Original Article

An analytic study of 200 cases of head injuries admitted to teaching Hospital in Najaf.

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Summary:

Back ground: *This is a prospective study of Head injury in Najaf.*
Aim: *to study the causes & out come & way of transferring the rat to the hospital & best way to investigate them.*
Patients & methods:*A prospective analytical study of 200 cases of Head injury patients, who were admitted to Saddam Teaching Hospital , in Najaf between 18 t" of November 1996 and 1st of September 1998.*
Results: *All age groups were included in this study, male to female ratio was 4:1 and the highest incidence was seen at the age group below 14 years. The two most common causes of head injury were road traffic accident (RTA)(51 %) and assault (22%),of RTA pedestrians accounted for (87.25%). RTA accounted of (80%) in those with severe head injury. The highest incidence of head injuries in both male and female was between 2pm and 6pm. All patients brought to hospital by personal means, most of them reached the hospital within the first hour of injury. 115 patients (57.5%) were minor head injuries {Glasgow coma scale (11-15)}. Skull x-ray was taken for 185 patients, it was positive for fracture in 48 patients (24%) and negative in 137 (68.5%). There is significant number of patients with negative skull X-ray who need not to be X-rayed. The commonest associated injuries were limb fractures 35% followed by injuries of abdominal viscera 11%. The incidence of operative treatment (10%). The final outcome on discharge was complete recovery in 156 patients (78%) residual neurological deficits in 18 patients (9%), and death in 20 patients (10%), and 6 patients discharged against medical advice.*
The common cause of head injuries in those who died was RTA 85%& we give recommendation regarding traffic roads & culture of society & policy of investigation.
Key words :*Road Traffic Accident (RTA). Glasgow come scale (GCS), Computed Tomograghy (CT scan). In traventricular Hemorrhage (IVH) Disseminated intravascular coagulation (DIC) Cerebrospinal fluid (CSF).*

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Introduction: _____

I lead injury is one of the commonest causes for attending accident and emergency department ,with half of those attend rig here age 14 years or less. Following any head injury, but particularly when there is an associated loss of consciousness there is risk of developing an intracranial haematoma .When a patient has sustained a severe head injury this risk may he all too apparent However, when a minor injury has been their care. The risk of developing traumatic intracranial haenuatoma in conscious adults attending art accident arid emergency department in whom nor skull fracture exists and in whom there is no history of altered consciousness is approximately 1 in 23000 .When there is a history of loss of consciousness and skull fracture is present ,the risk is increased to I in 29 .To admit all patients with head injury of whatever severity is impracticable .However guidelines far investigation and management are essential and for the most part ,because of the distribution of neurosurgical services ,head injury management will be carried out either by general or neurosurgeons and therefore acknowledge of the relative risks involved is entirely appropriated of minor head injury, as 77% of adults and r62`g) of children who develop haematoma have a skull fracture .To detect intracranial pathology ,CT scan is the investigation of choice in traumatic injury ,and should performed promptly following; injury Data transfer links between district hospitals and regional centers greatly facilitates the transfer of scans both for neuroradiological interpretation and for neurosurgical consultation .Injuries to brain may be the result of':

1- Direct penetrating trauma.
2- An acceleration / deceleration injury, associated with movement of the brain within rigid calvarium.

The only therapeutic measure, therefore, that con is taken in term of management of the primary cerebral injury is that prevention (1).

In 1974 Teasdale an Jennett published the (GCS).Thus carne into being the first useful attempt at quantifying the conscious states of patients. The strength of the chart is that if the observation is made and record in strictly standarized way, the chart extremely sensitive and reliable method for detecting detection in conscious slate. Measures can

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thus be taken to reverse the pathological processes threatening the patients life before permanent neurological injury occur (2).

I lead injury is responsible for 45 °% to 50% of of traumatic fatalities and remains the leading cause of death among trauma victims ,when severe head injury is accompanied by hypotension caused by hemorrhage t1re incidence of adverse outcome doubles. It is thought that hypotension reduces cerebral oxygen delivery to injured but viable neurons resulting in a secondary ischaemia insult that extends the primary injury Hypotension in heat[injured patients should betreated aggressively .Fluid resuscitation and intravascular volume expansion in the presence of a brain injury can reduce intracranial compliance and lead to increased intracranial pressure. Increased intracranial pressure reduces cerebral perfusion pressure and can lead to cerebral ischaemia Resuscitation with hypertonic fluid significantly improves cerebral oxygen delivery and reduces intracranial pressure in experimental models of head injury alone ,hemon- hagic shock alone and head injury combined with hemorrhagic shock as compared with resuscitation with lactated Ringer's solution .1-lypothesizing that hypertonic fluid would reduce pial arteriolar tone and increased cerebral blood flow. The head injury was associated with 1.5 times more fatalities than if no head injury occurred .(3)

Implication for prevention :

A number of risk factors are suggested pathways to prevention ,these factors are human environmental and vehicular factors The elderly appear to be at much high risk for a variety of reasons and strategies targeted at this group may be successful - auditory as welt as visual signals at intersection and crosswalks, move crosswalks between intersections etc. .

Dusk and dark lighting conditions in many of the cases suggest that improved lighting would be a useful strategy perhaps combined programs to increase tie visibility pedestrians. The preponderance of injuries and fatalities in travel tans suggests that increased efforts to separate pedestrians and vehicular traffic--side walks barriers ,crosswalks etc. would be of benefit. (4)

A surprisingly high incidence of intracranial lesion was recently found on routine CT scans performed on patients with mild head injuries so clinical observation with or without skull x-ray films is not sufficient, to exclude potentially dangerous intracranial lesion in patient with apparently mild head injury An immediate CI' scan is indicated for patients with a history of loss of conscious or amnesia. Patients with normal CT scan results and no other indications for hospitalization may be safely discharged changes in intracranial pressure after severe head injure may he explained by changes in cerebral blood volume caused by cerebral vasoconstriction or- vasodilatation A. fall in blood pressure should be avoided even if the baseline blood pressure is high .

Now I'll I is readily identified by CT scan and may be found in upto 3% of patients with non missile head trauma. Despite it's recognition the pathogenesis and clinical significance of IVI-I in blunt. head injury remain unknown Although increased intracranial pressure is common hydrocephalus is rare, the outcome is poor for patients with IVII .Between 3% and 13% of all patients who sustain severe head trauma have clinical and laboratory evidence of coagulopathy . It is believed that the damaged brain tissue releases thromboplastin which activates the cxtrinsic clotting cascade and initiates DIC. The caiaclrolamirre release seen in severe head injury may stimulate platelets and increase the endothelial damage thereby further exacerbating the coagulopathy and appears to correlate with poor survival so correct the coagulopathy of severe head injury may significantly reduce mortality and morbidity rates Elderly people are generally thought to have high mortality after head injury ,and surgical treatment may be limited to those who are conscious on admission so aggressive intensive care for 241 hours and the limitation of further treatment only to those who improve within that time is appreprialе in such cases because these patients can usually tolerate brain injury well o Ws patient group has a good prognosis if pneumonia or heart complications do not occur, Delayed (secondary) brain injury may be noted as serial worsening of cranial CT scan in head injured patients those more likely to show clinical deterioration and poor neurological outcome , coagulopathy is one predictor of delayed brain injury and ma_y play a role in it's pathogenesis .Both hypoxia and hypotension are Iiequent secondary brain insults in patients with severe head injuries and they affect outcome adversely . Tromethamine: (THAM) is effective treatment for head injury that acts by entering the CSI reducing cerebral acidosis and intracranial pressure . (5)

Weston (1978) in Nottingham cited the admission policy in the following ways :

1- patient who following any injury to the head had been. briefly unconscious or amnesia (interpreted in practice as being 1-2 minutes) need not be admitted unless one or more of the following factors was also presented.

A- An impaired level of responsiveness. In practice this included epileptics who had fallen during a fit and those who had been injured while under influence of alcohol .

B- A neurological abnormality

C-Fit

D- Vomiting or severe headache

E- Clinical or radiological evidence of Iiactured vault or base of skull

2- If non of these criteria was applicable the patient. would be sent home provided that there was a

responsible adult at patients home to whom written and verbal instruction could he transmitted concerning observation and further care. Figure (T). Weston (6).

Care at home of patient who Lave sustained head injuries:

He/She should rest quietly at horse for .....during the Being him /her back to hospital 1hIMThDIA"1]ThY under the following circumstances.

If he / she

a-has convulsion or ht

b-complains of severe headac~re c-vomits repeatedly

d-becomes increasingly drowsy and difficult to rouse (children should woken every two hours daring the first

twelve hours after the injury to make sure that they are

still rousable)

If you are worried about the patient's condition at any time

His aim of our study of head injury was:

- To throw some light on epidemiologv of head injuries in Najaf Province .
- To evaluate our admission Policy for Patients with Bead injuries.
- To discuss the value of skull x- ray in the diagnosis of head injuries .
- To evaluate our rout inc management 'by comparing the result with simila.l tulles made abroad Ill an attempt to standardize the criteria for admitting the lead injured patients to hospital.

Patients and Methods

The study was done in Saddaru Teaching Hospital , Najaf.The patients who were required admission, were brought directly to casualty unit of hospital from scene of acdciderrt .

The study included all patients with recent bead injury referred directly from casualty to surgical or neurosurgical wards starting from l 8`h of November 1996 to the I st of the September .1998, patients were discharged from casualty unit not Included .

The admission guidelines for head in* juries recommended in casualty unit, were history of loss of consciousness, the presence of skull fracture , persistent or repeated vomiting , large lacerated wounds of scalp, presence of associated injuries and of doubtful cases that required admission .

After admission, patients or relatives were interviewed.

Information were obtained about the nature of the accidents, its cause and circumstances.

The data there by obtained were eniered on a specially design head injury sheet (Appendix) which records details , mode of injury, :clinical state on admission management, clinical progress and final outcome, other details were also documented.

Skull x-ray was the adjuvant investigation in management of.head injury. CT scan was not available in our hospital .

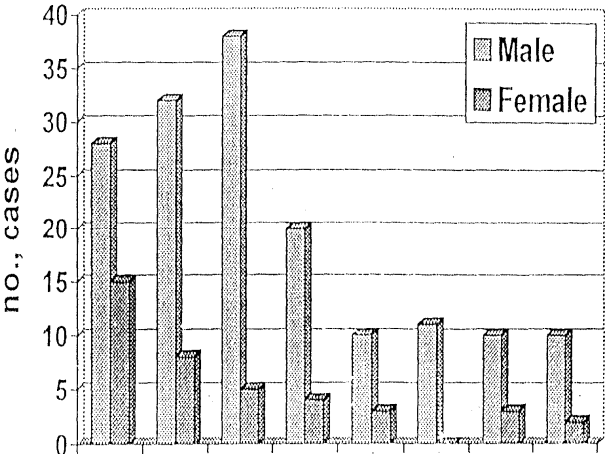
Results:

Incidence

Daring the period of the study from 18`x'' of November 1996 to the 1st of September 1998, there were 37,96 admissions to surgical ward including 1300 emergency admission Head injuries accounted for (15.3%) of the emergency admission and for (5.2%) of total admission.

Age & Sex;

The ages and sex of 2.00 consecutive cases ;ire shown in Figure(2). There were 160 male (80^1/'0), 40 female (20%), 43(21.5)) were under the age of `5 years and 41(20.5%) were in the age group of 5-14 years.



Figure(2). Frequency distribution of patients head injury subdivided by age group and sex.

Table (1)
Occupation of 200 head injury patients

Occupation	Male	Female	Total	%
Children (preschool age)	28	15	43	21.5
Student	32	8	40	20
House wife	-	12	12	6
Farmer	15	-	15	7.5
Officer	3	-	3	1.5
Handworker (Labourer)	34	2	36	18
Elderly	23	3	26	13
Others	25	-	25	12.5
Total	160	40	200	100

Causes of injuries:

The causes were analyzed in relation to age as shown in Table (2).The causes were an R'IA in 102 (51%) assault accounted 44 (2210), fall (loin height 10 (20%) mostly in those below age 15 years bullet accounted for 12. patients (6%).The victims of R"hA included 80 pedestrians (87.25%),24 beings under 5 years other causes accounted for 2 cases.

Table (2)

Age groups and causes of the head injuries

Age group years	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65+	Total	%
RTA									102	51
in car	-	3	5	3	-	-	-	-	11	5.5
pedestrian	24	20	9	6	-	8	12	10	89	44.5
cyclist	-	-	2	-	-	-	-	-	2	1.1
Other causes										
fall from height	18	15	5	2	-	-	-	-	40	20
assault	-	3	15	9	11	3	1	2	44	22
bullet	-	-	6	4	2	-	-	-	12	6
other	1	-	1	-	-	-	-	-	2	1
Total	43	41	43	24	13	11	13	12	200	100

Time of accident:

The highest incidence of head injuries in both male and female was between 2 pin and 61.1m, low incidence between 6nm and 2 am and very low incidence between 2am and 6 am as shown in Tahle (3).

Table(3)

Hour and sex distribution of accident in 200 cases

Hour	Male	Female	Total	%
6 am – 10 am	25	7	32	16
10 am – 2 pm	36	8	44	22
2 pm – 6 pm	56	16	72	36
6 pm – 10 pm	18	3	21	10.5
10 pm – 2 am	18	4	22	11
2 am – 6 am	7	2	9	4.5
Total	160	40	200	100

Mean of transport to hospital :

All patients were brought to hospital by personal moan of transport.

Clinical aspects:

Severity of head injuries :

According to the level of consciousness on admission and depending on (GCS) the injuries were categorized as minor (GCS = 14 15), moderate (GCS *010),* and severe (GCS--3-7). 115 patients (57,500) were fully conscious (minor head injury), 60 patient i (30 %) were moderate head injury and the remaining 21 patients utter recognizable words or obey commands Table (4) shows the causes of severe head injuries in which 20 of 25 patients (80 %) were victims of RTA.

Table (4)

Causes of severe head injury in 25 victims

Causes of injury	Male	Female	Total	%	Death	%
RTA	12	8	20	80	14	70
in car	-	2	2	8	2	10
pedestrian	10	6	16	64	10	50
cyclist	2	-	2	8	2	10
Fall from height	2	-	2	8	2	100
Bullet	3	-	3	12	3	100
Assault	-	-	-	-	-	-
Total	17	8	25	100	19	76

Bleeding And /Or CSF Leaakage from Nose & Ear Mouth Bleeding:

70 patients presented with bleeding from nose , mouth & , 5 patients developed CSF leakage feom nose & ear . 17% of them were severely Head injured.

Table (5)

Bleeding and /or CSF leakage from Nose and Ear and Mouth bleeding in 75 cases

Site	no., of cases	%
Nose		
Epistaxis	39	19.5
CSF leakage	1	0.5
Ear		
Bleeding	15	7.5
CSF leakage	4	2
Mouth		
Bleeding and local injury	21	10.5
Total	75	100

Wounds of scalp , face & subgalial collection , scalp wounds were found in 88 patients (44%) , face wounds in 46 patients (23%) , subgalial collection in 10 patients (5%) , 6 of them associated with linear fracture.

Skull -Radiography :
Skull x-ray was the only investigation available for diagnosis of head injuries skull x-ray was done for 185 patients (92.5%) in 137 (74 .5%) of them the result was egative. Table (6) shows the type of skull fracture in 185 cases .

Table (6)
Skull radiography finding in 185 cases

Fracture	no., of cases	%	% of total
Skull x-ray +ve	48	25.9	24
Linear #	34	18.4	17
Depressed #	3	1.6	1.5
Compound #	11	5.9	5.5
Multiple #	-	-	-
Skull x-ray -ve	137	74.1	68.5
Skull x-ray not taken	15	16.2	7.5
Total	200		100

= fracture

The skull x-ray results in relation to head injury was studied in table (7).

Table (7)
Skull radiology results in relation to severity of head injury in 185 cases

Skull x-ray	Severity of head injury		
	Minor (GCS =11-15)	Moderate (GCS -7-10)	Severe(GCS=3-7)
Fracture + ve	25(21.7%)	16(26.7%)	7(70%)
Fracture - ve	90(78.3%)	44(73.3%)	3(30%)
No skull x-ray	-	-	15(60%)
Total	115	60	25

The associated injuries_
160 patients (80%) were presented with pure Bead injury while the remaining 40 patients (20%) were sustained another associated injuries Table (8) shows the iricidez oe of associated injuries in 40 patients with head injury .The commonest were fracture of limbs (455x) followed by injury to abdominal viscera (15%) one patient (5%) had multiple fractures in 38 patients (95%) the cause was RTA.

Table (8)
Incidence of associated injuries in 40 cases of head injury

Injuries	no., of cases	%
Haemothorax and /or pneumothorax	4	10
Abdominal viscera	6	15
Pelvic fracture	4	10
Upper limb fracture	4	10
Lower limb fracture	14	35
Multiple fracture	2	5
Ribs fracture	4	10
Spine fracture	2	5
Total	40	100

Lines of treatment:
All patients were treated by one or more of the bellowing trcatinents
1-Maintaining airway patency and adequate breathing by position of patients, suction of mouth and airway and oxygen administration .
2-Intravenous infusion including blood transfusion were given in 34 patients and intravenous fluids .
3-Mannitol were given in 48 patients .
4-Antibiotics were given in 188 patients antibiotics either single or combined combined antibiotics given for those with compound fracture and for those in whom operation were done other drugs include anticonvulsant analgesic steroid ,etc as ……..indicated .
20 patients out of total patients were underwent neurosurgical operations by neurosurgeon In 5 patients cranioctorny was done two of them recovered completely , one left with residual neurological deficit and 2 died An 7 patients craniotomy was done , 3 recovered completely , 2 of them left with residual deficit and 2 patients died 1n 8 patients wound excision was performed, one of them recovered completely , 5 of them left with residual neurological deficit and 2
patients died.

Duration of h(LSL)ita1 stay_
The duration of hospital stay was lasting fi¯om I day to 110 days as shown in 'fable (9) ,73 patients (40.5%) were discharged with the 1st 2 days , 2 patients (I. I%) were discharged within the period of 110 days

Table(9)
Length of hospitalization for 180 head injury survivors

Length of time in days	Male	Female	Total
1 – 2	52	21	73
3 – 4	34	5	39
5 – 7	27	5	32
8 – 14	18	4	22
15 – 21	7	2	9
22 – 28	3	-	3
up to 110	-	2	2
Total	141	39	180

The final outcome:
Complete recovery occurred in 156 patients (78%) , 6 patients (3,,o) were discharged against medical advice, 20 patients (1010) died 15 of them had severe head injuries and 5 had ninderate head injwy as ;hown in Table (10)

Table(10)
Final outcome on discharge of 200 cases

Severity of injury	no., of cases	Complete recovery	Residual damage	Death	Discharged against medical advice
Minor (GCS =11-15)	115	111	-	-	4
Moderate (GCS = 7-10)	60	45	8	5	2
Severe (GCS = 3-7)	25	-	10	15	-
Total	200	156	18	20	6

The number of patients left with residual neurological deficit were 1. 8 (9%). Table I I shows the diffei en(neurological deficit

Table (11)
Residual neurological deficit directly related to the head injury on discharge from hospital

Features	no., of cases
Aphasia	5
Right abducent nerve palsy	2
Left facial nerve palsy	1
Hemiparesis	8
Generalized hypotonia	1
Lost left eye(optic atrophy)	1

N.B more than one neurological deficit found in 8 patients.

Discussion:
Epidemiology of head injury:
Admission for head injuries. were expected in every :? days or inure .1 lead injuries accounted for ,15.3%) of emergency surgical admission and fov (5.2%) of total admission which showed Some similarity with Figure produced by Tawfik el, al 1985 who found that head injuries accounted Or ;15.4%) of emergency admission and for (8.4%) of total admission. (7)
Males were affected more than females with ratio 4:1 . it was noted that high incidence of head injuries n age under 5 years (21_5 %) , in most of them the cause of injury was RTA and fall from height , neglect and lack of supervision by mother is likely explanation for this high incidence. Tho peak incidence of head injury was in to age group below,,, 5 years (21.5%) , the main causes were RTA (55.8%) :nld fail from height :41.8%) and also in age gimip between 5-14 again the main causes were RTA (48%) followed by fall from height (36.5%) at these age grrnip the child showed increase in the range of activity ,and are outt oil roads as pedestrian often ullaccompnnied students showed a high incidence of head injuries (20 .5%) , most of them were due to RTA and fall `ioru height.

Causes of head injuries
The two most important causes head injuries in this series were RT'A 51 % , mostly in those below 1.5 years The principle causes in all reported series is RTA for instance in jeddah Tawfik et al 1985 found incidence of head trauma are due to RTA (77.510) [7] .
I`lowever the incidence of RTA is some what depend on the iiiinlber of automobiles in given population and other important factors like bad driving at high

speeds Angle track roads weather hazards (dust and rain)and lack of understanding of the vehicle. Pedestiia l were the main victims in RTA (87_25%) were high incidence at age group 5- 14 years .
In jeddah Tawi1k et al 1985 found (09.6%) of RTA were peddestrians with high incidence at age group of 5 --14 years .[7].
Assault were, responsible for (22%) of head injuries and mostly among men aged 15 -44 years while in Scotland Jennet *8c* Macmillan (1981) found were assault a e twice as common as RTA as cause of head injuries among non aged 15 -- 24 years .[8].
Incidence of assault in our study more than comparing in study by Carthdge & Shaw 1981 done iii Newcastle assault were responsible for (1 1.4° l) of head injury .[9].
The method of transport to hospital was mainly personal transport . 'Tie time of arrival range from 30 minutes to 3 hours, 7 patients came to hospital after staying in home for I --3 days . However ,the tine of arrival depends on the distance between the scene of accident and hospital and available means of transport.

Time Of accidents:
The time of day of accidents occurrence showed drat highest incidence in both male and female was between 2 pill -- 6 pill (36%) and low incidence was between 10 pin -- 2 am (10.5%) , incontradiction to study done in Newcastle where the highest incidence in both male. acrd female is between 10 pill and nrid night the conclusion is that this peak has somedung to do with drinking habits as mentioned by Cartlidge & Shaw 198119]

Admission guidelines:

Weston 1981 mentioned in most hospital in Great Britain any patient who has been unconscious (whoever briefly) following a head injury is detained for observation .[61

In this study loss of consciousness was the main indication of admission to hospital in 110 cases and the presence of skull fracture in 413 cases is another indication .'Mere is now good evidence despite conflicting results obtained in one survey done by Tone & .1efheys 19$0 [101 suggested that patient. with history off unconsciousness not to he admitted to hospital assuming that they don't have other clinical criteria a admission as mentioned by Mendelow et al 1982 198; 1_1 1,12), therefore the recommendation that would appear to be reasonable.

In this study there were 90 patients (48.6%) from 185 palient.s with skull x-ray had minor head injury and no skull fracture , the vast majority of ahem were discharged within 3 days of admission . These Figures showed that these was a significant number of patients with minor head injuries need not to be admitted to hospital . Some realize that this number of admission could be reduced if more stringent criteria were applied like those of Weston 1978 in Nottingham [6] .

Skull Radiography :
Plain skull x-ray plays an important role in nrinar;ement of latients with head injury Although C T scan has Tirade assessment of head injury more accurate it's not availabl-' in every hospital and should he used only in certain indication as mentioned by Khallili 1988 [13].
Skull x-ray was taken in 185 patients, in 137 patients :68.550) of them the result was negative for fracture . In 1 5 patients no skull x-ray was taken because those patients so severely injured and were unable to transfer because they need continuous suction and monitoring and the portal x-ray was not. available so they died within few hours It was found that 25 patients (21 .7%) with minor Lead injuries had skull fracture and 90 (783%) had no skull fracture while patients with severe head injury 7 (70%) has skull fracture and 3 (30%) has no fracture This indicate that there is no argument about having skull x-ray in severe head injury, but It's used in minor unv;omplicated cases is controversial .Skull x-ray is done routinely for most head injuries attending our casualty department .Although the head injury may be trivial and the patient has no abnormal clinical finding skull x-ray are frequently requested in such patients .There is an ever increasing fear of medicolegal consequence and many doctors use skull x-ray to reassure the patient or his relatives that no fracture is present. so there were significant number of patient x-rayed unnecessarily in this study By reducing the number of examination the cost of set-vice could be reduced without affecting clinical management as mentioned by Butler &Evans 1982 [141.
Butler & F?vans 1982 stated thatt more rational approach could he to omit skull x-iay in many patients and if clinically there are signs of intracranial trauma carry out CT scan if this is available [14] .
On other hand Swan 1981 had insisted upon skull x-ray being performed for diagnosis of skull fractures .[15]
So if the CT scan was available there the results will be more accurate and we hope to bring CC 'T scan there and other places after We break of sanction . 1n this study 43 patients who had skull fracture , 5 died(1 1.G%) , 9 residual damage (20.9%) and Ilre 29 (67.'t%) recovered coupletely .

Operative treatment:

Galbraiths & Teasdal 1981 in Scottish hospital were found the incidence of operative treatment IN-patients with head injury admitted to the hospital is 5% [16] .
In jeddah Tawfik et al 1985 found the incidence 2.5° %, 171, in the present study 20 patients (10'/',)) of all admitted cases were operated upon and the result diflcr uuon,g the series. Of '5 patients need cranioctomy 2 completely recovered ,one left with residual ncurtolog,icnl deficit and 2 died . Of 7 patients

raced craniotomy , 3 recovered completely , 2 of them left with residual deficit and 2 patients died . Of 8 patients wound excision done for them , 5 of them Ic(1 with residual deficit , I comptetely recovered and 2 patients died .

In jeddah Tawfik et al 1985 study of 41 cases operated on for suspected intracranial hacnratoma 2 died and 2 left with disabilities .

Mortally rate & causes of death:

The overall mortality rate was 10 % ,14 cases died within hours of same day of admission all of there severely head injured patients The remaining 6 died within 2 days --2 weeks .the cause of death was R.'TA in 17 (85%) fall from height. 2 patients (10 %) bullet injury in I case (5''%%a) The final diagnosis and cause of death was known from the forensic medicine tire cause of death for 15 cases were cerebral and ducal bleeding for 2 cases were extradural for 2 *eases* were cerebral dural bleeding with haenrothorax and for 1 case was cerebral ,dural bleeding and fractured femur The 2 means where by the mortality and morbidity rate may be reduced in the areas of accident prevent ion and the acute treatment in district general hospital as mentioned by Jaffreys & Azzam 1979 [17].

Conclusion :

Head injuries are common in Najaf,there is a high incidence due to RI'A particularly for pedestrian below age 1 _5 years . Also there is significant number of patients need not to be admitted and not to be x-rayed . So by attention to children ,by arrange places for crossing of pedestriarns, by separation of pedestrians from vehicular traffic. by improving iigh(s in dark places and by education of general population as a whole so we can reduce the RTA, amid reduce the head injuries as a whole by adopt stringent policy for admission and for x-ray , so we can reduce the cost at least. at. the time of sanction

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