Original Article

Estimation of Time Since Injuries (Age of Wound) in Living Medico-Legal Cases of Mansehra

Time Since Injuries

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ABSTRACT

Objective: The objective was to study the way in which duration of injury or time since injury (age of the wound) is assessed in live medico legal cases in rural area, to know and analyze the time since injury recorded in Medico Legal register and have an idea that how much time later the injured person is examined after injury or how much time later he reach to a doctor for opinion of duration of injury and other opinion..

Study Design: Retrospective study.

Place and Duration of Study: This study was carried out at a medico legal centre of Mansehra District from January to August of 2005.

Materials and Methods: The study is a record based research, 100 cases were selected, which were consecutively recorded from the previously registered MLC cases in a center of Mansehra district. Data of time since injury or duration of injury (age of the wound) along with preliminary data was recorded from the record and analyzed.

Results: In 100 cases the time since injuries were 0 to 59 minutes, 1hour to 6 hours, 7 hours to 12 hours, 13 hours to 24 hours and others. Among the victims having 25 years of age only one1 (1%) had times of injury of 0 to 59 Minuit's, of age of 26year to 45 year only 2(2%) were having time of 0 to 59 mints and no one above 45 years of age has the same time. 35 (35%) cases of age 25 years were having time since injury of 1 to 6 hours, 33(33%) cases of age 26 to 45 years were having same time and only 5 of above the age of 45 years had duration of injury of 1 to 6 hours. 17(17%) of all the cases has age of injury up to 7 to 12 hours. 7 (7%) of total cases has time of 13 to 24 hour.

Conclusion: Our study reflect the true situation of subjected society where the hospital is in the reach of population and this also reflect upon some influence of injured person act 2004, according to which the victim shall be taken to hospital for treatment as early as possible and the legal matter can be dealt with later on , among male victims 2(2%) and among female 1(1%) has age of wounds of 0 to 59mints mean less than one hour, 48(48%) male and 25(25%) female had age of wound of 1 to 6 hours, 1(1%) female and 6(6%) male were having time of injury of 13 to 24 hours.

Key Words: Histological, Bio Chemical, Injury

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INTRODUCTION

Timing of Wound: There are methods by which you can measure the time or age of a wound since infliction, these methods are of four types. You can also say whether it is ante-mortem or post mortem? And these are Medico- Legal questions.[1-5]

(1) Naked Eye Method: By this one can answer weather wound is fresh or old and also ante or post mortem. The wound in life, if an open one, bleed profusely, infiltration of deeper tissue occur, edges are gapping, the blood is firmly coagulated and stick to the tissue, does not easily wash away. Closed wounds are first red, hot, swollen, and then changes colors. [1-5]

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The above will not be present in postmortem wound. When life has existed for some time then it's easy to say whether ante-mortem or postmortem due to vital reaction. When vital reaction is there, it make changes in tissues with time, and it is confirmed that the person was alive, this reaction can be observed by other three methods, and by all these four methods you can also give the approximate time since injury or age of wound. [6-10]

(2) **Histological Method:** When injuries occur there are morphological changes in tissue with time and these can be noted histologically by the experienced one. These are as under. [6-10]

I) if Survival is less than 4 hour. No signs of inflammation or vital reaction seen.

II) Survival 4 to 16 hours. Perivascular neutrophils and granulocytes seen up to 4 hours. In 8 to 12 hours macrophages, fibroblast appears in peripheral wound zone. And granulocytes to macrophages ratio is

5:1.There is necrosis in central wound zone after 12 hour.

III) 16 to 48 hours. Macrophages increases, ratio is 0:4. After 16 hours fibrin stain red with martius stain. From 1st day to 2, 3 days granulocytes and fibrin reaches maximum. Epidermis growth starts from edges in 48 hours. Macrophages reach maximum at peripheral zone of wound in 48h.

IV) Survival 2 to 4 days. Fibroblast is in peripheral zone, epithelia are quite covering the small abrasions. 2 to 3 days capillary buds appear.

V) 4 to 8 days, at 4 day collagens fiber seen. Capillaries grow till 8 day. Epidermis thickens, at 6 day lymphocytes are in wound periphery.

VI) 8 to 12 days leucocytes, fibroblast, and capillaries decreases. Collagens increases.

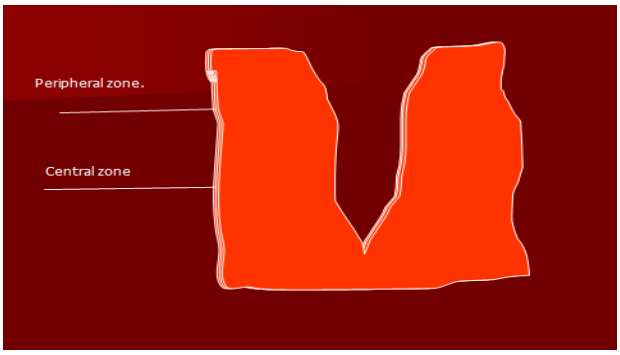
VII) survival more than 12 days. Cellular activity diminish, epithelia show basement membrane, shrinkage of connective tissue and maturation of scar starts. [6-10]

(3) **Histochemical Timing of Wound**. 8 to 12 hour no histological change. Therefore if survival period is less than 12th hour then compliment this method of time of injury analysis with histochemical one.

In wounds there are two zones,

A. Central zone B. Peripheral zone.

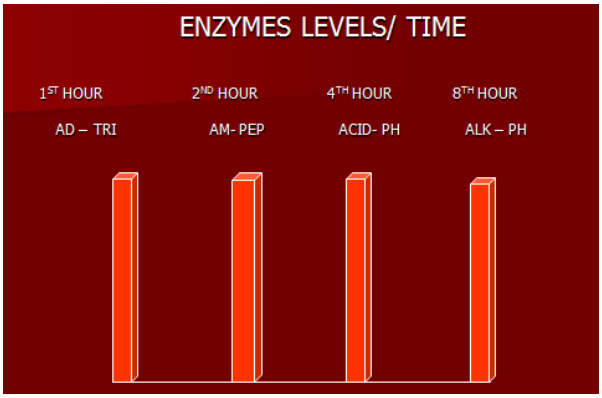
Central zone is in the immediate vicinity of wound and peripheral a bit away from the center



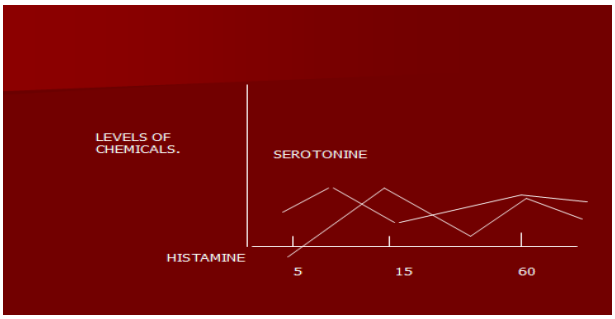
There is increase in enzymes activity at peripheral zone after injury so called + tive vital reaction. The decrease in the central zone of enzyme activity due to necrosis and regressive changes is called –tive vital reaction.

In 1st hour Adenosintriphosphatases and esterases increases in wound periphery. In 2nd hour amino peptidases. In 4th hour acid phosphatases. In 8th hour alkaline phosphatase. This biological method still leaves adventure

for forensic subject, which is solved by other method. The biological method has errors in case if body has suffered from cachexia, blood loss and cold etc. [6-10]



(4) Biochemical Timing of Wound. When injury occurs there is increase in vaso - active substances like serotonin and histamine in the area. The serotonin increases by 2 fold and histamine by 1.5 fold. The tissue sample from the injured area and control a bit away from it are taken and the above chemicals are measured. Before 5 minuets' of death serotonin is increased, at 15 minutes histamine increases, at 60 minutes again serotonin increase. No such changes in chemical level after death occur. [6-12]



Age of Scars: The approximate age of a scar can be estimated from its ageing process, viz. vascular to avascular (2 weeks to 2 months), tender to non-tender (2 months to 6 months), and soft to tough (more than 6 months).

(1) Depending upon vascularity, a recently formed scar may appear reddish or bluish. It is tender and soft. The age of such a scar is up to two weeks.

(2) As the vascularity diminishes, the scar becomes pale and white but it is still tender and soft. Its age is up to 2 months.

(3) With age the scar contracts.it becomes smaller and whiter but it is still a little tender and soft. The age is between 2 to 6 months.

(4) As the scar further contracts, it becomes tough, white and glistening. The age is probably not less than 6 months to an indefinite number of years. [12-17]

MATERIALS AND METHODS

A medico-legal center of Mansehra district was selected, the method of record research was adopted, the record of retrospectively recorded cases was taken, researched and record was formed in a Performa. The total time interval of recorded cases in Performa was 8 months from January to August of 2005. The consecutively recorded cases were researched, a questionnaire was developed to record preliminaries, type of injuries, and there duration or age of injury. From the previous record at a recorded point in time , the onward record was searched of a selected population sample of victims and data of the recoded information were made from the medico-legal register, such register are maintained for record of MLO and court matters. The collected data was subjected to analysis and the results were interpreted.

RESULTS

47(47.0) cases were of age 25 years, 46(46.0%) were of age 26 to 45 years and only 7(7.0%) were of age above than 45 years. (Table- 1)

From the record of said cases of said register 100 cases were selected, 69(69%) were male and 31(31%) were female. (Table – 2)

Table No.1: Time of injuries and age groups in years

Time since injury	Age Groups			Total
	Up to 25 years	26-45 years	Above 45 years	
0-59 min	1	2	0	3
1-6 hours	35	33	5	73
7-12 hours	8	8	1	17
13-24 hours	3	3	1	7
Total	47	46	7	100

Table No.2: Time of Injuries and sex

Time since injury		sex	
		Male	Female
time	0-59 min	2	1
	1-6 hours	48	25
	7-12 hours	13	4
	13-24 hours	6	1
Total		69	31

1(1.0%) people of age 25 years has age of injury of 0 to 59 minutes or less than 1 hour, while people above than 45 years of age reached the doctor later than youngers and their age of injury was more than 13 to 24 hours, in 100(100%) cases age of injury was less than 24 hours, of age less than 25 years, only 47(47%) reached the doctor after time since injury of 13 hours, 46(46%) cases of age 26 to 45 years reached the doctor before 24 hours after injury, and this was the age of their injury, cases of above than 45 years of age had time of injury 13 to 24 hour.(Table -3)

Table No.3: Age groups, frequencies of injuries, % and valid

	Age groups	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Up to 25 years	47	47.0	47.0	47.0
	26-45 years	46	46.0	46.0	93.0
	Above 45 years	7	7.0	7.0	100.0
	Total	100	100.0	100.0	

DISCUSSION

In our study the total sample of population was 100 cases, as compared with our national level studies our results were matching,[17-22] male percentage was high than female in medico-legal cases, males were 69(69%) and female 31(31%).this was compared to a national study of Lahore done at king Edward Medical college in which male were 85.44% and female 14.56%.[18] the age group involved in this study was compared to our own previously published studies nationally and internationally[19-22] and Tajammal N , et al[18]. In this the age group up to 25 years was involved up to 47% and group of age 25 to 45 years was involved up to 46 %, means the middle aged were more than youngers and elders.[19-22] There is no study at national level about the time since injury or age of wounds, however in our study 3(3%) people had time since injury up to 0 to 59 Minuit's, 73(73%) had age of wound up to 1 to 6 hour, 17(17%) had up to 7 to 12 hours, and 7 (7%) had time since injury of 13 to 24 hours. From the study it was known that all the victim reach the hospital within 24 hours, and it is due to injured person act 2004 and its effect so the delay in hospitalization is reduced.

CONCLUSION

Our study reflect the true situation of subjected society where the hospital is in the reach of population and this also reflect upon some influence of injured person act 2004, according to which the victim shall be taken to hospital for treatment as early as possible and the legal matter can be dealt with later on , among male victims 2(2%) and among female 1(1%) has age of wounds of 0 to 59mints mean less than one hour, 48(48%) male and 25(25%) female had age of wound of 1 to 6 hours, 1(1%) female and 6(6%) male were having time of injury of 13 to 24 hours.

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

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