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5. MATERIALS AND METHODS

A. SELECTION OF CASES

Materials for the present study were collected from the medico legal autopsies, showing abdominal and/or pelvic injuries, carried out at the mortuary of Maulana Azad Medical College and Associated Hospitals, New Delhi, during the period from 1st March 1996 to 15th February 1997. The total number of cases studied were 122 and relevant statistics were drawn from these cases.

B. CRITERIA OF SELECTION OF CASES

The criteria used for selection of cases for this study are as follows:
(i) All the autopsies showing abdominal and pelvic trauma with a known method were included in the study.
(ii) All those cases of abdominal and pelvic trauma with or without any associated body injuries who were hospitalized following accident and subsequently succumbed to their injuries were also included in the study.
(iii) Decomposed bodies and those autopsies where the nature of sustenance of injury was not known were not included in the study.

C. COLLECTION OF DATA

The relevant information obtained in every case was systematically recorded in a detailed proforma specially prepared by us for the postmortem evaluation of abdominal and pelvic trauma victims This detailed proforma is enclosed in Appendix I. Broadly speaking every case was studied under seven headings. These are as follows:
a) History.
b) Causal Factors.
c) External Examination.
d) Internal Examination.
e) Associated Injuries.
f) Cause of Death.
g) Injury Severity Score (ISS).

I. History and Causal Factors

Detailed information regarding age, sex, nature of sustenance of injury etc. are recorded. Mechanism of trauma, type of victims, offending vehicles and diurnal variations were recorded in

the vehicular accident cases. Relevant clinical history and findings found upon admission in hospital, and subsequently, were noted. Information regarding surgical exploration of abdomen during interval between occurrence of trauma and death was also recorded. Spot scene witnesses were questioned to find out the exact time of accident in order to know the exact survival period. In a few cases where possible, site of accident was also visited and relevant information collected. Information regarding number of spot deaths or brought dead cases was also recorded. In cases of penetrating injuries to abdomen and pelvis, data like whether the weapon was single or double edged, collected, where available.

The socio-economic status of every case was determined by using WHO classification based on income criteria of an individual. According to the World Economic Data, every person of the society can be categorized into three socio-economic classes which are as follows:
(1) Lower Class - when Gross National Product (GNP) per capita is up to $695.
(2) Middle Class - when GNP per capita is between $696-8625.
(3) Upper Class - when GNP per capita is greater than $8625.

II. Postmortem Examination

In all cases detailed postmortem examinations were carried out. This included full external and internal examination of the victim's body, noting the presence of any associated body injuries and finding the cause of death in every case. These are described as follows:

(i) External Examination

Clothes, if present, on the body were examined in detail for any injury mark, viz., tyre tread mark, stab cuts and blackening or scorching effect in cases of firearm injuries. Information regarding height, weight and built of the deceased was recorded. The condition of the body, specific site and dimensions of the injuries correspondingly present in the six regions of the body, i.e., head and face, neck, chest, abdomen and pelvis and extremities were recorded.

(ii) Internal Examination

Detailed internal examination of all the three principal body cavities, viz., cranial, thoracic and abdomino-pelvic cavities were carried out and findings were recorded. The location and extent of all abdominal and pelvic organs injured were noted in detail to find out any definite pattern in that region. Photographs of some specific internal findings in relation to abdomen and pelvic trauma were also taken.

(iii) Associated Injuries

Findings regarding presence of any associated body injuries in the neck, chest, spinal column, extremities and head of the victim with abdomen and/or pelvic trauma was noted down in the standard proforma.

(iv) Cause of Death

The cause of death in each case was recorded in the standard proforma. It was either haemorrhage and shock alone or haemorrhage and shock in combination with cranio-cerebral damage or

cerebral damage or spinal cord laceration, etc. After collection of data, history and detailed post-mortem examination, an analysis of the injury was made to find out any possible correlation of the organ involved with the nature of injury.

III. Injury Severity Score

Injury Severity Sore (ISS) was done in vehicular accident cases using Simplified Trauma Chart made by Lorne Greenspan et al in 1985 and enclosed in the Appendix III. This score might possibly be helpful in future for long term planning for prognostic assessment of the cases of trauma victims of vehicular accidents.

Technique For Scoring the ISS

The first step in the scoring was to grade all injuries for a given case using the trauma chart. The AIS code of the most severe injury in each of the six body regions was recorded under AIS score in the scoring table. The Injury Severity Score was then obtained by summing the squares of the highest AIS code in each of the three most severely injured regions. The injuries scored as AIS-6 (Bottom left hand corner of the chart) were assigned an Injury Severity Score of 75.

Injury Severity Scoring regions are as follows

1. Head or Neck injuries - include any injury of the cervical spine, cervical spinal cord, skull, brain and ears.

2. Injury to the Face- include mouth, eye, nose and facial bone injuries. Injures listed under AIS region `Head' and followed by the letter `F' in the trauma chart are scored as ISS Face.

3. Chest injuries - include injuries to all of the internal chest cavity organs, the diaphragm, thoracic spine and rib cage.

4. Abdominal or pelvic content injuries- include injuries to all of the internal abdominal and pelvic cavity organs and the lumbar spine.

5. Injuries to the extremities or pelvic girdle- include all sprains, fractures, amputations and dislocations except those to the skull, spinal column and rib cage.

6. External injuries- include all contusions, abrasions, burns and lacerations independent of their location.

These observations have subsequently been utilized in drawing various conclusions in relation to factors governing pattern of injuries consequent to penetrating or non-penetrating (blunt) abdominal and pelvic trauma.