boys; still we do not find more lady doctors than male doctors in hospitals and clinics. It is a difficult challenge both for governments and human resource

management agencies, which look it as total waste of money, time and effort that many women after completing their MBBS degree do not work at all, neither at any public institution nor at any private organization. Pakistan is already ridden with women and child health issues, hence wasting of such an important human resource can never be justified where we are experiencing a shortage of 70000 doctors in the country.⁽¹⁶⁾

The young men are not attracted to the medical profession anymore as women have traditionally outperformed them in academics. They are also worried about financial uncertainty as government healthcare jobs do not have the safety net of salary and promotion rules. "When they graduate, they [feel that they] are far behind their colleagues who choose commerce or any other field. It is no secret that male doctors were moving abroad for better job prospects"⁽¹⁵⁾ "The Middle East and other countries do not need to spend money to produce their own doctors, "as they are getting them from our country."

Consequently, studying the process of career choices can provide important information to help in educational planning and administration, assign priorities and plan for provision of proper health care. "Career counseling" as a specialty area has been recognized since the early 1980s with the establishment of career counseling competencies and credentials.⁽¹⁷⁾

Thus this study was undertaken to determine the career preferences of medical students and to identify differences between male and female medical students. The results may be helpful in designing policies of the country.

MATERIALS AND METHODS

A cross-sectional study was performed at IIMCT including 100 students from the first year and 100 students of final yr MBBS. The College is a private medical school located in Rawalpindi. It was founded in 1997. Each year, the college has the capacity to enroll 100 students following an entrance test examination. Male and female students are instructed in same campus. The college is using a problem based learning (PBL) curriculum in which medical students are trained in a 5-year curriculum for degrees in Bachelor of Medicine and Bachelor of Surgery (MBBS). The main objective of this training program is to educate and train future doctors and surgeons who will render effective and exemplary health care. Inclusion criteria: All students of 1st yr and final yr MBBS

Exclusion criteria: Incompletely filled questionnaire excluded from the study

Questionnaire: The questionnaire comprised of queries regarding demographic details, want to choose general practice or post graduation, settle in Pakistan or abroad.

The questionnaire only included the gender of the participant, thus ensuring them to remain anonymous. The questionnaire along with the protocol of the study was approved by the Institutional Ethical Review Committee of Riphah International University of Pakistan. No conflict of interests was encountered in the entire study period. No funding was obtained from any sources.

Descriptive analysis was done to see the socio-demographic characteristics and responses of medical students.

RESULTS

Socio demographic: Response rate was 92.5% with 185 questionnaires out of 200 completed and returned. Mean age of the respondents was 21.5 years, ranging between 20 and 25 years.

One hundred eleven (111) (60 %) respondents came from major cities, eighteen (18) (9.7%) lived abroad, whereas 21 (11.4%) came from rural or semi-urban areas of Pakistan. In our sample a large proportion of the students were females as shown in table 1

Location of practice: Most of the students preferring to settle in an urban setting. Majority of students want to do post graduation, a few opted for general practice and one third will go abroad for post graduation and only a few want to locate their practice in rural areas as shown in figures 1-4.

Table No.1: Demographics in terms of gender

Gender	Number 1st year	5th year
Female	69	45
Male	31	35

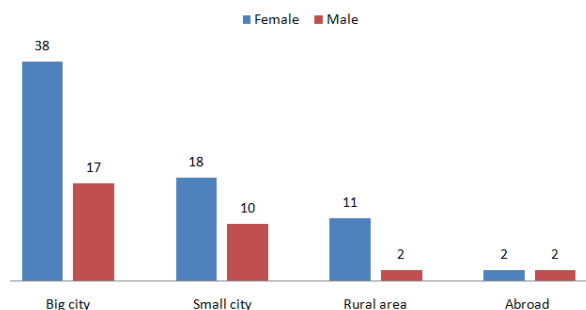


Figure No.1: 1st year demographics in terms of residence

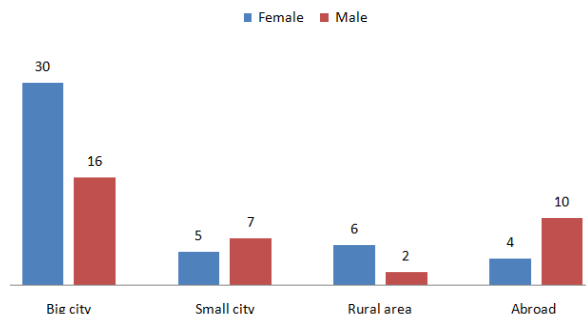


Figure No.2: 5th year demographics in terms of residence

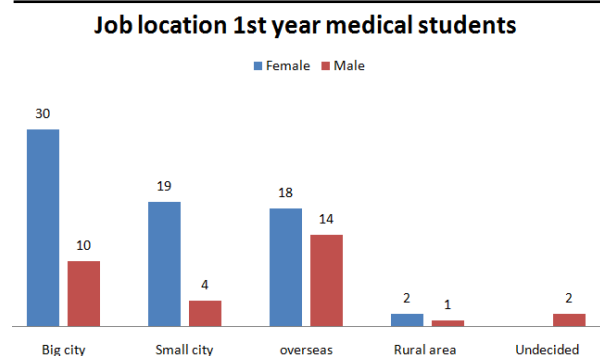


Figure No.3: Choice of location of practice among 1st year medical students

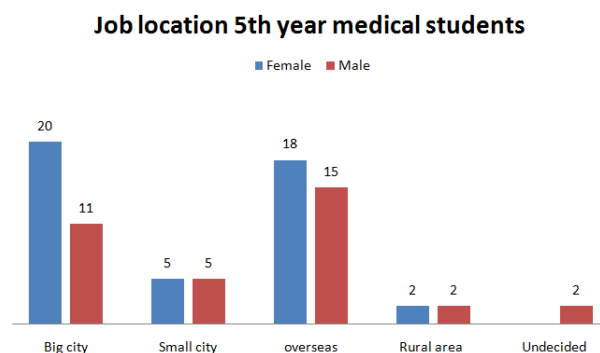


Figure No.4: Choice of location of practice among 5th year medical students

DISCUSSION

The study identifies 3 major problem areas with respect to the medical profession: brain drain, lack of intention to work in rural areas, and poor inclination to general practice.

Brain drain: Emigration of medical talent in search of green pastures across the borders is, an age old entity, referred to as brain drain.⁽¹⁸⁾ Better standards of living and quality of life, higher salaries, access to advanced technology and more stable political conditions in the developed countries are known to attract talent from less developed areas. Underdeveloped countries are able to provide decent undergraduate medical education, but often little beyond.⁽¹⁹⁾ International medical graduates constitute between 23 and 28 percent of physicians in the United States, the United Kingdom, Canada, and Australia, and lower-income countries supply between 40 and 75 percent of these international medical graduates. India, Philippines, and Pakistan are the leading sources of international medical graduates.⁽²⁰⁾ Migration of physicians has produced serious shortages in many developing countries.⁽²¹⁾

The disadvantages to the source countries in terms of futile investment in the medical education of the emigrants and lack of their contribution to the local health systems, though obvious, are often overlooked. The emigration of high-quality medical professionals adversely affects the health system in a way that cannot

be captured in statistics on the numbers of migrants among medical professionals.⁽²²⁾ Variety of social political modifications and policy changes are recommended. The first responsibility for action belongs with each country to “train, retain, and sustain” its workforces through national plans that improve salaries and working conditions.

General practice: None of the students in the study have intention to set up their general practice clinic. It is also noteworthy that almost 60% of medical graduates preferred postgraduate medical qualifications rather than proceeding with post-MBBS general practice.

The importance of primary care doctors in the healthcare delivery system of a country cannot be underestimated. They form the base of any healthcare delivery system pyramid of a country and the one with a narrow base is likely to be unstable. Apart from being easily available, acceptable and affordable to most people, primary care doctors also reduce the case burden on tertiary health institutions. This ensures better quality of care and appropriate utilization of resources at the tertiary centers. Coupled with good referral system, general practitioners could really provide effective primary health care as it was anticipated in the goal of ‘Health For All’ by the World Health Organization.⁽¹¹⁾

Over half of the population of Pakistan is living in rural areas.⁽²³⁾ The recruitment and retention of professional health workers in underserved areas is a complex and global issue. The fewest doctors are found in areas where there is the greatest need. Lack of qualified doctors favour many unregulated hospitals run by homeopaths, hakeems, traditional/spiritual healers, Unani (Greco-arab) healers, herbalists, bonesetters and quacks.⁽²³⁾

Rural areas: An imbalance exists between offered medical services and needed health care for the people in rural areas of Pakistan. Many studies have found non-availability of health care providers as major contributors to the poor health indicators of the rural areas.⁽²⁴⁾

This problem of reluctance of doctors to work in rural health facilities is an international phenomenon⁽²⁵⁻²⁷⁾, as the same was observed in countries like Brazil, India, Indonesia, and Zambia according to the World Bank, 2000 report. Akbar Zaidi found that only 17% of the medical students interviewed were ready to practice in rural areas after their graduation.^(24, 28) Majority of the students in medical colleges have an urban background, as they have more chance to get admission due to open merit policy in most of the medical colleges. As a result they prefer to work after their graduation in to areas where they are reared. In medical colleges the MBBS curriculum has no community orientation, the doctors thus produced have no orientation or experience of the rural health in other words the doctors are being trained

to work only in big hospitals with sophisticated equipment. The service structure of the doctors is such that there are no attractions for working in rural health facilities, rather there are disadvantages affecting their social, professional and family life.⁽²⁴⁾ This issue should be addressed through a number of strategies like introduction of compulsory 2 yr service for all medical graduates, rural allowance as incentive and development of academic health service centers. Compulsory service programmes have been used worldwide as a way to deploy and retain a professional health workforce within countries. Other names for these programmes include "obligatory", "mandatory", "required" and "requisite." All these different programme names refer to a country's law or policy that governs the mandatory deployment and retention of a health worker in the underserved and/or rural areas of the country for a certain period of time.^(29, 30)

This study has several limitations, as it was conducted in one medical college, thus it may not reflect the thinking of medical students of whole country. Further research is highly recommended which should include greater number of institutions, longitudinal design and with open ended questionnaire.

CONCLUSION

Medical graduates prefer clinical specializations to general practice as career. Strategies need to be planned by public and private sector and implemented to stop the brain drain and retain the medical personnel to provide effective health care in rural areas.

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Relationship of Anemia During Pregnancy With Education and Trimester of Pregnancy

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ABSTRACT

Objective: To find out relationship of anemia during pregnancy with education and trimester of pregnancy.

Study Design: Community based cross-sectional descriptive study

Place and Duration of Study: This study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad during six months of studying period from 1st March 2011 to 31st August 2011.

Materials and Methods: The total population residing in the study areas was twelve thousand two hundred and seven (12207). During the study period of six months, two hundred and fifty (250) pregnant women were enrolled for the study. Pregnant women during 2nd and 3rd trimester of pregnancy were included in the study. The data was collected by conducting interviews, filling of the pre-tested, structured questionnaire and by assessing anemia by determining the hemoglobin level in the enrolled pregnant women. The questionnaire was a close-ended one, filled by the principle researcher herself. It comprised of demographic information about woman, her family, trimester of pregnancy about her education. Every woman's hemoglobin was determined by using Sahli's Hemoglobinometer. Anemia in pregnancy according to WHO classified into mild anemia hemoglobin level in the range of 10.0-10.9 g/dl, moderate anemia hemoglobin level in the range of 7-9.9 g/dl and severe anemia hemoglobin level is <7 g/dl

Results: The association of various factors (determinants) with anemia was analyzed by applying chi-squared test; the p-value of <0.05 was taken as the level of significance. Two hundred and thirty three pregnant women were anemic while only seventeen women (6.8%) were found non-anemic. Majority of the women i.e. 70% presented with moderate anemia (hemoglobin level 7.0-9.9 Gm /dl) while severe anemia (hemoglobin level <7 Gm/dl) was recorded in 5.2% pregnant women. Among total studied women, one hundred and forty seven were illiterate and were having different levels of severity of anemia; moderate anemia was recorded in majority of them ie in 127 pregnant women. The educational level had strong association with occurrence of anemia as well as on its severity (p=0.00). Regarding trimester of pregnancy and the occurrence of anemia, out of 158 pregnant women presenting in their third trimester of pregnancies, 143 were moderately to severely anemic. Trimester of pregnancy and occurrence of anemia were found statistically significant. It was also associated with severity of anemia (p=0.00).

Conclusion: Relationship of anemia during pregnancy with low level of education and trimester of pregnancy is very high residing in urban slum areas of Taluka Qasimabad, District Hyderabad is high. Current findings highlight the anemia in pregnancy, education and early booking during pregnancy as a priority area of concern.

Key Words: Anemia, Education, Trimester

INTRODUCTION

Anemia in pregnancy is an important public health problem worldwide especially in most developing countries like in Pakistan.¹ Anemia is substantial public health problem in many developing countries and iron deficiency remain at epidemic level among women and children in many nation² who are at increased risk due to increased requirement.³ The WHO estimates that 39 % of children, 52% of pregnant women in developing countries are anemia. The high frequency of iron deficiency anemia in the world levels the median value of physical productivity losses per year resulting from iron deficiency. Women in developing countries are always in state of precarious iron balance because of access to a balanced diet, adequate health care, proper

education, particularly in pregnancy, with iron and folate deficiency.⁴

Almost a third of the worlds' population suffers from micronutrient deficiency, also known as hidden hunger which mostly affects those living in developing countries. It has been estimated that around two billion people in the world are anemic, mostly in the lower income countries of Africa and Asia.⁵ The average estimates for all cause of anemia attributable to maternal mortality (both direct and indirect) were 6.37%, 7.26% and 3% for Africa, Asia, and Latin America respectively.⁶ The prevalence of IDA is increased 2-folds or more for those women who are below the poverty level or with <12 year of education.⁷ Iron deficiency is responsible for approximately 95% of anemia during pregnancy reflecting the increased demand of iron. Total iron consists mostly iron in

hemoglobin (approximately 70% of total iron approximately (700mg in a 56 kg woman). Another form of iron in body is ferritin and hemosiderin. The absence of hemosiderin in the bone marrow indicative that iron stores are depleted. This finding is both diagnostic of anemia and an early sign of iron deficiency. Subsequent events are a decrease in serum iron, an increase in serum total iron binding capacity.⁸

In our society girls are lacking access to balanced diet, adequate health care and proper education particularly pregnancy with iron and folate deficiency due to increased demand because of physiological changes associated with pregnancy that exert a demand for additional iron needed for transfer to the fetus^{8,9} and prevalence of anemia increases more than 6 fold with each trimester.⁷ Study in India showed anemia as the second most common cause of maternal death, occurring for 20% of total maternal deaths,¹⁰ and some studies demonstrated the association between maternal anemia and increased risk of preterm birth.¹¹ The control of iron deficiency anemia in an underlying factor for the achievement of several millennium developmental goals (MDG). It plays a role in combating MDG 1 (Poverty and hunger eradication), MDG 2 (Universal education) and contributes to reducing MDG 4 (Child mortality reduction) MDG 5 (reduction in maternal deaths).¹² As in other studies the severity of anemia was inversely related to educational status and income.¹⁰ Women's education and standard of living in the households have a vital role in reducing anemia. Urban and well nourished women also suffer less from anemia.¹³

MATERIALS AND METHODS

This community based cross sectional descriptive study. The study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad during six months ie from 1st March 2011 to 31st August 2011. It was a population based study. All the women in 2nd and 3rd trimester of pregnancy fulfilling the inclusion criteria were included in the study. While exclusion criteria are those women who are not willing to participate in study and those who were interviewed but later on refused to give blood sample for hemoglobin estimation and all pregnant women in first trimester of pregnancy. The total population residing in the study areas was twelve thousand two hundred and seven (12207). According to an empirical formula for estimating the number of expectant mothers in developing countries, 24% of the total population is the women in reproductive age and among them 4% are the estimated expectant mothers at a given time.¹⁴ As it was a population based study therefore we did not do sampling. During the study period of six months, two hundred and fifty (250) pregnant women were enrolled for the study. The data was collected by conducting interviews, filling of the pre-tested, structured questionnaire and by assessing

anemia by determining the hemoglobin level in the enrolled pregnant women. The questionnaire was a close-ended one, filled by the principle researcher herself. It comprised of demographic information about woman, her family, trimester of pregnancy and her education. Every woman's hemoglobin was determined by using Sahli's Hemoglobinometer. Data Analysis: Data was entered in SPSS (Statistical Package for Social Sciences) version 16 after editing it. Frequencies for all qualitative and quantitative variables were computed. Prevalence of anemia was calculated separately for mild, moderate and severe anemia. The association of various factors (determinants) with anemia was analyzed by applying Fissure Exact test and chi-squared test; the p-value of <0.05 was taken as the level of significance.

RESULTS

Two hundred and thirty three pregnant women were anemic while only seventeen women (6.8%) were found non-anemic (Table 1). The educational level had strong association with occurrence of anemia as well as on its severity [p=0.00] (Tables 2-3). Trimester of pregnancy and occurrence of anemia were found statistically significant [p=0.00] (Table 4). It was also associated with severity of anemia [p=0.00] (Table 5)

Table No.1: Anemia in study population (n=250)

Anemia	No.	%age
Mild (hemoglobin level 10.0-10.9 g/dl)	44	17.6
Moderate (hemoglobin level 7.0-9.9Gm /dl)	176	70.4
Severe (hemoglobin level <7 Gm/dl)	13	5.2
No	17	6.8

Table No.2: Relationship between educational status and anemia in pregnancy

Educational status	No anemia	Anemia
Literate	16	87
Illiterate	1	146

p=0.00 (Chi-square test was applied)

Table No.3: Relationship between educational status and severity of anemia in pregnancy

Educational status	Mild anemia	Moderate anemia	Severe anemia
Literate	36	49	2
Illiterate	8	127	11

p = 0.00 (Chi-square test was applied)

Table No.4: Relationship between trimesters of pregnancy and anemia in pregnancy

Trimester of pregnancy	No anemia	Anemia
2 nd Trimester	15	77
3 rd Trimester	2	156

p=0.00 (Chi-square test was applied)

Table No.5: Trimester of pregnancy and severity of anemia in pregnancy

Trimester of pregnancy	Mild anemia	Moderate anemia	Severe anemia
2 nd Trimester	31	46	-
3 rd Trimester	13	130	13

p = 0.00 (Chi-square test was applied)

DISCUSSION

Concerning educational status of women, 146 anemic pregnant women out of total two hundred and thirty three (62.7%) were found to be illiterate in my study. There was a strong association observed between illiteracy and occurrence of anemia as well as with severity of anemia ($p=0.00$). Study done by Rohra et al¹⁴ speculates that adverse hemoglobin status of pregnant women attending public sector hospital might be due to the socioeconomic status as well as level of education. Generally speaking, less income in Pakistan is also associated with poor educational status and high parity. Study done by Bakhtiar¹ in Railway Hospital Rawalpindi regarding relation of anemia and maternal education also revealed the same picture. Study done by Hyder¹⁵ in Bangladesh concluded that 56% of the pregnant women had attended school for at least a year. A study revealed by Scholl⁷ reported that prevalence of iron deficiency anemia increased cumulatively two fold or more for those women who belonged to minority, were below the poverty level or were with <12 year of education. Study done by Piammongkol et al¹⁶ confirmed that iron deficiency anemia is highly prevalent in lower southern Thailand where poverty and low levels of education prevailed. My study revealed one hundred and fifty six anemic women in 3rd trimester of pregnancy (66.9%). The trimester of pregnancy ie advancement of pregnancy had a significant association with occurrence of anemia ($p=0.00$) as well as severity of anemia ($p=0.00$). The high frequency of anemia in 3rd trimester could be due to maximum demand of micronutrients, also due to the expansion of plasma volume which precedes the increase in red cell mass, creates a disproportion expansion of plasma volume 50% compared with the increase in red cell mass 30%. Therefore hemoglobin values start to decline during the early phase of first trimester and reach their lowest levels near the end of second trimester. The same trend was also found in study done by Bagchi et al¹⁷ in which prevalence of anemia among pregnant women ($Hb < 11.0$ g/dl) was found to be 17.4%, 26.5% and 35.8% in patients from 1st to 3rd trimester respectively. In Nepal, Dreyfuss¹⁸ also demonstrated progressive iron depletion during pregnancy that became worse in the third trimester suggesting underlying iron deficiency as a cause for anemia. Study done by Scholl et al⁷ in New York demonstrated prevalence of iron deficiency anemia as 1.8 % in 1st trimester, 8.21% in the 2nd trimester and 27.4% in 3rd trimester. This also indicating pregnancy

risk of iron deficiency increasing with gestation. During pregnancy, anemia increase >4 fold from the 1st to 3rd trimester in the low income monitored as part of pregnancy. Study done by Rizwana¹⁹ found majority of patients (54%) presented in third trimester while 26% in first trimester and 20% in second trimester. The results of my study were also endorsed by the similar results in a study by Rohra et al²⁰ where the association between anemia and trimester of pregnancy was shown to be positive. In that study, moderate anemia was more often seen in second and third trimester, while mild anemia was more in first trimester of pregnancy. The distribution of severe anemia however, was not different in the three trimesters. Study done by Jagt et al²¹ in North Nigeria revealed that overall, 32% of the pregnant women were anemic, lowest mean concentration of hemoglobin was seen in women in the third trimester. Another study done by Parveen²² showed the frequency of anemia as 5%, 3.5%, 5.7% in the first trimester, second and third trimester respectively.

CONCLUSION

Relationship of anemia during pregnancy with low level of education and trimester of pregnancy is very high resulting in urban slum areas of Taluka Qasimabad, District Hyderabad is high. Current findings highlight the anemia in pregnancy, education and early booking during pregnancy as a priority area of concern.

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Functional Outcome of Open Diaphyseal Tibial Fracture Treated By A.O Fixation VS N.A Fixation

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ABSTRACT

Objective: To evaluate the comparative results of open diaphyseal tibial fractures treated with A.O fixation and N.A fixation.

Study Design: Comparative and experimental study

Place and Duration of Study: This study was carried out at Orthopedic Department of Liaquat University Hospital Hyderabad from February 2011 to January 2013.

Materials and Methods: Total 50 cases were included in this study. All the cases with diabetic mellitus and associated head and abdominal injuries were excluded from the study. All the cases were divided in two groups equally 25 patients in group A, treated by N.A fixator and 25 patients treated with A.O fixator were selected in group B. Initial resuscitation, splintage and primary care for the wound was provided in the emergency department, any bone fragments that were protruding out were covered with sterile dressing. After counseling the patient and attendants regarding the condition of injury, its importance & possible complications, also explained about the method of treatment selected (Group A or Group B) then the patients were taken to the operating room.

Results: The mean age \pm SD in group A (NAEF, n = 25) was 35.4 ± 9.22 years and 32.10 ± 9.69 years in groups B (AOEF, n = 25), Out of total cases, male were in majority. Majority of patients were found RTA in both groups. In the group A (NAEF), pin tract infection 5(20.0%) cases, pin site osteolysis 5(20.0%), pin loosening 5(20.0%), pin site inflammation were in 3(12.0%) cases, which were cured by curettage of the outer cortex and oral antibiotics for a short period, 1(4.0%) patient went in infective nonunion and converted into Illizarrov external fixator. Knee stiffness was found in 2(8.0%) and Ankle stiffness was 3(12.0%) cases, in group A (NAEF) and 3(12.0%) in group B. Five (20.0%) patients of group A (NAEF) had mild limitation of ankle motion (mainly dorsiflexion) and 3(12.0%) were with Limited Flexion, patients of group B were without limitation of knee motion with a flexion ranges of 5(20.0%).

Conclusion: AO external fixator is much better than Naseer Awais External Fixator. It is simple and safe to apply, cost effective and successful management of open tibial fractures.

Key Words: Open Diaphyseal Tibial Fracture, A.O fixation vs N.A fixation

INTRODUCTION

The tibia is one of the longest bones of skeleton, located in the lower extremities; and affected in about 40% of all long bone fractures, Approximately 25% of all tibial fractures are open fractures.^{3, 4} This is due to its subcutaneous location.⁵ Open tibial fractures usually result from high-energy trauma.⁶ The aim for the treatment of open tibial fractures are prevention of infection, early coverage of soft-tissue defects, achievement of bony union and functional rehabilitation with limb salvage. Early soft-tissue coverage is associated with a decrease in infection rate.⁷

A widely used method of treatment for unstable tibial shaft fractures is unilateral external fixation. External fixation is indicated in all open fractures, where the soft tissues are compromised and it's necessary to stabilize the fracture as soon as possible.⁸ It is presently the best method to stabilize an open fracture, because it allows for easy access to the soft tissues and mobility of the nearby joints.¹¹ In AO classification for soft tissue

injuries to skin, muscle, tendon and neurovascular structures.¹² The AO external fixator is very popular in treating type 111A & B open tibial fractures in our set up because of it is easily available, cost effective, light weight, simple to apply, least cumbersome, giving minimal operative trauma, and good access to the soft tissue and massive contamination. It is particularly useful in type 111A & B open fractures of tibia. Different types of external fixators are used for segmental bone transport to fill bony defects. In our study we use the local version monolateral and monoplaner external (N.A Naseer Awais) fixator which is the modification of A.O, Hoffman fixator and other unilateral fixators used for this purpose, N.A fixator is less cumbersome technically easy to apply and more comfortable for patients. Advantages of the N.A fixator is the cheap locally available and has short learning curve for trainees in its use, however full weight bearing is Limited with this N.A fixator, this procedure is however the definitive treatment of bone loss, eradication of infection and good quality of new bone

formation along with soft tissue bridging.¹¹ Advantages of the external fixator are avoidance of infection, quick and better rehabilitation and excellent functional outcome. Factors such as the degree of soft tissue damage and velocity of injury are more important than the wound size.¹² Complications of external fixators are, damage to soft tissue structures (nerves & Vessels), over distraction or mal union and pin tract infection.¹³ it is aimed to determine the effectiveness of both methods for treatment of open tibial fracture.

MATERIALS AND METHODS

This comparative and experimental study was carried out at orthopedic department of Liaquat University Hospital Hyderabad with the duration of time February 2011 to January 2013. Total 50 cases were included in this study. All the adult patients with fresh open diaphyseal fractures of tibia were selected in the study. All the cases with diabetic mellitus and associated head and abdominal injuries were excluded from the study. All the cases were divided in two groups equally 25 patients in group A, treated by N.A fixator and 25 patients treated with A.O fixator were selected in group B. Gustilo Anderson classification GII and GIIIA divided in two groups A and B. Initial primary care of wound was given in the emergency ward, any bone fragments that were protruding out was covered by sterile dressing. After counseling the patient and attendants regarding the condition of injury, its importance & possible complications, also explained about the method of treatment selected (Group A or Group B) then the patients were taken to the operating room. After an initial microbial swab, and antibiotic treatment, surgical toilet/ wound debridement and fixation of the fracture according to criteria AOEF/NAEF was done. The AO fixator was located in neutralization sort in case of comminuted and butterfly fragment fractures. Compression mode in patients of transverse, oblique and segmental fracture as to narrow fracture gap and improve stability. Relaxing skin incisions were placed nearly pin tracts avoiding the skin compression, bones were covered with overlying muscles, skin approximated with stay sutures. The foot and ankle were manipulated at the end of procedure to ensure absence of musculotendinous tethering by half pins. Regular dressing with appropriate antibiotics administration was done in postoperative wards. After 3-4 weeks, once the wound is clean and covered with healthy granulation tissue plastic surgeon opinion was sought and treated accordingly.

In NA fixator after checking the fracture reduction tightens the bolts with wrench with two fixator bars, primary closure were done in clean cases and contaminated cases left open for secondary closure. pin care is started after the initial post operative dressing has been removed wounds were inspected at the interval of 48-72 hours and repeat debridement was

done whenever required Pin sites are cleaned daily using hydrogen peroxide solution or antibacterial soap and water.

All patients were made to stand with support after 48 hours and toe touching was permitted as per the stability of the fixation diagnosed radiographically. All cases were followed with immediate postoperative radiographs and clinical assessment. Then followed through OPD weekly for one month then every three weeks for three months when discharged from hospital. Radiographs were taken and alternate dressings done in the OT.

After removal of Naseer Awais External Fixators sarmento plaster was applied for 03 to 04 weeks and followed in review clinic from 06 to 12 months. Record of all the cases were maintained in the proforma. include clinical and radiological assessments in the review clinics with view of healing of wounds, union of fracture, complications, and functional outcome.

RESULTS

Total 50 cases of open diaphyseal fracture of tibia were selected in this study. The mean age \pm SD in group A (NAEF, n = 25) was 35.4 ± 9.22 years and 32.10 ± 9.69 years in group B (AOEF, n = 25), Out of total cases, male were in majority as; in group A, male were 19(8.0%) and female were 6(12.0%), in group B males were 21(42.0%) and female were 4(8.0%). Table: 1.

The results of this study showed, majority of patients of RTA 15(30.0%) were in group A and 15 (30.0%) patients were with RTA in group B. Table: 1.

Wound presentation at the time of admission was observed in all the cases, 22(44.0%) were with clean 3(6.0%) with contaminated wound in group A, 19(38.0%) with clean and 6(12.0%) were with contaminated wound in group B. Table: 1

Mean \pm SD union time was higher in group A (NAEF, n = 20) 22.6 ± 5.60 weeks than group B (AOEF, n=20) 18.1 ± 3.72 weeks (p value 0.004). Table No. 2

Original wound became infected in 4(16.0%) cases, no found infected surgical wound re in group A, original infected wound in group were found 3(12.0%) , and surgical infected wound were 2(8.0%). Table No. 2

In the group A (NAEF), pin tract infection 5(20.0%) cases, pin site osteolysis 5(20.0%), pin loosening 5(20.0%), pin site inflammation were in 3(12.0%) cases, which were cured by curettage of the outer cortex and oral antibiotics for a short period, 1(4.0%) patient went in infective nonunion and converted into Illizarrov external fixator. Table No. 2

In the group B, 1(4.0%) patient had delayed union, screw sites were infected in 3(12.0%) cases (2 proximal and 1 distal) while this were not found in group A. Table No. 2.

Knee stiffness was found in 2(8.0%) and Ankle stiffness was 3(12.0%) cases, in group A (NAEF) and 3(12.0%) in group B. Table No. 2

Four (16.0%) patients developed pain during walking, in group A (NAEF) and 2 (8.0%) in group B. Table No. 2.

Table No. 1; Baseline status of patients in both groups. (n = 50)

	Group A: NAEF n = 25(50%)	Group B: AOEF n = 25(50%)
Age (Mean±SD)	35.4 ± 9.22	32.10 ± 9.69
Gender		
Male	19(38.0%)	21(42.0%)
Female	6(12.0%)	4(8.0%)
Mode of injury		
Pedestrian		
RTA	4(8.0%)	2(4.0%)
Fall from height	15(30.0%)	15 (30.0%)
Machine Injury	5(10.0%)	8(16.0%)
Wound presentation		
Clean	22(44.0%)	19(38.0%)
Contaminated	3(6.0%)	6(12.0%)

Table No. 2: Post operative complications in both groups (n = 50)

Complications	Group A: NAEF N = 25 (100%)	Group B: AOEF N = 5 (100%)
Infected original wound	4(16.0%)	3(12.0%)
Infected Surgical wound	0	2(8.0%)
Non union	1(4.0%)	1(4.0%)
Delay union	0	1(4.0%)
Infected Entry point	0	1(4.0%)
Screw site infections	0	3(12.0%)
Pin tract infection	5(20.0%)	0
Pin site inflammation	3(12.0%)	0
Pain during walking	4(16.0%)	2(8.0%)
Pin site osteolysis	5(20.0%)	0
Pin loosening	5(20.0%)	0
Pin site hypergranulation	1(4.0%)	0
Ankle stiffness	3(12.0%)	0
Knee stiffness	2(8.0%)	3(12.0%)

Table No. 3; Range of Movements (n = 50)

Range of Movement:	A: NAEF n = 25(100%)	B: AOEF n = 25(100%)
Ankle:		
Limited dorsiflexion	5(20.0%)	0
Full ranged	20(80.0%)	25(100%)
Knee:		
Limited Flexion	3(12.0%)	5(20.0%)
Full ranged	22(88.0%)	20(80.0%)

Five (20.0%) patients of group A (NAEF) had mild limitation of ankle motion (mainly dorsiflexion) and 3(12.0%) were with Limited Flexion, patients of group B were without limitation of knee motion with a flexion ranges of 5(20.0%). Table No. 3.

DISCUSSION

Tibial shaft fractures are frequent since they account for 9.0% of all fractures.¹⁴ Open fractures of the tibia show a high-energy injury to soft tissue and bone with ensuring problems of infection and poor bone healing.¹⁵ This study has been conducted to compare the results of Naseer & Awais (N.A) fixator and A.O external fixator, in the managements of open tibial diaphyseal fractures. To evaluate results of open diaphyseal tibial fractures stabilization with A.O fixation and N.S fixation and compare their results along with postoperative complications and functional outcome.

In the present study, all the patients included under the study were between 18-60 years of age and the mean age + SD was 33.1 + 10.27 in group A(NAEF) and in group B (AOEF) was 30.8 + 7.76. While in Thakur and Patankar et al.¹⁶ suggested in study the mean age was 38 years which is similar to this study. Whereas Makhdoom A et al.¹⁷ also revealed similar observation. In the present study, out of 50 cases, 40(80.0%) were males and 10(20.0%) were females. This observation is comparable to the local study conducted by Makhdoom A et al.¹⁷ who showed 60 (88.24%) males and 08 (11.76%) females in his study. It was observed that males were more involved. This may be due to the differences in the life style. Another factor is social set up, most of the females remain confined to their homes in our society, and therefore they are less exposed to the risk of open fractures. Our results regarding the sex incidence are compared with that of S.K. Moda et al,¹⁸ This study was conducted in India, where the social setup is almost same.

In present study road traffic accidents remained the most common cause of open diaphyseal fracture, 30 patients (60.0%) out of 50 patients. Comparing to others, C.M.Brown et al,¹⁹ had 90% and Shahid Sultan 1993,²⁰ had 87.6% patients with road traffic accidents in their serials. This is because of ignorance of traffic rules, increases in number of vehicles, high speed, busy schedule, urgency to reach the destination and poor condition of roads in our society, are main reasons for road traffic accidents.

The mean time of bone union was 22.6 weeks (ranging from 13 to 32 weeks) in our study. Nila C. et al,²¹ achieved union in mean time of 16-20 weeks, Ayaz khan (2004),²² in 20 weeks and Thakar AJ et al,²³ in 20 weeks.

There was surgical wound infection found (8.0%), original wound infection was in 7(14.0%) of the cases

in this study. Pankaj Kumar and his colleagues (2004),²⁴ and Ricardo J et al (1997),²⁵ found 0% infection, S. Gopal et al,²⁶ found 9.5% and Shahid Sultan (2001),¹¹ 13% infection rate their serials. The lower rate of infection was because of awareness in patients to reach early at tertiary hospital and understanding of surgeon to perform early aggressive debridement, early stabilization and early soft tissue.

Pin tract infection is the most common complication of external fixation, there were 5 cases (10.0%) of pin tract infection in this study. Ricardo J et al,²⁵, Nila C et al,²¹ and M. Ayaz Khan et al,²² observed 20.5%, 11.4% and 47.4% in sequence pin tract infection rates in their serials.

The non union is main complication of external fixator, many authors called external fixator a machine of nonunion. We had 2 case (4.0%) of non union, all achieved union later with secondary procedures. Bhandari M. et al²⁷ and his colleagues, M J Iqbal et al²⁸ and M. Ayaz Khan et al,²² reported 14.2%, 9.6% and 5% in sequence rates of non union in type 111 open tibial fractures in their serials.

CONCLUSION

In this study concluded that AO external fixator is much better than Naseer Awais External Fixator. AO external fixator is simple and safe to apply, cost effective, minimal invasive, needs less operating time, hospital stay, union time, infection rate and gives good functional outcome and can be used as definite and successful management of open tibial fractures.

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Treatment Outcome in Childhood Steroid Resistant Nephrotic Syndrome with Different Therapeutic Regimens

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ABSTRACT

Objective: To determine the efficacy of different treatment strategies in children with steroid resistant nephrotic syndrome (SRNS) and to find the impact of histopathological lesions on the treatment outcome.

Study Design: Retrospective observational

Place and Duration of Study: This study was conducted at Paediatric Nephrology Department, the Children's Hospital and the Institute of Child Health, Multan from January, 2006 to July, 2014.

Materials and methods: Medical record of 77 patients with SRNS was reviewed. For the purpose of treatment patients were divided into two groups depending upon the initial renal function tests (RFTs). Group 1 included patients with normal RFTs. They received cyclosporine A (CsA), mycophenolate mofetil (MMF), combined CsA and MMF, and intravenous methylprednisolone (MP) pulses as step 1, 2, 3, and 4 respectively. Group 2 included patients with deranged RFTs and they were given either MMF, or MP pulses. Long-term follow up was done ranging from 1-5 years. Treatment outcome with different therapeutic regimens was determined. The role of histopathology in predicting final outcome was also evaluated.

Results: In group 1, 44/61(72%) patients achieved complete remission with successive treatment steps 1-4. Two (3.4%) patients were partial responders whilst 15(24.6%) patients failed to respond to all treatment regimens. Out of the 16 patients in group 2, only 02 (12.5%) achieved remission. Patients with focal segmental glomerulosclerosis (FSGS) were least likely to respond to treatment (12/28;42.8%), followed by mesangioproliferative glomerulonephritis (MesPGN)(15/23;65.2%), and minimal change disease (MCD)(14/18;77.8%).

Conclusion: SRNS patients with normal initial RFTs are much more likely to respond to immunosuppressives than those with deranged RFTs at presentation. FSGS is more difficult lesion to treat compared with non-FSGS lesions.

Key Words: Steroid resistant nephrotic syndrome, children, renal function tests, histopathological lesions

INTRODUCTION

The nephrotic syndrome (NS) is a common renal disorder with an incidence of 90-100/million population/year in the Indian sub-continent.^{1,2} It is characterized by heavy proteinuria (40mg/m²/hour), hypoalbuminemia (< 2.5G/dl), edema, and hypercholesterolemia (> 250mg/dl).³ Nephrotic syndrome in children may be primary/idiopathic or it may be secondary to some underlying cause. Idiopathic nephrotic syndrome may be steroid sensitive (SSNS), or steroid resistant (SRNS). Resistance to steroid therapy accounts for about 10% of idiopathic nephrotic syndrome at first presentation whilst about 1-3% of initially steroid-sensitive patients become steroid resistant subsequently, and are called late non-responders.³ This response to steroids is the primary determinant of the final outcome of the disease, with >60% of those resistant to steroids going to develop chronic kidney disease (CKD).^{4,6,7} Treatment of these SRNS patients continues to pose a therapeutic challenge with considerable variety of strategies.⁷ A number of medications such as cyclosporine A (CsA), mycophenolate mofetil (MMF), cyclophosphamide (CPM), methylprednisolone (MP), and others have been used with varying results.⁸⁻¹¹

Recent reports have shown remission rates ranging from 20% to 70% using these drugs in SRNS.¹¹ The underlying histopathology usually affects the course of disease and the response to treatment.¹² Main histopathological lesions in SRNS include focal segmental glomerulosclerosis (FSGS), mesangioproliferative glomerulonephritis (MesPGN), and minimal change disease (MCD) and are treated with a common steroid protocol.¹³ Gulati S et al^{14,15} showed that following immunosuppressive therapy, patients with MCD had significantly greater remission rates compared to those with non-MCD. They concluded that kidney biopsy is of significant prognostic value in SRNS. A recent meta-analysis, however, failed to show any difference in the efficacy of immunosuppressive agents in inducing remission in SRNS children with MCD versus FSGS.¹⁶ So, there is still controversy over the role of renal biopsy in the management of children with SRNS.¹⁵ Recent guidelines for childhood SRNS by the Kidney Disease: Improving Global Outcome (KDIGO) state that the kidney function measured at the time of diagnosis is a predictor of the long-term risk for kidney failure.⁹ The present study was designed to determine the effectiveness of different therapeutic regimens in

children with SRNS coming to our institute. We, also, evaluated the impact of initial deranged renal function and the underlying histopathologic lesion on the final patient outcome.

MATERIALS AND METHODS

A retrospective analysis was done in 77 children with SRNS, with onset age between 1-15 years, referred to our institute over the last 8.5 years. Renal biopsy was performed in 69 patients whilst it was refused in 8 patients. Inclusion criteria were: (1) steroid resistance, either initial or late, (2) MCD, MesPGN, and FSGS on renal biopsy, and (3) follow up period ≥ 1 year. Exclusion criteria were: (1) Secondary NS, (2) membranous nephropathy (MN), mesangiocapillary glomerulonephritis (MCGN), or immunoglobulin A nephropathy (IgAN) on renal biopsy, (3) Familial SRNS, and (4) infantile or congenital onset NS.⁷

Nephrotic syndrome (NS) was defined as edema, proteinuria $> 40\text{mg/m}^2/\text{hour}$ or spot urine protein: creatinine > 2 (mg : mg), and hypoalbuminemia < 2.5 G/dl.^{1,3} Remission was defined as 3 consecutive days' nil or trace proteinuria on reagent strip (UrocolorTM). Steroid resistance was defined as not achieving remission following 4 weeks' prednisolone (PDN)(60mg/m²/day in three divided doses) plus 3 alternate day pulses of intravenous methylprednisolone (MP) (30mg/kg/dose) given over 4 hours.³ Late non-responder were the patients who were initially steroid sensitive but became steroid resistant over the course of the disease. Partial remission was defined as the absence of edema and proteinuria + or ++ by reagent strip. Relapse was defined as 3 consecutive days' ++ proteinuria, or single +++ or ++++ proteinuria on reagent strip, with or without edema.³ Deranged renal function at presentation was defined as serum creatinine level above the upper limit of the normal for age.⁷ The estimated glomerular filtration rate (eGFR) was calculated by Schwartz formula.⁵ Chronic kidney disease (CKD) was labeled when serum creatinine was persistently high for a period of 3 months or more. CKD 5 was taken when patient needed chronic regular dialysis for survival.⁷

For the purpose of treatment, SRNS patients were divided into two groups depending upon the initial RFTs in the steady state condition. Group 1 patients had normal RFTs and the Group 2 patients had deranged RFTs. Patients were subjected to sequential treatment steps. Partial responders and non-responders to a treatment regimen were put on to the next step treatment and so on. For all the group 1 patients, cyclosporin A (CsA) was used as the first line agent (step 1; S1), regardless of the biopsy report. It was given according to the recommendation of French Society of Pediatric Nephrology⁸, in a dose of 150mg/m²/day in 2 divided doses along with oral prednisolone (PDN) in a dose of 30mg/m²/day, also in 2

divided doses. After 1 month of treatment, PDN was switched to alternate day 30mg/m²/dose as a single morning dose after breakfast for the next 5 months; CsA was continued in the same daily dose for 6 months in the responding patients. Regular monitoring of RFTs with serum electrolytes was advised to avoid nephrotoxicity and hyperkalemia. CsA trough levels could not be done routinely due to high cost. Repeat renal biopsy was done after 1 year of treatment to look for any histopathologic evidence of nephrotoxicity. Patients not responding to this regimen (i.e CsA resistant) were the candidates for step 2 (S2) treatment with mycophenolate mofetil (MMF) in a dose of 1200mg/m²/day in 2 divided doses along with steroids.²²⁻²⁴ Patients not responding to either CsA or MMF were given a combination of CsA and MMF as step 3 (S3) treatment, while withdrawing steroids, as practiced by Nikibakhsh AA et al in Iran,²⁵ and novel multidrug therapy in children with CsA-resistant NS by Aizawa-Yashiro et al.²⁶ Patients resistant to combined CsA and MMF were, as step 4 (S4), treated with the aggressive Mendoza protocol²⁸ in a final attempt to achieve remission. The SRNS patients in the group 2 (with deranged RFTs) were given either MMF plus steroids or methylprednisolone (MP) intravenous pulses plus oral PDN \pm CPM as proposed by Mendoza et al (Table I).

Table No.I:Mendoza Protocol for Treatment of SRNS

Weeks	Intravenous Methylprednisolone Pulse (30mg/kg)	Oral Prednisolone
1-2	3 times/week	None
3-10	Once every week	2mg/kg qod
11-18	Once every other week	With/without taper
19-50	Once every 4 weeks	Slow taper
51-82	Once every 8 weeks	Slow taper

Note: Oral cyclophosphamide (2.5mg/kg/ day) was added to the treatment regimen when there was no remission despite IV methylprednisolone and oral prednisolone, and was continued for 3 months.

All the patients were regularly followed up for a period ranging from 1-5 years, regarding clinical response, complications of the disease and the drugs, and were properly counseled at the start of treatment and during each follow up visit to maintain good compliance with treatment and follow up. Fast track hospitalization was available in case of any complications.

Data were statistically analyzed using SPSS-19. Descriptive statistics were applied to analyze the data. The quantitative variables were calculated by mean and standard deviation and qualitative variables by percentages and frequencies. Effectiveness of different treatment regimens in terms of remission, partial remission, no remission and progression to CKD, and the impact of initial status of renal function and that of

different histopathologic lesions on these outcome variables were analyzed.

RESULTS

The study group comprised of 77 patients with SRNS; 72 (93.5%) were initial steroid resistant and 5 (6.5%) were late non-responders. Gender distribution showed 49 (63.6%) males and 28 (36.4%) females with a ratio of 1.75. Age range of patients was 1-15 years with a mean of 8.11 ± 3.58 years. Sixty nine (89.6%) patients underwent renal biopsy (Table 2).

Table No.2: Demography of 77 SRNS patients

Category	Number (%age)
Biopsied	69(89.6%)
Unbiopsied	08(10.4%)
Initial SR	72(93.5%)
Late SR	05(6.5%)
Males	49(63.6%)
Females	28(36.4%)
Age(Years)	
<4	22(28.6%)
4-10	31(40.2%)
>10	24(31.2%)

SR= Steroid resistant

The histopathologic subtypes revealed FSGS (n=31; 40.3%), MesPGN (n=25; 32.5%), MCD (n=21; 27.3%) in decreasing order of frequency. Eight patients (10.4%) could not be biopsied as their parents refused consent. Group 1 comprised of 61 (79.2%) patients with normal RFTs. Group 2 included 16 (20.8%) patients with deranged initial RFTs. The patients in group 1 received CsA plus PDN, MMF plus PDN, combined CsA and MMF plus PDN, and intravenous MP pulses \pm oral PDN and CPM as S1, S2, S3, and S4 treatment respectively. Following S1, 31/61 patients (50.8%) achieved complete remission, 5/61 (8.2%) were partial responders, and 25/61 (41%) were non-responders. Three patients (4.9%), who were resistant to both steroids and CsA, went into remission with MMF plus steroids (S2). Six patients (9.8%) got remission with S3. After three steps of treatment, 40/61 (65.6%) children went into remission. Mendoza protocol²⁸ (Table 2) (S4) was effective in inducing remission in further 4/61 (6.6%) patients who did not respond to S1- S3. In group1, 02/61 (3.3%) patients were partial responders and 15/61 (24.6%) were non-responders to any immunosuppressive treatment (Table 3). These 17 (27.9%) patients in group1 went on to develop CKD.

Table.No.3: Group 1: Step wise treatment of 61 SRNS patients with normal RFTs.

Sequential Treatment Step	Drugs	Number of Patients	Complete Remission	Partial Remission	No Remission
Step 1	CsA + PDN	61 (79.2%)	31 (50.8%)	05 (8.2%)	25 (41%)
Step 2	MMF + PDN	30 (49.2%)	03 (4.9%)	07 (11.5%)	20 (32.8%)
Step 3	CsA + MMF +PDN	27 (44.3%)	06 (9.8%)	09 (14.8%)	12 (19.7%)
Step 4	IVMP + PDN \pm CPM	21 (34.4%)	04 (6.6%)	02 (3.3%)	15 (24.6%)
Total: Steps 1-4		61 (100%)	44 (72%)	02 (3.3%)	15 (24.6%)

RFTs= Renal function tests, CsA= Cyclosporin A, PDN= Prednisolone, MMF= Mycophenolate mofetil, IVMP= Intravenous methylprednisolone, CPM= Cyclophosphamide

Table No.4: Group 2: Treatment of 16 SRNS patients with impaired RFTs

Treatment Option	Drugs	Number of Patients	Complete Remission	Partial Remission	No Remission
Option 1	IVMP+PDN \pm CPM	12 (75%)	02 (16.7%)	02 (16.7%)	08 (66.7%)
Option 2	MMF + PDN	04 (25%)	None	None	04 (100%)
Total		16 (100%)	02 (12.5%)	02 (12.5%)	12 (75%)

RFTs= Renal function tests, IVMP= Intravenous methylprednisolone, PDN= Prednisolone, CPM= Cyclophosphamide, MMF= Mycophenolate mofetil

Table No.5: Impact of Histopathology on treatment outcome in SRNS patients (n=77)

Histopathological Lesion	Number of Patients	Complete Remission	Partial Remission	No Remission
FSGS	28(36.4%)	12(15.6%)	02(2.6%)	12(15.6%)
MesPGN	23(29.9%)	15(19.5%)	01(1.3%)	08(10.4%)
MCD	18(23.4%)	14(18.2%)	01(1.3%)	04(5.2%)
No biopsy done	08(10.4%)	05(6.5%)	00	03(3.9%)
Total	77(100%)	46(59.7%)	04(5.2%)	27(35.1%)

FSGS= Focal segmental glomerulosclerosis, MesPGN= Mesangioproliferative glomerulonephritis, MCD= Minimal change disease

Out of the 16 patients in group 2, 12 (75%) were given treatment trial according to the Mendoza protocol. Only 2/16 (12.5%) got complete remission; 02 (12.5%) were partial responders and 08 (66.7%) were non-responders. Four patients (25%) in this group were treated with MMF plus steroids but none achieved complete remission. Thus, 14 (83.3%) patients in this group were non-responders or partial responders (Table 4) and they ultimately developed CKD. Overall, 31/77 (40.3%) patients, in our study, progressed to different CKD stages.

To find the impact of histopathological lesions on the treatment outcome, our analysis revealed that out of the 28 children with FSGS 12 (42.9%) achieved complete remission, 02 (7.1%) were partial responders and 12 (42.9%) were resistant to all immunosuppressives. Amongst the MesPGN group 15/23 (65.2%) patients went into complete remission, 01 (4.3%) was partial responder, and 08 (34.8%) were non-responders. Out of the 18 children with MCD 14 (77.8%) got complete remission, 01 (5.5%) was partial responder, and 04 (22.2%) were non responders. Out of the eight unbiopsied patients, 04 achieved remission with CsA and PDN, 01 responded to MMF plus PDN, and 03 were unresponsive to all immunosuppressives (Table 5). Overall, 46/77 (59.7%) achieved complete remission, 04/77 (5.2%) were partial responders, and 27/77 (35.1%) patients with SRNS were resistant to all treatment trials.

DISCUSSION

Treatment of SRNS in children continues to pose a therapeutic challenge to the pediatric nephrologists. The lack of large-scale randomized controlled trials leads to a paucity of strong evidence to inform treatment decisions.⁹ The treatment strategies are heterogeneous with variable efficacy and side effects' profile. Optimal strategies with least toxicity remain to be determined.⁷ Without effective treatment, progression to the end-stage kidney disease is very likely. We have been treating our SRNS children employing a sequential stepwise approach using different immunosuppressive therapies. Failure to respond to any step of treatment or intolerance/toxicity to any drug was the criterion to use the next treatment step. Patients were broadly divided into 2 groups depending upon the initial RFTs because: 1) the SRNS patients who present with deranged renal function are less likely to respond to treatment, 2) calcineurin inhibitors should be avoided in these patients because of their inherent nephrotoxicity, and 3) because they are more likely to progress to kidney failure.^{6,9} Group 1 SRNS patients, in our study, had normal RFTs at the time of starting treatment. CsA was used as first line (S1) treatment for these patients regardless of the histopathology. In the literature, many studies reported that CsA is beneficial to the SRNS patients. However, the risk of relapse is high after

therapy withdrawal, with the risk of nephrotoxicity.⁷⁻¹⁰ Regular monitoring of trough levels is not essential, unless there is non-response, sudden elevation of serum creatinine, or likelihood of non compliance.¹ Long-term use of low dose CsA has been reported beneficial in reducing proteinuria, with a low risk of nephrotoxicity.^{20,21} Plank et al¹⁸ reported on a randomized, controlled, multicenter trial involving initial non-responders that CsA had a significantly higher rate of response than CPM pulse therapy. We used CsA along with low dose of PDN as practiced by the French Society of Pediatric Nephrology⁸ and achieved complete remission in about 51% patients. Long-term low dose (2-3mg/kg/d) of CsA was continued to maintain remission in most of these responders for 1-2 years if there was no evidence of nephrotoxicity on renal function monitoring and on repeat renal biopsy after one year of treatment. Only three patients developed deranged RFTs during CsA therapy; but on stopping CsA, further RFTs monitoring showed reversal to the normal. MMF was substituted in the patients showing any evidence of nephrotoxicity or in those who relapsed on withdrawing or tapering CsA. It was also used as S2 treatment in those patients resistant to both steroids and CsA and in combination with CsA as S3 treatment. Our three (4.9%) patients responded to S2 treatment and another six (9.8%) patients achieved complete remission with S3. The combination of CsA and MMF has a synergistic immunosuppressive effect and, as a result, may induce remission in patients with steroid- and CsA- resistant FSGS.²⁵ Combined CsA and MMF therapy and other multidrug therapy is being increasingly employed both in children and adults with SRNS at many centers with promising results.^{25,26} MMF seems to be safe for children with SRNS in terms of side effects as well as disease control, at least in the short term. However, it is less effective in SRNS than CsA and has not been recommended as first-line agent in such patients.⁹ CPM was not used alone with steroids in our patients with SRNS. Bajpai et al¹⁹, in a prospective study, administered intravenous CPM pulses. They concluded that the efficacy of this treatment was limited in inducing sustained remission in initial non-responders. The International Study of Kidney disease in Children (ISKDC) reported no benefit of orally administered CPM and prednisone compared with prednisone alone.²⁷ Reported toxicity of CPM also limits its role in SRNS.¹⁰ However, in our study, CPM was added to those SRNS patients who were given intravenous MP pulses and oral PDN according to the Mendoza protocol²⁸ and still did not achieve complete remission. A few studies showed efficacy of CPM in SRNS, but the frequency of side effects was high.¹¹ Group 2 patients, in our study, had initial deranged RFTs. The SRNS patients who have already progressed to any stage of CKD are very less likely to achieve

remission with any treatment modality.⁹ Abeyagunawardena et al⁶ reported that renal impairment at presentation and extensive FSGS were independent predictors for poor outcome in children with SRNS. Paik et al²⁹ have also reported that initial impaired renal function and resistance to treatment were independent risk factors for poor renal outcome. Mekhali D et al⁷, however, demonstrated that initial renal impairment was not a predictor of poor renal outcome. According to them, only age >10 years at onset of SRNS was an independent factor of end stage renal disease. In our study, only two patients (12.5%), out of 16 SRNS patients with deranged RFTs, responded to intravenous MP pulse therapy; rest 14 (87.5%) went on to progress to higher CKD stages. These SRNS patients also failed to respond to MMF. CsA was not employed in these already renal compromised patients due to its further risk of nephrotoxicity. Comparing group 1 and 2, about 28% patients in group 1 and 83% patients in group 2 developed progressive CKD. Overall, 59.7% patients achieved remission in our study, and 40.3% patients developed progressive CKD and were further treated by supportive CKD treatment, or dialysis as required.

Our study lacks employment of other therapeutics like chlorambucil, vincristine, and tacrolimus. Latest effective drug reported in the literature, rituximab, is not still available in our country. We hope to have prospective trials with these drugs in future.

Taking into consideration the impact of histopathology, in 69 biopsied patients, on the treatment outcome, patients with FSGS were less likely to attain remission (42.8%) compared with MCD (77.8%) and MesPGN (65.2%). FSGS with chronic sclerosing glomerulonephritis was the lesion with no response to any treatment modality, and was also associated with either initial deranged RFTs or subsequent development of progressive CKD. Literature review shows similar results in patients with collapsing FSGS.^{4,6,7,29,30} MCD proved to be the most benign lesion in our SRNS patients with about 78% achieving complete remission with S1 or S2 treatment. Gulati S et al¹⁴ also showed that prognosis in children with SRNS with MCD is much better than non-MCD. They concluded that it is difficult to differentiate clinically MCD from non-MCD and that renal biopsy is of prognostic value in these children.

CONCLUSION

We conclude that SRNS in children is a difficult disease with significant morbidity. However, remission is achievable in majority of patients with cyclosporine and other immunosuppressive agents. Combination therapy with cyclosporine and mycophenolate mofetil has encouraging results in patients unresponsive to either drug alone. However further prospective trials are needed in this regard. Deranged renal function at the

onset and FSGS with chronic sclerosing glomerulonephritis carry poor prognosis.

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Histopathological Spectrum of Renal Biopsies in Pediatric Population: An Update

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ABSTRACT

Objective: To determine the histological spectrum and indications of renal biopsies in pediatric population from birth to 16 year of age and to delineate any change in histological pattern with time and age at tertiary care hospital in Karachi

Study Design: Cross sectional study

Place and Duration of Study: This study was carried out at Aga khan University Hospital Karachi over a period of 7.5 years from January 2006 to July 2014.

Materials and Methods: A retrospective review of the computerized database of the histopathology department of Aga khan University hospital (AKUH) was carried out on children from birth to 16 years of age who underwent renal biopsy. All renal biopsy specimens were processed, cut and stained and evaluated under light microscopy and immune fluorescence technique. The indication and findings of these biopsies and demographic data such as age and sex were identified. Frequencies and percentages were used for categorical variables and mean \pm standard deviation for quantitative variables. SPSS version 19.0 for statistical analysis.

Results: Mean age was 11.5 years \pm 3.5years with an age range from 3 months to 16 years with majority of the patients over 10 years of age. Out of 128 patients 79(61.7%) were male and 49(38.3%) were female with a ratio of 1.6: 1. The most common indication observed for renal biopsy was Nephrotic syndrome seen in 75(58.6%) cases with 36 (28.1%) being steroid resistant variety followed by steroid sensitive 25 (19.5 %). Other indications observed were Nephritic syndrome 16 (12.5%), renal failure 13(10.2%) and lupus nephritis for classification 11(8.6%). The most frequent renal disease observed was focal segmental glomerulosclerosis (FSGS) 38(29.7%). Others being minimal change disease 19(14.8%), membranous glomerulonephritis 12 (9.4%). The most frequent biopsy finding in all age group was FSGS.

Conclusion: The distribution of renal diseases in pediatric age group described is similar to that described in national and international literature with some differences observed. This study provides updated epidemiological information on childhood renal diseases.

Key Words: Indication, Biopsy, Children, Nephrotic Syndrome, Focal Segmental Glomerulosclerosis

INTRODUCTION

Pediatric Nephrology is a budding field in the developing world, its data on the pattern and prevalence of renal diseases being scarce¹. Histological examination of renal biopsy is fundamental in establishing the clinical diagnosis, rendering renal biopsy the gold standard procedure. Renal biopsy not only determines the histological pattern of renal disease but also guides treatment and prognosis^{2,3}. The data on pediatric renal biopsies remains insufficient; the paucity is attributed to the assumption that nephrotic syndrome in children is almost always Minimal Change Disease (MCD) and hence, steroid therapy is instituted on clinical grounds^{4,5}. Also, the renal biopsy in pediatric group is more demanding than the adult counterpart owing to the expertise required for handling apprehensive children and concerned parents². Hence, only 10% of children who are candidates for a renal biopsy actually undergo this invasive procedure.^{6,7}

Children are predisposed to a heterogeneous group of renal diseases^{6,8}. The pattern of renal diseases varies from one geographical region to another. Genetic

predisposition, environmental background and the level of awareness about the diseases are some factors that influence this variability.⁹ There are few local data on the histopathological spectrum of renal diseases in pediatric population.¹⁰ However, the data that is available on disease prevalence is insufficient, owing to incomplete hospital records and unreported renal biopsies.⁹ This study was undertaken to determine whether any change has occurred in the spectrum of renal diseases and indications for biopsies over a period of 7.5 years at a tertiary care hospital in Pakistan.

MATERIALS AND METHODS

A retrospective review of the computerized database of the histopathology department of Aga khan university hospital (AKUH) was carried out on children from birth to 16 years of age who underwent renal biopsy between January 2006 to June 2014. All renal biopsy specimens were processed, cut and stained and evaluated under light microscopy and immunofluorescence technique. Biopsies were stained with hematoxylin-eosin and periodic acid Schiff. Immunofluorescence staining was

done with antibodies against IgG, IgM, IgA, C3 and C1q.

The indications of these biopsies and demographic data such as age, sex were identified. We excluded biopsies of kidney transplant patients, tumor or those with inconclusive results.

Frequencies and percentages were used for categorical variables and mean \pm standard deviation. For descriptive purposes and identification the cases were subdivided further according to patient's age into subgroups. Data was reported in tabulated and graphical format. SPSS version 19.0 for statistical analysis.

RESULTS

Total 161 biopsies were included in the initial analysis of which 33 were excluded for remaining analysis. Mean age was 11.5 years \pm 3.5 years with an age range from 3 months to 16 years with majority of cases over 10 years of age. Out of 128 patients 79 (61.7%) were male and 49 (38.3%) were female with a ratio of 1.6: 1 (Table 1).

Table No.1: Demographics of patients.

Age n=128	
Mean	11.5 yrs \pm 3.5 yrs
Age Range	3 months – 16 yrs
Sub-classification according to age n (%)	
0-5 years	9 (7.0%)
>5 to 10 years	38 (29.7%)
>10 to 16 years	81 (63.3%)
Gender n (%)	
Male	79 (61.7%)
Female	49 (38.3%)
Male to Female ratio	1.6: 1

Table No.2: Indications of renal biopsy

Sr. No.	Indication	n=128 (%)
1	Nephrotic Syndrome	75 (58.6%)
	• Steroid Resistant	36 (28.1%)
	• Steroid responder	25 (19.5%)
	• Steroid Dependent	10 (7.8%)
	• Relapsed	04 (3.1%)
2	Nephritic Syndrome	16 (12.5%)
3	Renal Failure	13 (10.2%)
5	Lupus nephritis for classification	11 (8.6%)
6	Hypertension	3 (2.3%)
7	Hematuria + proteinuria	4 (3.1%)
8	Hematuria	6 (4.7%)

The most common indication observed for renal biopsy was Nephrotic syndrome seen in 75 (58.6%) cases with 36 (28.1%) being steroid resistant variety followed by steroid sensitive 25 (19.5%). Other indications observed were Nephritic syndrome 16 (12.5%), renal failure 13 (10.2%) and lupus nephritis for classification 11 (8.6%) (Table 2). The most common indication in all

age groups of renal biopsy was nephrotic syndrome (Figure 1).

The most frequent renal disease observed was focal segmental glomerulosclerosis (FSGS) found in 38 (29.7%) cases. Others being minimal change disease (MCD) 19 (14.8%), membranous glomerulonephritis (MGN) 12 (9.4%). 1 patient was observed to have congenital nephrotic syndrome (0.7%) (Table 3). The most frequent biopsy finding in all age group was FSGS (Figure 2).

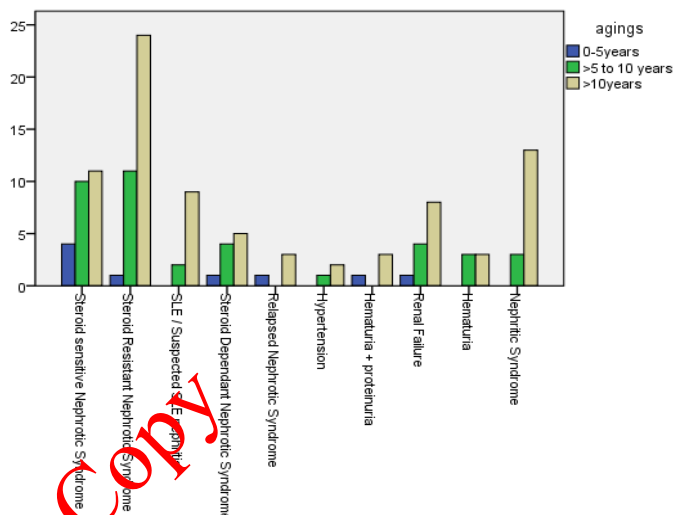


Figure No.1: Indications of renal biopsy in different age-groups

Table No.3: Spectrum of renal diseases in pediatric population.

S. No	Biopsy Findings	n =128 (%)
1	Focal segmental glomerulosclerosis (FSGS)	38 (29.7%)
2	Minimal Change Disease (MCD)	19 (14.8%)
3	Membranous glomerulonephritis (MGN)	12 (9.4%)
4	Crescentic glomerulonephritis (CrGN)	9 (7.0%)
5	Lupus nephritis	9 (7.0%)
6	Post infectious glomerulonephritis (PIGN)	9 (7.0%)
7	Tubulointerstitial nephritis (TIN)	7 (5.5%)
8	Membranoproliferative glomerulonephritis (MPGN)	6 (4.7%)
9	Amyloidosis	5 (3.9%)
10	Mesangioproliferative glomerulonephritis (MesPGN)	5 (3.9%)
11	Focal proliferative Glomerulonephritis	4 (3.1%)
12	Chronic glomerulonephritis (CGN)	3 (2.3%)
13	Congenital nephrotic syndrome	1 (0.7%)
14	IgA nephropathy	1 (0.8%)

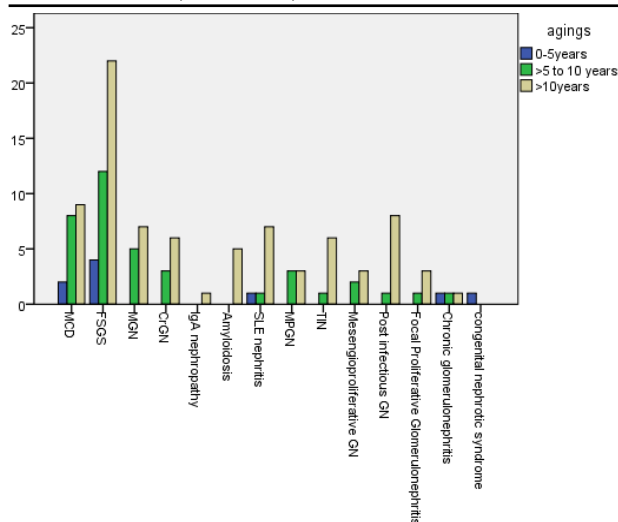


Figure No.2: Renal Diseases in different age groups

DISCUSSION

This study provides an insight into the frequency of biopsy proven renal diseases in the pediatric age group in Pakistan. With the absence of a national registry such reports become more valuable. Although the general pattern of renal diseases observed in this study matches with that reported in developing and developed countries, there are some differences worth acknowledging.

In our series of patients mean age was 11.5 years \pm 3.5 years with an age range from 3 months to 16 years with majority over 10 years of age. It was in approximate to a research work done in Nigeria⁹ and a national study from Pakistan¹⁵. In contrast a study in Jordan⁷ and a local series showed a mean age of 7.5 years¹¹. Several International studies have also reported a greater frequency of children over 10 years of age^{2,10,11}, while a study from Portugal reported a greater frequency of children under 10 years¹³.

In our group of 128 patients 79 (61.7%) were male and 49 (38.3%) were female with a ratio of 1.6: 1. Similar percentages were observed in a study by Isaac et al and some other series around the world^{2,7,9}. In comparison a greater proportion of females were observed in few international studies^{13,14}. A review data from Saudi Arabia showed an equal proportion of males and females with a ratio of 1:1¹⁰, whereas a higher proportion of males were observed in a local literature report.¹¹

The most common indication for renal biopsy in this study was Nephrotic syndrome accounting for 75 (58.6%) cases; with steroid resistant variant the most frequent (28.1 %). This was similar to a study by Edward et al⁷. With few exceptions (9), majority of the data published worldwide showed nephrotic syndrome as the most common indicator for renal biopsy in pediatric population.^{1,2,11,13-18,19,20}

In our study nephritic syndrome was seen in 12.5% of the cases. Similar frequency was seen in a study done in Saudi Arabia¹⁰. In contrary to a local study where only 6.5% of the patients who underwent renal biopsy had nephritic syndrome¹⁵. In a report by Edward Saca nephritic syndrome was seen in 8.6% of the cases as an indication for biopsy in children⁷.

The most frequent disease in our research work was FSGS (29.7%). Almost similar frequency was reported by Dusan et al¹⁴ and Edward et al⁷. The incidence of this renal disease is on the rise in both adults in children presenting with nephrotic syndrome in most part of the world. This is in contrast some national and international studies which reported MCD being the most frequent biopsy finding in pediatric age group^{2,11,15,16,21}.

In our study MGN and MPGN are seen in 9.4% and 4.7% of the patients respectively. A similar frequency of 9% of MGN in children was reported by Habib et al²³. The diagnostic yield of MGN has increased due to the use of immunofluorescence technique. In a study by Kumar et al MPGN was found to be in greater patients when compared to our study²⁴ whereas similar frequency was seen in another study on Indian children²⁵. Nine percent of both Crescentic GN and lupus nephritis was observed in our study in comparison to others where a lower prevalence of each of them was noted^{2,7,15}.

The frequency of PIGN in the present work was 7%. In one international study 9.5% of the pediatric population who underwent kidney biopsy had this finding²², where as a local study reported its frequency to be 10.6%². Its frequency was much lower in another international study where it was seen in only 3.3% of the children¹⁰. Post infectious GN is usually diagnosed on clinical grounds and no biopsy is required, however certain cases are presented with nephrotic syndrome. Therefore renal biopsy is required to exclude other causes.

In our study subjects MesPGN was seen in 3.9% of the cases. Jalal and Jamal observed a frequency of 5.9% which was in close approximation to that seen in our study²². In one local research work it was found in 17.83 percent of the patients². In another international study its prevalence was seen to be much higher⁷. The lower frequency of MesPGN in our cases was mainly due correlation of this histological pattern with clinical features, serology and immune fluorescence technique to reach an appropriate clinical diagnosis.

Data collected in this study together with previously reported data should be a basis for a future national pediatric renal biopsy registry.

CONCLUSION

The indication of renal biopsies and histological spectrum have not changed much with time. However some differences observed in our study that are an

increase frequency of steroid resistant variant of nephrotic syndrome and FSGS being the most common biopsy finding and most common renal disease in all age groups. Therefore this study provide a valuable contribution in the epidemiology of pediatric renal diseases in our region.

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Assessment of Measles Immunization in Children 1-2 Year Age in District Peshawar, Khyber Pakhtunkhwa Pakistan

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ABSTRACT

Objectives: To determine vaccination coverage against measles and the factors predicting it.

Study Design: Cross sectional, Analytic

Place and Duration of Study: This study was conducted at Peshawar District Khyber Pakhtunkhwa, Pakistan and the duration was 1st June 2014 to 20th June 2014.

Materials and Methods: The study was carried on sample of 210 children in District Peshawar, Khyber Pakhtunkhwa, Pakistan. The district was first divided into clusters of 105. Out of these 21 clusters were randomly selected. Sample of 10 children aged 1-2 were randomly taken from each cluster. Cluster sampling technique was used and the data was collected by face to face interview using structured Questionnaire as tool.

Results: Overall vaccination coverage was 57.6% with a male to female ratio of 50.4% and 49.6% respectively. Mother's Education with vaccination status of Children suggests a strong relationship. Mothers with no education (illiterate) vaccinated 36.3% and mother with education (Literate) vaccinated 82.5% of their children. The Chi-square test is significant ($X^2=45.605$; p-value .000).

Conclusions: Parents Education, Household Income and knowledge of mothers about measles vaccination age were found important predicting factors for vaccination status of children.

Key Words: Measles, Parents Education, Household Income

INTRODUCTION

Measles vaccine became available in 1963. It is a live attenuated vaccine, before this measles was considered a life event. Before 1963 each year 3-5 million cases of measles occurred in United States, with deaths of approximately 500. Epidemic cycles of the disease occurred every 2-3 years and affected half of the population by six years of age and 90% by age of 15 years^(3,4). After the measles vaccine became available in United States, the number of cases dropped dramatically by 90%.^(1, 5) Measles is a well known infectious communicable viral disease of global nature affecting children particularly in the age group of 1-5 years. Symptoms include fever, cough, runny nose, red eyes and a generalized Maculopapular Erythematous rash. Measles is spread through respiration (contact with fluids from an infected person's nose and mouth, either directly or through aerosol transmission) and is highly contagious – 90 % of people without immunity sharing living space with an infected person will catch it⁽²⁾. The infection has an average incubation period of 14 days (range 6-19 days) and infectively lasts from 2 – 4 days prior, until 2 – 5 days following the onset of the rash. Complications of measles are relatively mild and less serious diarrhea, to pneumonia and encephalitis (sub-acute), corneal ulceration leading to scarring. Complications are usually more severe amongst adults who catch the virus. The vaccine for measles is a live attenuated type and the 1st dose is given at the age 12-

15 months⁽⁸⁾. It gives 95% immunity against measles but a booster dose is now recommended between age of 5 and 19 years to ensure protection of the remaining 5% children. The primary objectives of the study are to estimate the vaccination coverage of children and determine the factors affecting vaccination status of children⁽⁷⁾. The variable of study Parents education, Household income and mother knowledge about the age of measles vaccination were evaluated^(8, 9). Analytic cross-sectional study design was used. Samples were collected through random cluster sampling. Data was selected using interview with structured Questionnaire. The data was analyzed by using SPSS version 17.

MATERIALS AND METHODS

The Study Design is Analytic, Cross-Sectional Study. The sampling method used is Cluster Sampling while the sample size is $n = 210$. The data collection technique used is Interview schedule using structured Questionnaire and the data was analyzed using SPSS version 17. The study was carried out in district Peshawar Khyber Pakhtunkhwa Pakistan between 1st June to 20th June 2014. The district was first divided into clusters of 105. Out of these, 21 clusters were randomly selected. Sample of 10 children aged 1 – 2 years were randomly taken from each of 21 clusters. The data was collected by face to face interviews using a structured Questionnaire, consisting of questions about age and sex of child, father education, household

income, mother's education, mother knowledge about the age of measles vaccination and the vaccination status of child, the information on vaccination status of the child was collected from history by mother depending on her recall. For analysis the variables were categorized as, household income of up to Rs. 5000 / moth Cat1, Rs. 5001 to Rs. 10,000 / month Cat 2, Rs. 10,001 and above Cat 3. The education of father was given categories as, no education Cat0, 1 – 5 years of education Cat1, 5 – 10 years of education Cat 2, 11 years of education and above Cat 3. Education of the mother was given categories as, illiterate Cat 0, Literate Cat 1. Yes / No answer to the questions were given the categories of Yes Cat 1, No Cat 2.

RESULTS

The frequency distribution, cross tabulation and Chi-square results of the factors I have analyzed and discussed are given below.

Table No.1.1: Sex of Child

		Frequency	Percent
Valid	Male	113	53.8
	Female	97	46.2
	Total	210	100.0

Table No.1.2: Frequency distribution for vaccination status of children

		Frequency	Percent
Valid	Yes	121	57.6
	No	89	42.4
	Total	210	100.0

Table No.1.3: Sex of Child *Vaccination Status of Child

			Vaccination Status of Child		Total
			Yes	No	
Sex of Child	Male	Count % within vaccination	61 50.4%	52 58.4%	113
	Female	Count % within vaccination	60 49.6%	37 41.6%	97
total	Total	Count % within vaccination	121 100.0%	89 100.0%	210 100.0%

Chi-Square Test value for this association of household income with vaccination status of Children is 37.380 and a p-value of .000.

Table 3.1: Frequency Statistics Father's Education

		Frequency	Percent
Valid	No Education	46	21.9
	1-5 years	40	19.0
	6-10 year	54	25.7
	11 year and above	70	33.3
	Total	210	100.0

Table 3.2: Father's Education *Vaccination Status of Child

			Vaccination Status of Child		Total
			Yes	No	
Fathers Education	No Education	Count % within Father Education	7 21.9%	25 78.1%	32 100.0%
	1-5 Years	Count % within Father Education	57 51.8%	53 48.2%	110 100.0%
	6-10 Years	Count % within Father Education			
	11 Years	Count % within Father Education	57 51.8%	11 16.2%	68 100.0%
Total		Count % within Father Education	121 57.6%	89 42.4%	210 100.0%

Chi-Square Test value for this association is 44.890 with a p-value of .000 for the relation of father's education with vaccination status of children.

Table No.4.1: Frequency Statistics Mother's Education

		Frequency	Percent
Valid	Illiterate	113	53.8
	Literate	97	46.2
	Total	210	100.0

Table 4.2: Mother's Education, Vaccination Status of Child

			Vaccination Status of Child		Total
			Yes	No	
Mother's Education	Illiterate	Count % within Mother's Education	41 36.3%	72 63.7%	113 100.0%
	Literate	Count % within Mother's Education	80 82.5%	17 17.5%	97 100.0%
Total		Count % within Mother's Education	121 57.6%	89 42.4%	210 100.0%

Chi-Square Test value for this association of mother's education with vaccination status of children is 45.605 with p-value of .000.

DISCUSSION

According to this study the overall Vaccination Coverage against measles was found to be 57.6% with a male to female ratio of 50.4% and 49.6% respectively

⁽¹⁾. Tables 1.2 and 1.3. Sex of Children was not having important association with vaccination coverage of 50.4% for male and 49.6% for female respectively. Table 1.3 Chi-square value for the association is 1.325 with a p-value of .250 which is not significant. Table 2.2 indicates that in the lower income group the vaccination coverage is 21.9%, in the middle income 51.8% and in the upper income group 83.8% which shows a strong association of income with vaccination status of children. This difference is statistically significant ($X^2 = 37.380$; $p .000$). Father Education level is a strong contributing factor towards vaccination status of children as with no education the vaccination rate is 50.0%, with 1-5 year of education it is 30.0%, with 6-10 years of education it is 44.4% and with education of 11 years and above it goes up to 88.6% ^(2,3,5). Table 3.2. The Chi-Square value for this association is 44.890 with a p-value of 0.000. Table 4.2 of cross tabulation for the mother's education with vaccination status of children suggests a strong relationship. Mothers with no education (illiterate) vaccinated 36.3% and mothers with education (Literate) vaccinated 82.5% of their children ⁽⁹⁾. The Chi-Square test value for this relationship is 45.605 with a p-value of .000, which shows a significant association between mother's education and vaccination of children.

CONCLUSION

This study indicates that Fathers Education, Household Income, Mothers Education and the Mothers knowledge about measles vaccination age are important factors affecting the vaccination status of children. In this study sex of child did not influence vaccination status of children and was found insignificant by Chi-Square test of significance.

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Knowledge of Physicians of Tertiary Care Hospitals of Peshawar about Schizophrenia

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ABSTRACT

Objectives: To assess knowledge of physicians of tertiary care hospitals of Peshawar about schizophrenia.

Study Design: Cross Sectional

Place and Duration of Study: This study was carried out at Lady Reading Hospital, Khyber Teaching Hospital and Hayatabad Medical Complex, Peshawar from 10/09/2009 to 10/10/2010.

Materials and Methods: It was cross sectional study conducted at tertiary care hospitals of Peshawar from 10th September to 2009 to 10th September 2010. 100 Physicians were asked to answer a Performa consisting of two portions namely, General Information and knowledge about Schizophrenia.

Results: Ninety Six percent of the physicians who participated in the study were males while four percent were female. Out of 100 physicians, 2% treated more than 10 patients annually, 3% treated 6-9 patients, 12% treated 3-5 patients and 13% treated 1-2 patients annually while 70% physicians didn't treat any diagnosed case of schizophrenia in a year. 6% of the physician diagnosed more than 5 new cases, 18% diagnosed 3-5 new cases and 42% diagnoses 1-2 new cases annually while 34% didn't diagnose any new case in year's time. 44% of physician had good knowledge about schizophrenia while 56% had poor knowledge.

Conclusion: Most of the physicians have poor knowledge about schizophrenia.

Key Words: Schizophrenia, Knowledge, Physician

INTRODUCTION

Schizophrenia is psychiatric diagnosis denoting a persistent, often chronic, mental illness variously affecting behavior, thinking and emotion. The word schizophrenia, which translated roughly as "Splitting of the mind", comes from the Greek roots *schizein* "to split" and, *phren* "mind" ⁽¹⁾. It is a heterogeneous disorder defined by sustained periods of psychosis and functional deterioration in the major arena of life, such as interpersonal relations, education, employment and self-care ⁽²⁾. Schizophrenia ranks 6th in the league of causes of disability worldwide as measured by Years of Life lived with Disability ⁽³⁾. Even if schizophrenia is not a very frequent disease, it is among the most burdensome and costly illnesses worldwide. It usually starts in young adulthood. Life expectancy is reduced by approximately 10 years. According to the Global Burden of Disease Study, Schizophrenia causes a high degree of disability, which accounts for 1.1% of the total DALYs (Disability-adjusted life years) and 2.8% of YLDs (Years lived with disability). In the World Health Report, Schizophrenia is listed as the 8th leading causes of DALYs worldwide in the age group 15-44 years ⁽⁴⁾. It has been recognized as a devastating disorder for patients and their families; although substantial progress has been achieved both in its diagnosis and treatment and in understanding the disorder's neurobiological substances, a full understanding if its origins and pathogenic mechanisms

remain elusive ⁽⁵⁾. There is very low number of psychiatrists and specialty clinics and center for the diagnosis and treatment of Schizophrenia in Pakistan. Physicians have an important role in treating the patients with an established diagnosis of Schizophrenia as well as in identifying people in the early stages of psychoses as they are mostly the first hand medical help available and schizophrenia if treated has a better prognosis. Interestingly there are only a few studies that focus on the knowledge and practice of physicians and general practitioners in dealing with schizophrenic patients around the globe. It is therefore decided to conduct a study in dealing to assess the knowledge of physicians of tertiary care hospitals of Peshawar about schizophrenia so that if found different then continuous medical education could be arranged to enhance their knowledge. This would decrease the burden of morbidity related to schizophrenia as well.

MATERIALS AND METHODS

This cross sectional study was conducted at Lady Reading Hospital, Khyber Teaching Hospital and Hayatabad Medical Complex, Peshawar for a period of one year from 10/09/2009 to 10/10/2010.

Sample Size: Assuming Physician knowledge "P" = 15%. Margin of Error "d" = 7%.

C.L = 95%. The number of physicians required "n" = 100

Sampling Technique: Consecutive Non Probability sampling

Sample Selection:

Inclusion criteria: All Physicians working in Tertiary care hospitals (Lady Reading Hospital, Khyber Teaching Hospital and Hayatabad Medical Complex in District Peshawar) and registered with Pakistan Medical & Dental Council (PMDC).

Exclusion criteria: Physicians practicing outside District Peshawar and those who are not registered with Pakistan Medical and Dental Council.

Data Collection Procedure: All the physicians meeting the inclusion criteria, practicing in Tertiary care hospitals in District Peshawar were requested to consent to participate in the study after ethical approval from the Hospital Ethical Committee. They were then asked to answer a Performa consisting of two portions namely, General Information and Knowledge about Schizophrenia. Questions format was both open and closed. It categorized the knowledge into Good and Poor when a physician responds to $\geq 60\%$ of $< 60\%$ correctly.

Data Analysis Procedure: Data collected through Performa was analyzed using statistical program for Social Sciences (SPSS) software version 15.0. Percentage and proportions were calculated for good and poor knowledge regarding Schizophrenia as the entire variable to be analyzed is qualitative and mentioned in the Performa and the results were presented in tables.

RESULTS

Ninety Six percent of the physicians who participated in the study were males while four percent were female Table No.1. Out of 100 general physicians, 2 % treated more than 10 patients annually, 3% treated 6-9 patients, 12% treated 3-5 patients and 13% treated 1-2 patients annually while 70% general physicians didn't treat any diagnosed case of schizophrenia in a year Table No. 2.

Table No. 1: Gender of Physicians

Gender	Frequency	Percent
Male	96	96
Female	4	4
Total	100	100

Table No. 2: No. of Schizophrenic Patients Treated Annually

	Frequency	Percent
None	70	70
1-2	13	13
3-5	12	12
6-9	3	3
> 10	2	2
Total	100	100

The time taken by Physicians for consultation with schizophrenic patient is shown in Table No. 3. 6 % of the General Physician diagnosed more that new cases, 18% diagnosed 3-5 new cases and 42% diagnosed 1-

new cases annually while 34% didn't diagnose any new case in a year's time. Table No. 4. 44% of physicians had good knowledge about Schizophrenia while 56% had poor knowledge. Table No. 5.

Table No. 3: Average Time Taken for Consultations with a Schizophrenic Patient

Time	Frequency	Percent
Less than 10 mins	60	60.0
10 – 20 mins	30	30.0
21 – 30 mins	5	5.0
> than 30 mins	5	5.0
Total	100	100

Table No. 4: Number of Patients newly Diagnosed with schizophrenia

	Frequency	Percent
None	34	34.0
1 – 2 / year	42	42.0
3 – 5 / year	18	18.0
> 5 / year	6	6.0
Total	100	100

Table No. 5: Knowledge of Physicians with a Cutoff of 60%

	Frequency	Percent
Poor	56	56.0
Good	44	44.0
Total	100	100.0

DISCUSSION

This study was based on the fact that the knowledge of physicians of tertiary care hospitals of Peshawar has an important role in managing patients with schizophrenia following the principles of liaison psychiatry. The results of this study may not be applicable to all other settings as the training and role of physicians may vary in the international healthcare system. This should also be kept in mind that a doctor with comparatively more knowledge suggests their increase suspicion without conducting a thorough assessment that could conform or reject their suspicion^(6,7). The male predominance in physicians in our part of the world is obvious from the results; with ninety six percent of the physicians in the study were males as compared to four percent females. Although, little is known about physician's experiences in treating schizophrenia in out set up as well as internationally, most physicians are currently treating a small number of patients evident from our study where only 2% treated more than 10 patients annually as compared to 70% physicians who didn't treat nay diagnosed case of schizophrenia in a year⁽⁸⁾. It is reported internationally than 40-50% of doctors in primary care routinely screen patients for mental health issues, but depression is often not detected⁽⁹⁾. When a common condition like depression can be missed often, Schizophrenia can be missed too which was obvious from our findings where 6% of physicians diagnosed 1-

2 new cases annually while 34% didn't diagnose any new case in a year's time. The knowledge of physicians about the existence of early warning signs prior to a first episode schizophrenia and about the diagnostic steps to be taken is insufficient and inconsistent as they miss the insidious but probably most predictive features of schizophrenia onset and they were more likely to look out for frank psychotic symptoms such as hallucinations and delusions as well as bizarre behavior⁽⁸⁾. This was obvious in our study where 56% of physicians had good knowledge about schizophrenia while 44% had poor knowledge. Shared care between psychiatrists and physicians is increasingly seen as a model for addressing the high demand for mental health services^(10, 11).

CONCLUSION

The findings of this study suggest that regarding schizophrenia, the knowledge of most of the physicians is poor and there is a big population that still misses even the diagnostic symptoms. This may be considered as a hindrance to the development of a good consultant liaison service in a tertiary care hospital. This can be improved by better equipping them through undergraduate and postgraduate training and through more sophisticated outcome-focused mental health research may become mandatory to go hand in hand towards international standards.

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Histological Types and Common Sites of Oral Cancer in Patients Presenting at Liaquat University Hospital Jamshoro/Hyderabad Sindh

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ABSTRACT

Objective: To determine the frequency of histological types and common sites of oral cancer in patients presenting at Liaquat University Hospital Jamshoro/Hyderabad Sindh.

Study Design: Descriptive Study.

Place and Duration of Study: This study was conducted on patients presenting at Oral and Maxillofacial Surgery Department, Liaquat University Hospital Jamshoro/Hyderabad Sindh over a period of one year from January 2010 to December 2010.

Materials and Methods: Patients of all age group and gender with biopsy proven oral cancer along with its histopathological types were included in the study. Patients reported irradiated, metastatic, benign and inflammatory lesions were excluded from the study.

Results: Total number of patients was 100. There were 53 Males and 47 Females. Age range was 3 years to 85 years. Mean age was 44.2 years. Most common site was cheek mucosa. Histopathological analysis showed 75% patients having well differentiated squamous cell carcinoma, 13% patients having moderately differentiated squamous cell carcinoma, 2% patients having poorly differentiated anaplastic carcinoma, 7% patients having basal cell carcinoma, 1% Patients having Melanoma, 1% patients having Mucoepidermoid Carcinoma and 1% patients having Rhabdomyosarcoma.

Conclusion: This study gives a detailed account of the histopathological types of oral cancer along with their frequency and site. Oral cancer occurred at a younger age with male preponderance.

Key Words: Oral Cancer, Common Site, Histological Type.

INTRODUCTION

Various pathological conditions affecting oral cavity ranged from benign inflammatory lesions to malignant lesions. Benign lesions can be neoplastic or non neoplastic. Non neoplastic lesions are usually inflammatory or represent reaction to some kind of irritation. Neoplasm represents a process characterized by progressive growth¹.

Malignant lesions of oral cavity have been recognized as a huge threat to public health because of its high morbidity and mortality²⁻⁵. These lesions have high prevalence in various parts of the world as well as in Pakistan⁶⁻⁹.

More than 90% of oral malignancies are squamous cell carcinoma or one of its variants¹⁰. Early detection of pre-malignant and malignant oral lesions is important regarding prognosis¹¹⁻¹⁵. Epidemiological evidence shows a correlation between use of smokeless tobacco and these lesions¹⁶⁻¹⁸.

Clinically benign oral lesions can occasionally resemble malignancies¹⁹. When clinical features are not diagnostic or the persistent lesions for long time and suspected malignant only then the biopsy is done²⁰.

Oral Carcinogenesis is a highly complex multifocal process that takes place when squamous epithelium is affected by several genetic alterations. Now a days the use of several molecular biology techniques to diagnose oral precancerous lesions and cancers may markedly improve the detection of alterations that are invisible under the microscope. This would identify patients at a high risk of developing oral cancer²¹.

MATERIALS AND METHODS

This study was carried out on 100 patients at Oral and Maxillofacial Surgery Department in collaboration with Pathology Department (Diagnostic Research Lab) Liaquat University Hospital Jamshoro/Hyderabad Sindh from January 2010 to December 2010. All histopathologically proven oral cancers included in the study. Those reported irradiated, metastatic, benign and inflammatory lesions were excluded from the study. Tumor sites included were as follows: cheek, buccal mucosa, tongue, gums and alveolus, palate, floor of mouth, lips and angle of mouth. Frequency and proportions were calculated for age, Sex, Site and histological type of oral cancer.

RESULTS

One hundred patients were confirmed as cases of oral cancer. The youngest patient was 3 years old male and oldest was 87 years old female. Mean age of oral cancer patients was 44.2 years. Maximum number of patients (32%) were in 31-40 years of age group while very few patients were above 70 years of age(4%) table-1. out of one hundred patients of oral cancer 53% were males and 47% were females. Most common site of oral cancer was cheek (31%) followed by buccal mucosa (29%). Detailed distribution of site of oral cancer is given in table-2

Most common histological type was well differentiated squamous cell carcinoma accounting for (75%) cases, followed by the moderately differentiated squamous cell carcinoma (13%) cases. Detailed distribution of histological types of oral cancer is given in table-3.

Table No.1: Age Distribution

Age in years	No. of cases	%age
1-10	1	1%
11-20	3	3%
21-30	10	10%
31-40	32	32%
41-50	27	27%
51-60	12	12%
61-70	11	11%
71-80	2	2%
81-90	2	2%
Total	100	100%

Table No.2: Distribution According To Site

Site	No. of cases	%age
Buccal mucosa	29	29%
Cheek	31	31%
Tongue	17	17%
Palate	02	02%
Gums & alveolus	06	06%
Floor of mouth	02	02%
Lips	10	10%
Angle of mouth	03	03%
Total	100	100%

Table No.3: Histological types of oral cancer

Histological type	No.of cases	%age
Squamous cell carcinoma	90	90%
a. well differentiated	75	75%
b. moderately differentiated	13	13%
c. poorly differentiated anaplastic carcinoma	02	02%
Basal cell carcinoma	07	07%
Melanoma	01	01%
Mucoepidermoid carcinoma	01	01%
Rhabdomyosarcoma	01	01%
Total	100	100%

DISCUSSION

The most common age group affected by oral cancer as reported in the literature is 60-69 years²² and 50-59 years²³. While in this study most of the cancer were present in a youngest age group of 31-40(32%) followed by 41-50 years of age group (27%). The reason could be the use of tobacco, pan, & betel nuts which is very common in our population. This is also supported by the study of Isaac U²⁴. The youngest patient reported in the literature is a six month old baby suffering from Kaposi sarcoma²³ while in our study youngest patient was 3years old having Rhabdomyosarcoma.

Oral cancer in our study was more common in males (53%). Other previous studies also indicate high ratio in males.²⁴⁻²⁵

Tongue is the most common site involved by oral cancer in western world²⁶⁻²⁸. In this study cheek is common site (31%) cases followed by buccal mucosa (29%) cases. This is also supported by other studies conducted in Pakistan^{23,29,30}.

The difference may be due to environmental factor in different parts of the world and can be attributed to betel nuts, smokeless tobacco chewing and peoples in this part of world put snuff (naswar) in their cheek is also common.

In this study most common histological types of oral cancer was well differentiated squamous cell carcinoma (75%) followed by moderately differentiated squamous cell carcinoma (13%). This is well supported by other Studies^{22,24,31}. Haq M,E,U, et al reported that poorly differentiated squamous cell carcinoma is the most common histological type in his study³². It is concluded from other previous studies that higher the grading of tumor and poorer its differentiation more are its chances of metastasis.

CONCLUSION

Oral cancer occur at a younger age with male preponderance. Most common site is cheek. Well differentiated oral squamous cell carcinoma is most common histological type of oral cancer in this part of world.

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Successful Conservative Treatment of Emphysematous Pyelonephritis in a Diabetic Patient

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ABSTRACT

Emphysematous pyelonephritis is an uncommon condition, with severe potentially fatal necrotizing pyelonephritis due to gas producing organisms (generally gram negative bacilli, esp. *E. coli*, *proteus*, *pseudomonas*, *enterobacter* and *klebsiella*). It occurs usually in elderly diabetics with poor glycemic control and frequently associated with ureteric obstruction. Though most of the patients still require nephrectomy albeit improvement in medical treatment, we present a case of successful conservative treatment of emphysematous pyelonephritis in a diabetic patient.

Key Words: Emphysematous pyelonephritis, nephrectomy.

INTRODUCTION

Emphysematous pyelonephritis is a rare condition in which gas develops inside the kidney, perinephric space and/or urinary collecting system. Computed tomogram is gold standard for diagnosis. The Hallmarks of the disease are high grade fever, leukocytosis, renal parenchymal necrosis with exudative material, accumulation of fermentation gases within the dilated renal collecting system. Till mid 1980s the standard treatment was nephrectomy because preserving the kidney led to mortality of 60-80%. This situation improved over the last few decades with early CT diagnosis and advances in multi disciplinary care of sepsis and multiorgan dysfunction with mortality of 20-25%. Renal emphysema may also be caused by iatrogenic causes (catheterization, retrograde pyelography etc.) or fistulous communication to the skin or a gas-containing viscous. Although there are reports of improved renal functions after medical therapy combined with relief of obstruction by uretero pelvic stenting of drainage of pent-up collections, but most of the patients still require nephrectomy.^{1,2,3}

CASE REPORT

A 38 years old male presented with left lumbar pain, low grade fever, dysuria and shortness of breath. On physical examination blood pressure was 145/85mmHg, pulse 100/min, respiratory rate 20/min, and temperature 101F.

On auscultation there were decreased breath sounds on left side. CVS was unremarkable. Laboratory investigations showed hemoglobin 12.6gram/dl, leucocytes $11.1 \times 10^9/L$, neutrophils 90%, lymphocytes 20%, eosinophil's 2%, monocytes 3%, PLT $80 \times 10^9/L$, serum urea 13.8mmol/L, serum creatinine 140umol/L. Urine microscopy and biochemistry showed albumin 1+, sugar 1+, and numerous pus cells. X ray plain abdomen showed radiolucent streaks overlying the renal fossa (Figure 1).



Figure No.1: X ray plain abdomen showed radiolucent streaks overlying the renal fossa with radio opaque calculus in lower pole of kidney and ureteric line (left)



Figure No.2: CT scan KUB showed acute emphysematous pyelonephritis (type 1) on left side with renal calculus

Left kidney could not be visualized on ultrasound abdomen. CT scan KUB showed acute emphysematous pyelonephritis (type 1) on left side with extension of air lucencies into retro peritoneum, left proximal ureter and

left renal vein (Figure 2). Patient was kept on conservative treatment because he was stable and improved with the medical treatment successfully.

DISCUSSION

Emphysematous pyelonephritis is a life threatening necrotising pyelonephritis with variable clinical presentation, ranging from mild abdominal pain to septic shock. The majority of cases occur in diabetics with poor glycemic control while a small percentage is due to urinary tract obstruction.⁴

It is mostly reported in elderly patients but our patient is young. Gaither K et al² reported 37 years old female with 7 year history of nephrolithiasis and pyelonephritis. She was diagnosed with EPN. She was also six weeks pregnant. Drainage of left pyonephrosis and stenting was done later. Patient was discharged on 8th post operative day but she never returned for follow up.

On ultrasonography we could not visualize left kidney initially and also not on repeat sonogram. Rauf AA⁵ et al reported a case with unremarkable renal sonogram but two days later visualized right kidney could not be seen. EPN was confirmed on CT and repeat Xray.

The majority of cases of EPN reported occur in diabetics and urinary tract obstruction. Dubey IB et al⁶ reported EPN in non diabetic patient with non obstructed kidney.

Jaisuresh K⁷ had a successful conservative treatment of bilateral EPN patient with autosomal dominant polycystic kidney disease. Percutaneous needle aspiration of infected cyst was done and antibiotics were given.

Morioka H et al⁸ reported a case with bilateral EPN who also had a splenic abscess.

EPN is a life threatening condition. Over years nephrectomy had been treatment of choice but due to advances in medical care and multidisciplinary approach, conservative treatment saves the kidneys and so do the patient.

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