

An Analytical study of 33 cases of Mortal Head Injuries

H. Gawish M.B., B.Ch., M.D., D.S., F.R.C.S. Eng., F.R.C.S. Edin.
M. Siddiqui, B.Sc., M.B., B.S., D.I.H. Eng. S.B. Gore, M.D., M.P.H. (U.S.A.)

SUMMARY

33 cases of mortal head injuries are analysed regarding the clinical presentation, treatment and post mortem findings. 14 cases were operated on with a high incidence of post operative recollection of the haematoma. 19 cases were treated non-surgically; this latter group showed high incidence of systemic injuries as well as short survival.

INTRODUCTION

Lusaka Teaching Hospital is the biggest of the three Central Hospitals in Zambia and by far the biggest in the country. Out of its thousand beds there are about 220 general surgical beds.

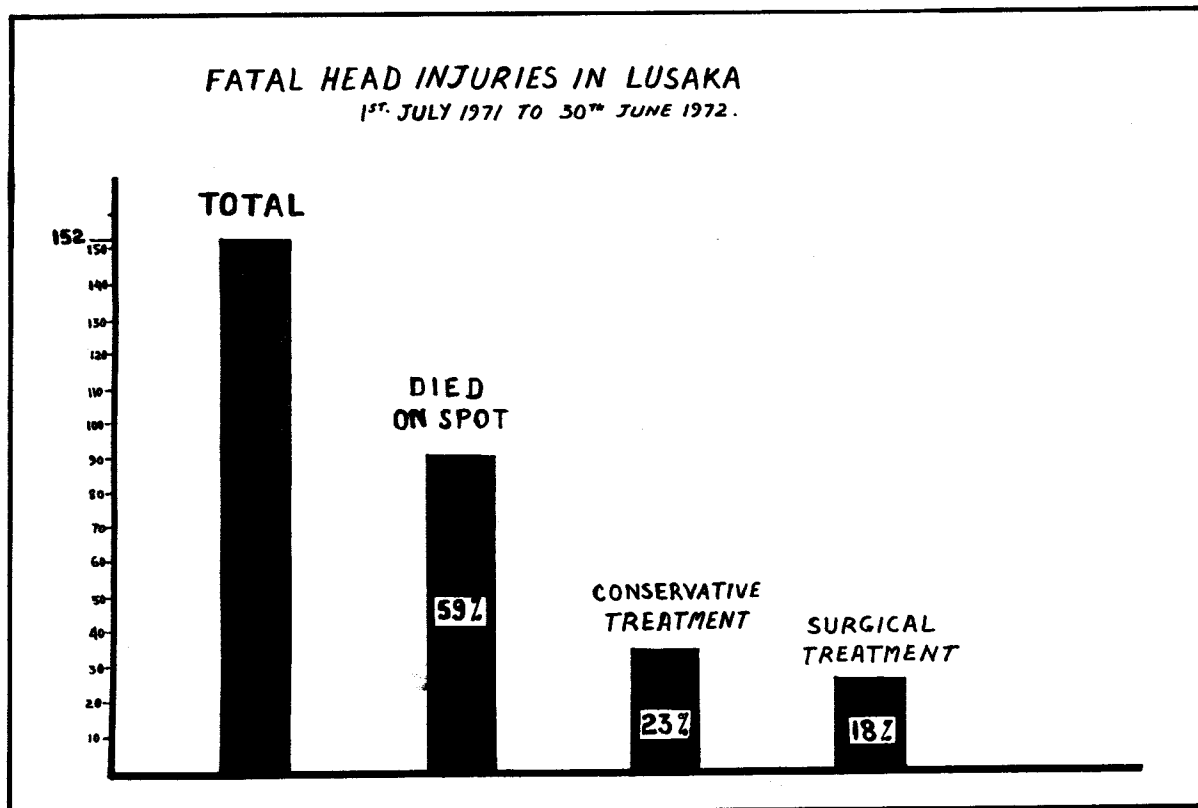
The management of head injuries in the University Teaching Hospital is the responsibility of the duty general surgeon who admits and treats them. Neuro-surgical opinion is sought whenever it is indicated.

A quick look at the problem of head injuries in the Lusaka area will show, over a period of a year (from July, 1971 to July, 1972) that 422 cases died unnatural death of all cases, 152 cases of these, or 36%, died as a result of head injury. A closer look at this 36% or the 152 cases will show: (Graph 1).

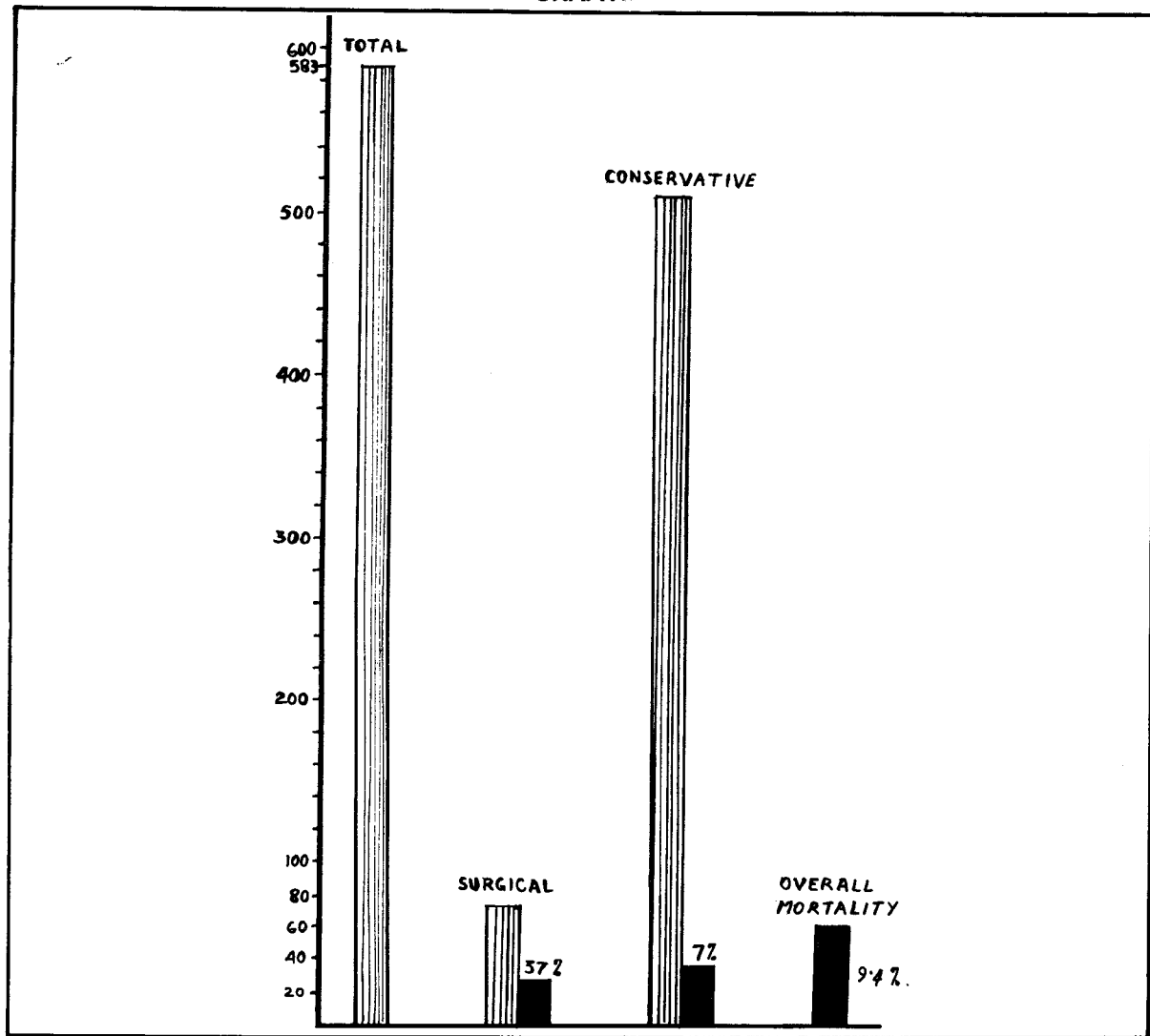
1. High incidence of death on the road.
2. Small number of cases treated surgically.

From the hospital end the problem looks slightly different. Over the same period the total number of head injury admissions was 583 (this is the number of files we were able to trace) with total mortality 9.4%. 73 cases were operated on with 37% mortality. 510 cases had non-operative treatment with 7.2% mortality. (Graph II).

Graph I



GRAPH II



Management of 583 cases of Mortal Head Injury

33 well documented cases were chosen. All of them suffered from head injuries and some of them had other injuries in addition. All had been admitted to the University Teaching Hospital between July, 1971 and July, 1972. Some had surgery, the others were treated conservatively. All died and a post mortem was done on every case. The whole group will be screened regarding age, sex, race, trauma and associated injuries; then they are divided into two groups:

1. Those who had surgical treatment.
2. Those who had non-surgical treatment.

Clinical and operative findings are mentioned and correlated to post mortem findings.

Analysis

32 cases out of 33 were African – one victim was European. The male/female ratio was about 15:1.

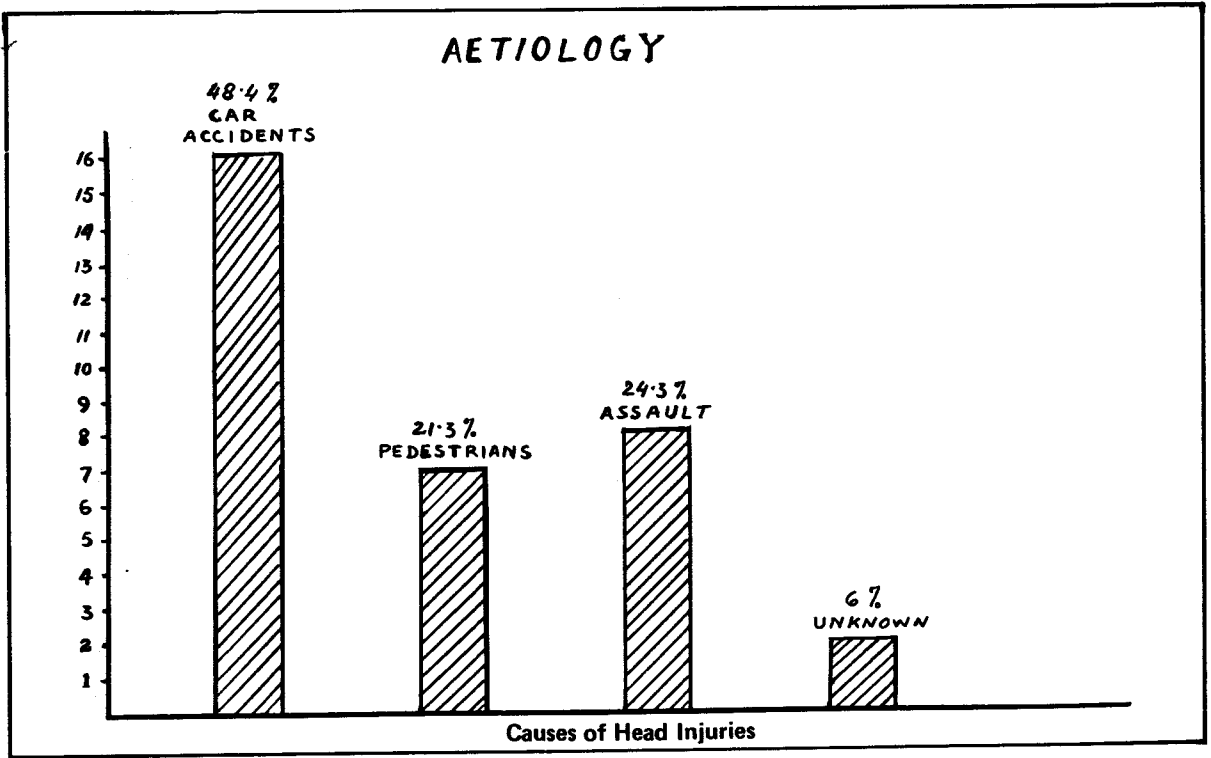
The youngest one on the series was a baby six months old and the oldest was 59 years old. The average age was 31.8 years. Considering the causative agent: (Graph III)

Car accident	16 case or 48.4%
Pedestrians	7 cases or 21.3%
Assault	8 cases or 24.3%
Not known	2 cases or 6 %

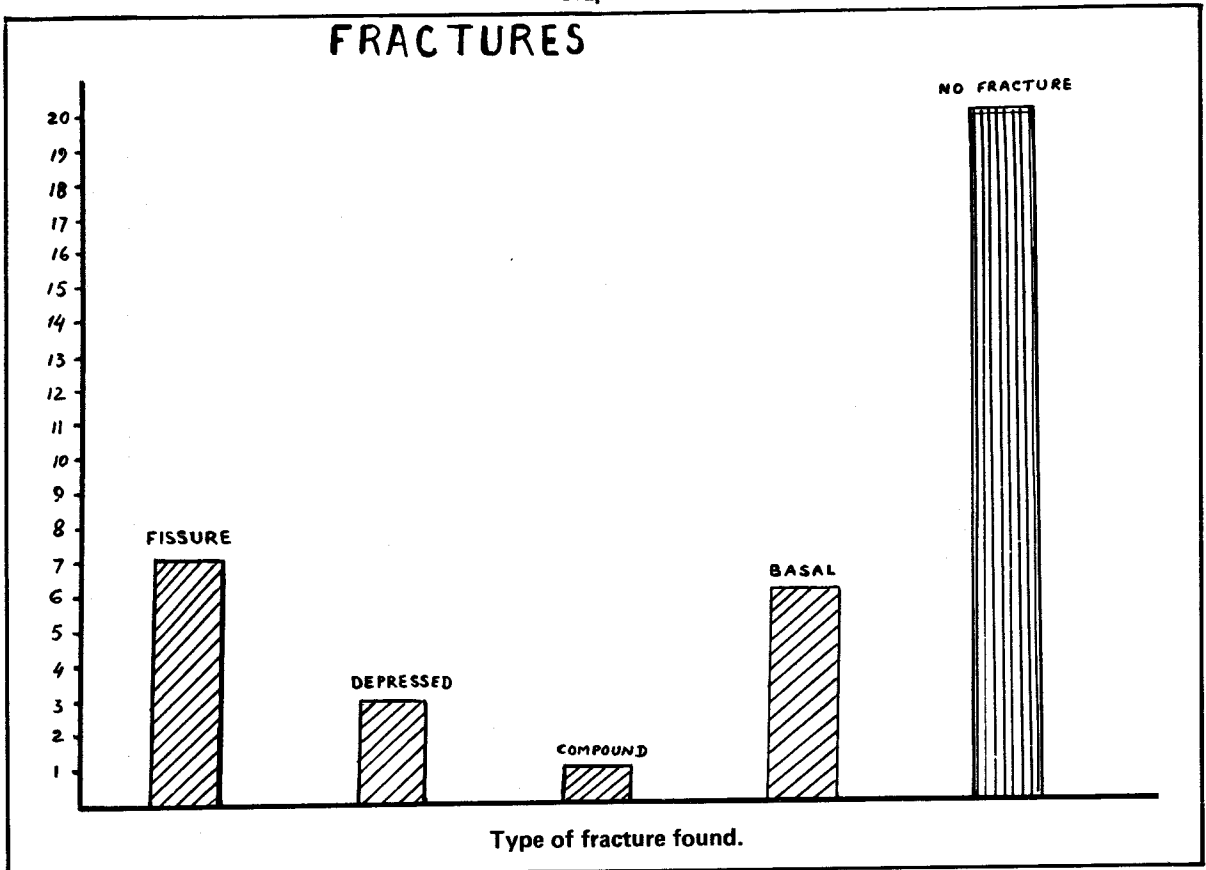
The non neuro surgical operations were:

1. Tracheostomy – 7 cases;
2. Laparotomy and splenectomy in two cases and in third case the spleen was removed and bleeding from the liver was stopped;
3. One case – reduction of a fracture and plaster of paris.
4. Gastrostomy was done on one case for feeding on one of the long survivals.

Graph III



Graph IV



Superficial cuts and bruises were not considered.

Clinical and X-ray examinations showed: (Graph IV)

- cases had fissure fracture - in three cases the fracture was radiating to the base of the skull;
- 3 cases had depressed fracture - in one case radiating to the base;
- One had compound fracture;
- 6 had basal fracture;
- Twenty cases did not show any fracture neither on the X-ray nor at post mortem but nevertheless 19 of them showed Intracranial Haemorrhage at post mortem.

Group One (Graph V).

Of those who had neuro surgical operations this group includes 14 patients, the shortest survival lived for three hours and the longest for 30 days with average survival of four days and 13 hours.

The clinical presentation shows that

1. One patient was obeying commands;
2. Six responded to pain;
3. Seven not responding to pain with pupillary changes either unilateral or bilateral.

The associated injuries

Apart from superficial cuts and bruises, two patients showed fractured femur - in one case it was bilateral and in the other associated with fractured tibia and fibula and injury to spleen. The operations done on them were:

1. Two cases had elevation of the depressed fracture and in one case an extradural haem-

matoma evacuated and in the other a subdural haematoma drained and in both recollection of blood was found at post mortem;

2. Two cases had Crainectomy and one died from subdural collection and the other from brain laceration;
3. One had Crainotomy (Posterior Fossa exploration) and he died from brain laceration and post operative meningitis;
4. Nine cases had bilateral burr holes with drainage of a considerable subdural haematoma either from one side or both sides and in either cases recollection was found at post mortem.

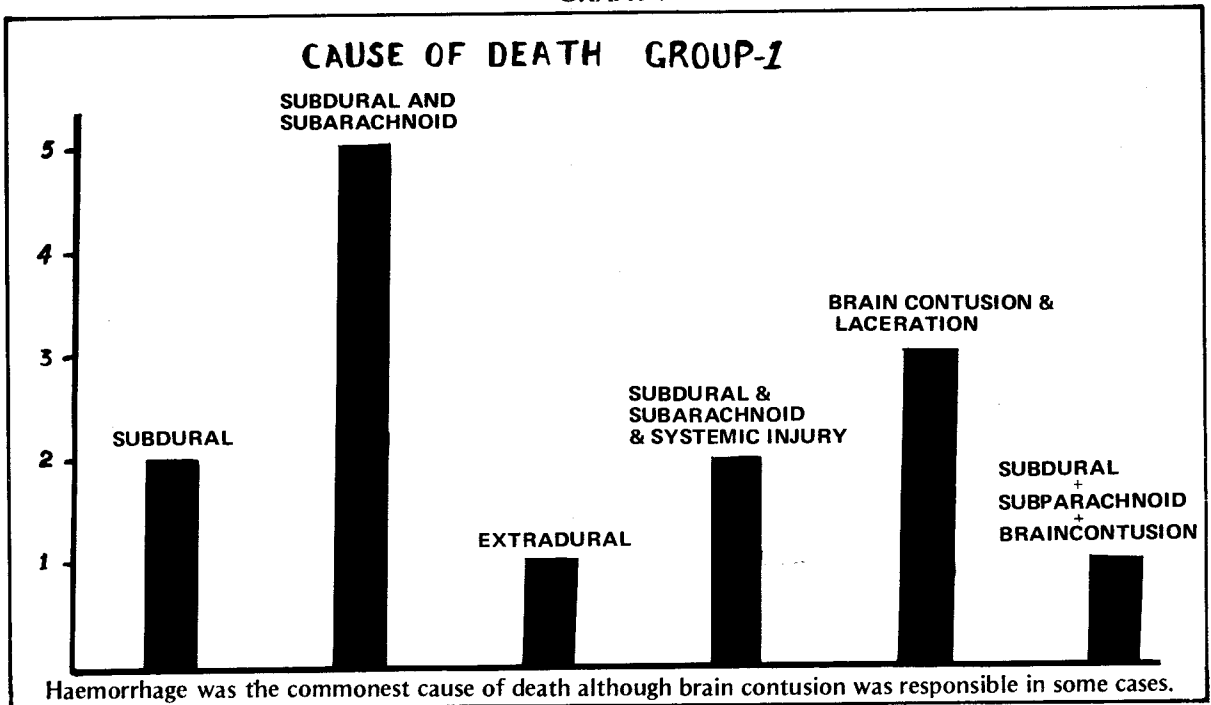
The post mortem cause of death in Group 1 was: (Graph V)

1. Subdural collection alone - two cases;
2. The subdural haematoma was associated with sub-arachnoid haemorrhage (5 cases).

(The sub-arachnoid bleeding was not enough in amount of cause compression - but it indicates the severity of the injuries.)

3. Extra-dural collection - one case;
4. The subdural was associated with major systemic injuries which contributed to the death - two cases;
5. Brain contusion and laceration caused three fatalities;
6. Brain contusion plus subdural collection caused one fatality.

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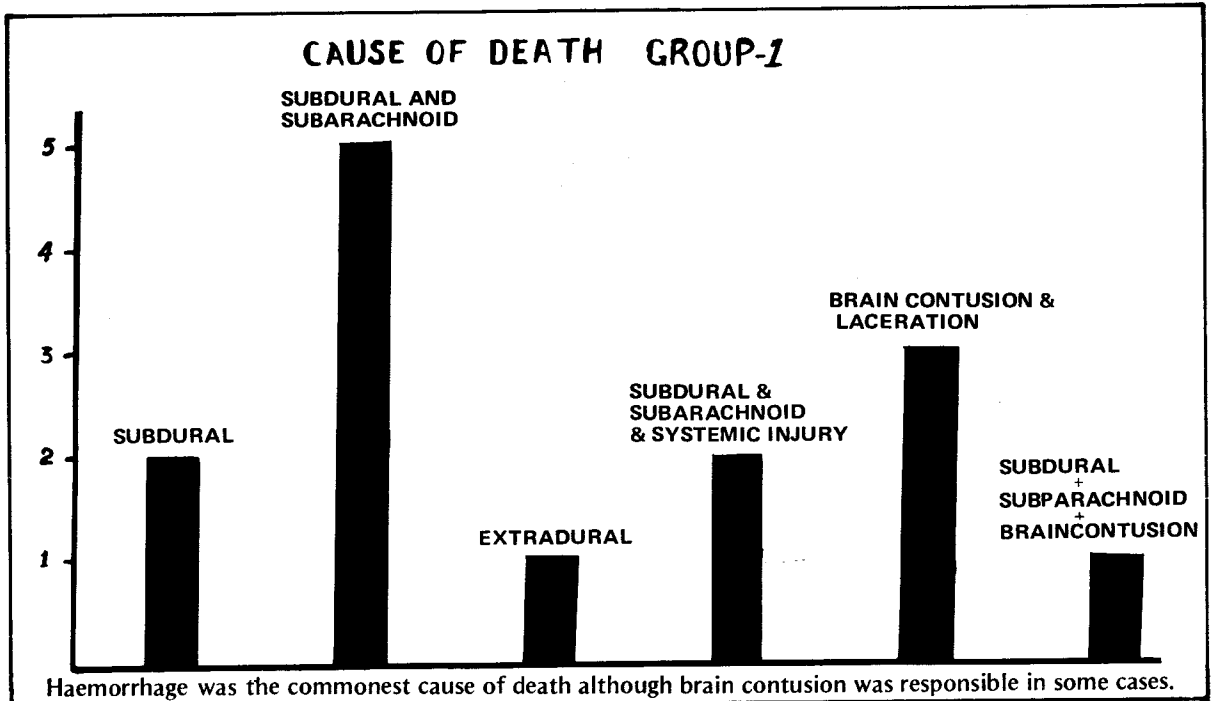
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GRAPH V



Group Two (Graph VI)

19 patients had non-surgical treatment. The shortest survival died after one hour from admission, the longest after 30 hours with average survival of 15½ hours.

Systemic injuries were more common in this group than the previous one which may explain the short survival. Three had ruptured spleen and in one case it was associated with ruptured liver. Two had lung injuries; Seven had lower limb fractures which varied from one tibia and fibula to both femurs and in three cases out of these seven, serious chest injuries had been sustained. The neurological presentation of this group was:

1. Two patients were fully conscious on admission and in both cases they had a severe systemic injury which was a major contributor to the cause of death.
2. Four cases were responding to pain;
3. 13 cases were not responding to pain.

Post mortem cause of death (Graph VI)

1. Five patients died as a result of subdural collection;
2. Four had subarachnoid haemorrhage in addition to the subdural haematoma;
3. In six cases systemic injuries played a major role in causing death. Subdural and subarachnoid haemorrhage was found in these cases;
4. Two died with brain laceration;

5. One case died as a result of brain laceration and systemic injury;
6. One case died as a result of extradural clot and systemic injury.

DISCUSSION

The fatalities of the head injuries (36% of all other unnatural causes of death) is quite high compared with other series, and also the 59% who never reached the hospital is a high percentage which is bound to improve with the preventive measures and the first aid teaching to the public as well as improvement of transport facilities.

Distribution of age shows a shift towards the younger age group. Race ratio is explained by the small number of foreigners in Lusaka in relation to Africans. Male/female ratio 15:1 is leaning hard on the male side for reasons related to the tradition of the African society.

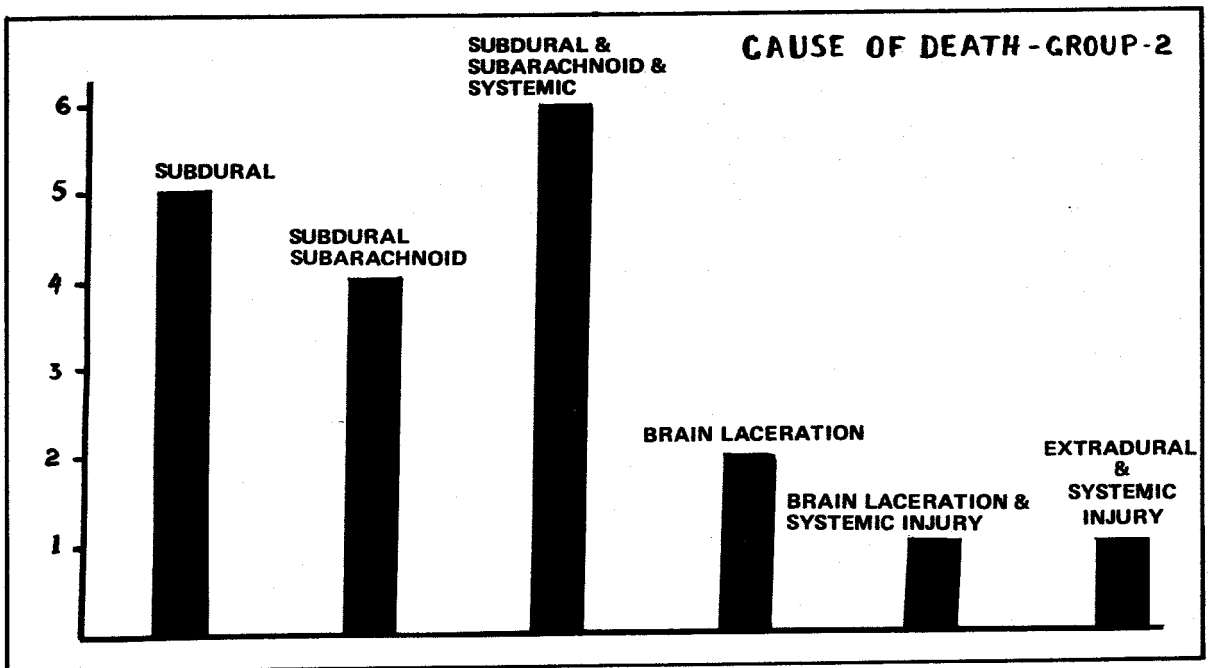
Trauma in all cases was a severe one. Road traffic accident caused 69% of the fatalities with heavy casualty on the pedestrian side – 21%. The high percentage of assault cannot be ignored – 24.3% It is also interesting that there were no domestic or sporting casualties.

Having about 42% with fractured skull indicates the severity of the injury.

The operative mortality of 37% is higher than the average percentage of 20 – 25%.

Special investigations other than plain films of the skull were almost nil but this situation is improv-

GRAPH VI



ing and echogram as well as angiogram are gradually being used.

The presence of 16 patients with major systemic injuries plus head injury indicates the severity of the trauma and the complexity of the problems the surgeon has to face.

Tracheostomy was done as routine in the University Teaching Hospital on every patient whose chest could not be kept clear either by spontaneous cough or suction and out of the seven cases who had tracheostomy, one case showed infection at post mortem indicating the effectiveness of the procedure.

The long survival of Group One is explained by the facts:

1. Low incidence of systemic injuries in relation to Group Two;
2. Evacuation of blood clots helps to prolong the life of the victims.

The main reasons for not exploring Group Two were:

1. Bad general condition;
2. Presence of other major injuries which overshadowed to some extent the head injury.

Burr holing was the definitive treatment in nine cases out of 14 and in spite of doing more than one burr hole on both sides a large percentage showed recollection which I do not think is unique to the series nor to the Lusaka Teaching Hospital, but it may be unique to burr holing which explains the recent shift from burr holing to a formal craniotomy preceded by more elaborate investigations, taking into consideration that some patients have to be rushed to theatre to relieve compression.

The main disadvantages of burr holing are:—

1. Possibility of missing the haematoma especially if angiogram has not been done;
2. Incomplete evacuation of any clotted collection;
3. Difficulty in finding the bleeder and dealing with it;
4. Inadequate decompression in cases of brain contusion and laceration.

We have to consider that every place has got its own capability and angiogram may not be available everywhere at all times but if we stick to burr holes as a definitive treatment for every head injury without looking for the bleeder or giving adequate decompression, similar results should be expected.

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