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Study of 150 consecutively surgically treated patients with chronic subdural haematoma at Chris Hani Baragwanath Hospital

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CHAPTER 2

MATERIALS AND METHODS

A retrospective review of case records of patients with chronic subdural haematoma admitted to Chris Hani Baragwanath Hospital in the neurosurgical department from November 2002 to March 2004 was made.

During this period 150 cases of surgically treated patients were identified for the study. The patients with chroric subdural hematoma who were treated nonsurgically were excluded. The diagnosis of chronic subdural hematoma was made on either the history of trauma three weeks prior to presentation or presence of isodense,hypodense or mixed density subdural collection on CT brain scan or presence of liquefied blood on surgery.

In all cases, the records were studied with a view to obtaining the following information

i. Demographic data including age, sex and race.
ii. Pre-operative clinical data including clinical features, neurological grade, duration of symptoms to treatment, pupillary size and reaction, CT brain appearance
iii. Type of operation
iv. Post-operative clinical data including presence of symptomatic recurrences, outcome data as expressed by Glasgow outcome score on discharge.

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For the study the neurological grading system of Markwalder was used in the evaluation of the preoperative neurological status of the patients. The grading is as follows:

Grade 0: patient neurologically normal

Grade 1: patient alert and oriented; mild symptoms such as headache; absent or mild neurological deficit, such as reflex asymmetry.

Grade 2: patient drowsy or disoriented with variable neurological deficit, such as hemiparesis.

Grade 3: patient stuporous but responding appropriately to noxious stimuli; severe focal signs such as hemiplegia.

Grade 4: patient comatose with absent motor response; decerebrate or decorticate posturing.

The patient were admitted to neurosurgical unit either from speciality wards at our hospital or from outside referring hospital. Almost all patients received in our unit had a diagnosis of chronic subdural haematoma CT brain scan. Attending registrar or consultant then makes a decision of treatment. The type of operation the patient undergoes, depends on the age of the patient. Patient whose age is below 60 years will undergoes frontal and parietal burr-holes for the drainage of haematoma. Patients above 60 years of age usually go for subtemporal craniectomy unless the haematoma doesn't extends to temporal region, in which case they undergo burr holes for the drainage of haematoma.

Craniotomy is usually reserved for recurrences showing septation in the haematoma cavity. Sudural evacuation is followed by physiological normal saline irrigation at operation without closed drainage system.Immediately post-operatively patients are nursed flat in the bed and mobilised as soon as possible.Physiotherapy was an important part of management, especially aimed at patients with limb weakness, as well as to help keep the chest clear and avoid deep vein thrombosis. No routine post-operative CT brain scan were taken unless warranted. Most patients are discharged on the fifth post-operative day unless for extended rehabilitation or who need reoperation for recurrence.

The committee for research on human subjects of the University of the Witswatersrand approved this research.

2.1 STUDY SAMPLE

2.1.1 DEMOGRAPHIC DATA

2.1.1.1 AGE

The following table illustrates the age distribution of the patients.

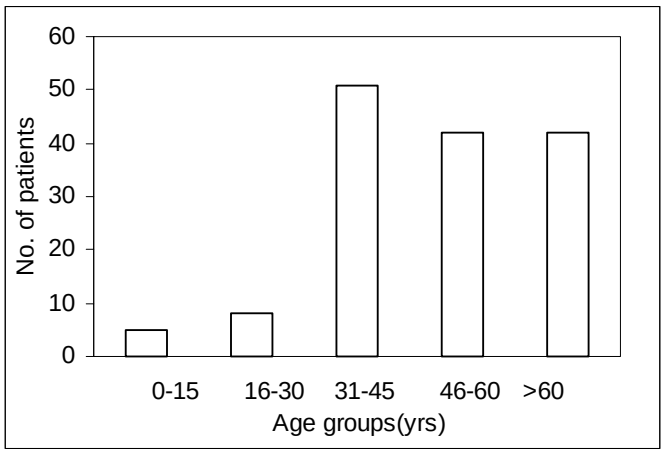

Figure 2.1: Age distribution of the patients

The youngest patient was 11 years old and the oldest was 88 years old with mean of 49.7

2.1.1.2 GENDER

Male accounted for 113 cases and females for 28, with male to female ratio of 4:1, as illustrated below

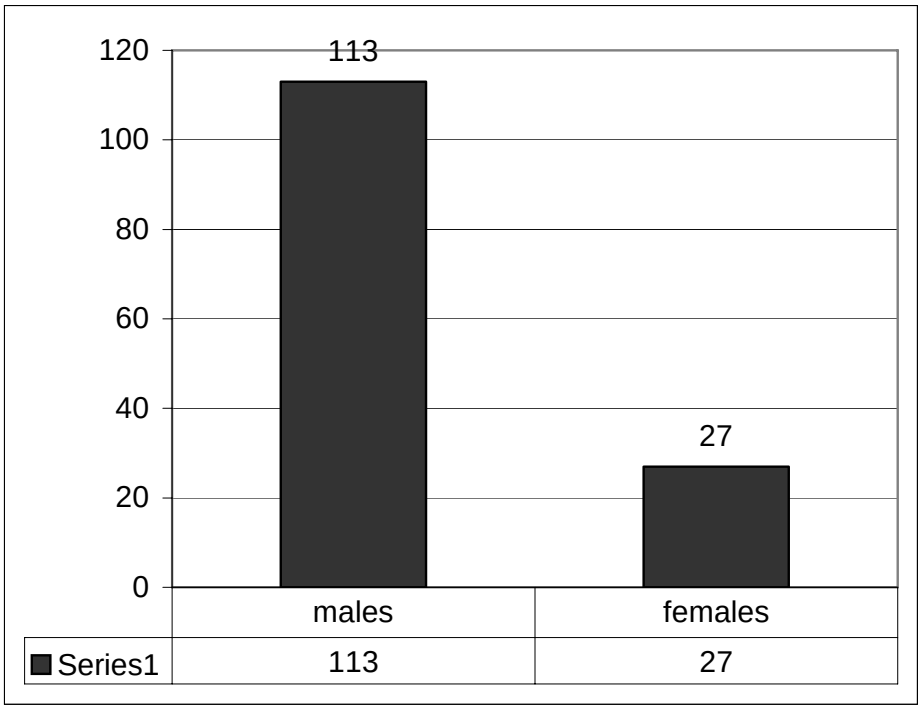

Figure 2.2: Sex distribution of the patients.

2.1.1.3 RACE

Blacks were the predominant racial group represented, accounting for 94% of the cases.

Chris Hani Baragwanath hospital were the study is done generally caters for predominantly black patients.This is demonstrated in the figure below.

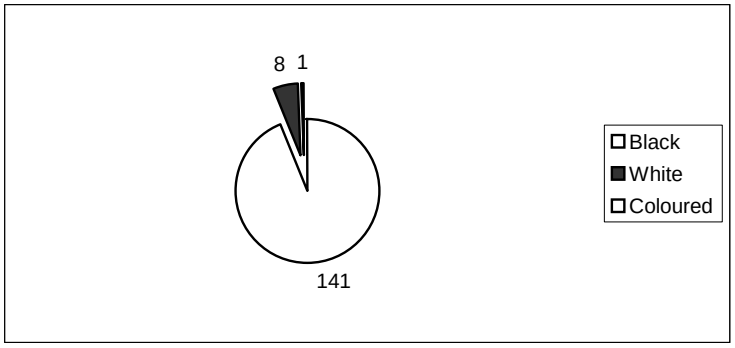

Figure 2.3: Distribution of the patients according to race.

2.1.2 PRE-OPERATIVE CLNICAL DATA

2.1.2.1 PREDISPOSING FACTORS

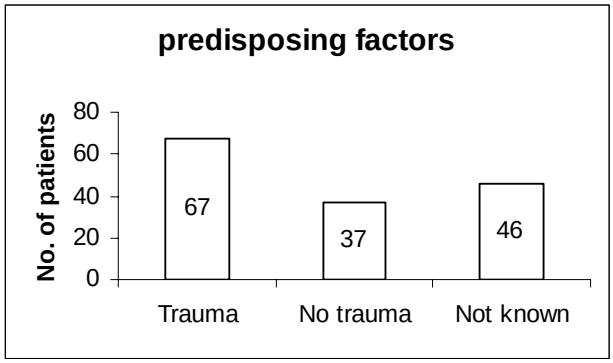

Figure 2.4:

The figure illustrates that trauma accounts for 44.6% as a cause for chronic subdural haematoma. The cause for trauma is demonstrated in the figure below.

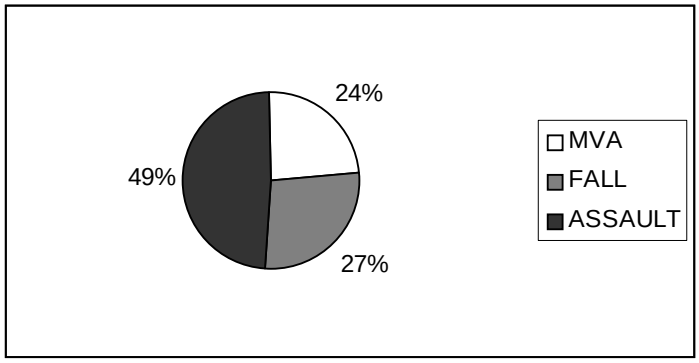

Figure 2.5: Distribution of the patients with trauma.

In trauma, assault accounts for 49% of cases followed by falls and motor vehicle accidents 27% and 24% respectively.

The aetiology of chronic subdural haematoma is identified in some cases as shown in the table below

Etiology	**No. of cases**
Trauma	**67**
Anticoagulation	**1**
Thrombocytopenia	**1**
Ventriculo-peritonial shunt	**5**
epilepsy	**6**
hypertention	**5**
Posterior fossa decompression	**1**
Total	**86**

Table 2.1: Aetiology of csdh

2.1.2.1 DURATION OF SYMPTOMS TO TREATMENT

Duration	**No. of patients**	**percent**
< 2 weeks	125	84.6
> 2 weeks- <1 month	17	11.49
> 1 month	6	4.05
Total	**148**	**100**

Table 2.2

2.1.2.2 CLINICAL FEATURES

Clinical presentations of chronic subdural haematoma are varied. They typically fall in to three categories: focal neurological deficit, features of raised intracranial pressure and alteration of

cognitive function. The presentation of chronic subdural haematoma in the elderly is different from the younger adults. The clinical presentations are shown in figure 2.6 and table 4.

Clinical presentation	<60 years	>60 years
Headache	**61**	**11**
Hemiparesis	**33**	**26**
Impaired consciousness	**33**	**16**
Confusion	**26**	**11**
Vomiting	**20**	**2**
Seizures	**14**	**3**
Aphasia	**13**	**3**
Dementia	**1**	**0**
Dizziness	**3**	**1**
Psychosis	**1**	**0**
Ataxia	**3**	**0**
Diplopia	**1**	**0**

Table 2.3: Clinical presentation according to age

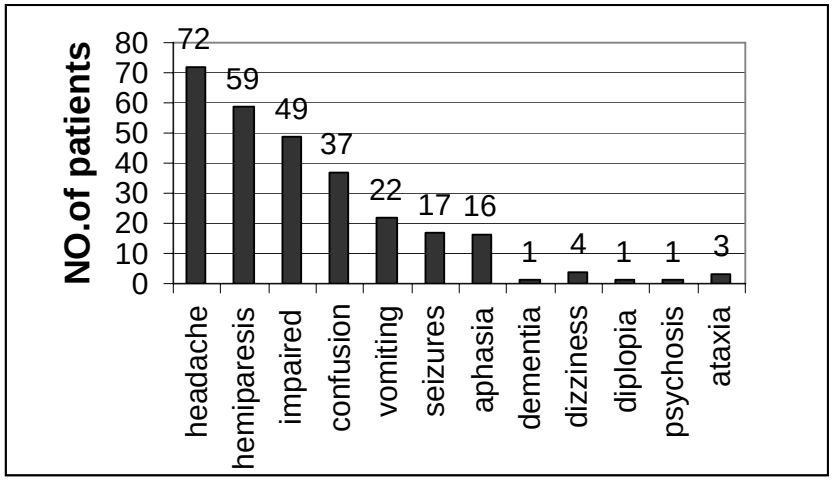

Figure 2.6: Clinical presentation of CSDH

2.1.2.4 NEUROLOGICAL GRADE

The neurological grading system of Markwalder is used in the study to evaluate the Pre-operative neurological status of the patients.

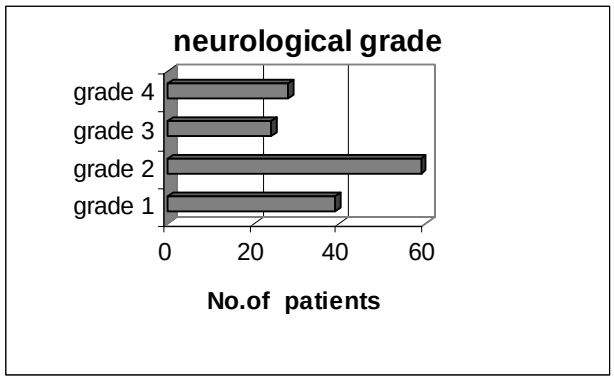

Figure 2.7: Distribution of patients according to Markwalder scale.

The most number of patients presented was in grade 2 (39.3%) and those who presented in Coma ie. grade 4 was 18.6%

2.1.2.5 PUPILS

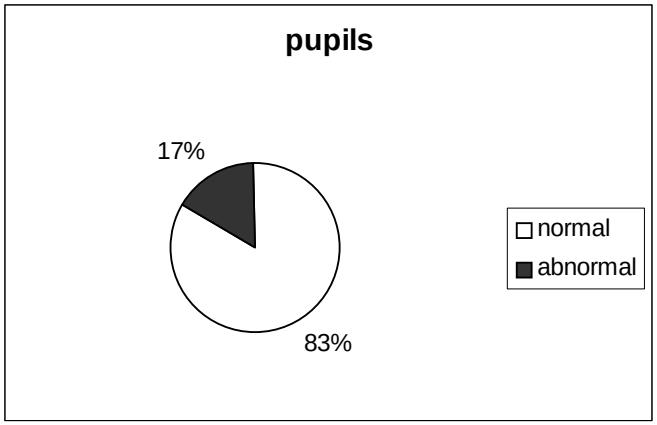

Figure 2.8

125 patients (83%) had normally reactive pupils and 25 (17%) had abnormal pupils.

2.1.2.6 C T SCAN FINDINGS

The diagnosis was made by CT scans in all cases. The CT scans of the brain were analysed and note was made of the following salient features.In150 cases (85%) had unilateral and the remaining(14.6%) had bilateral haematomas. Of all the unilateral 128 cases 56.6% the haematomas was noted on the left side and the remaining on the right side.

In 72 cases the intracranial pressure was raised which was assessed by the presence of midline shift,obliteration of basal cisterns and cortical sulci and the presence of brain herniation. In no cases infarct was noted on the scan.

Thickness of haematomas ranges from 0.5 cm to 5 cm.

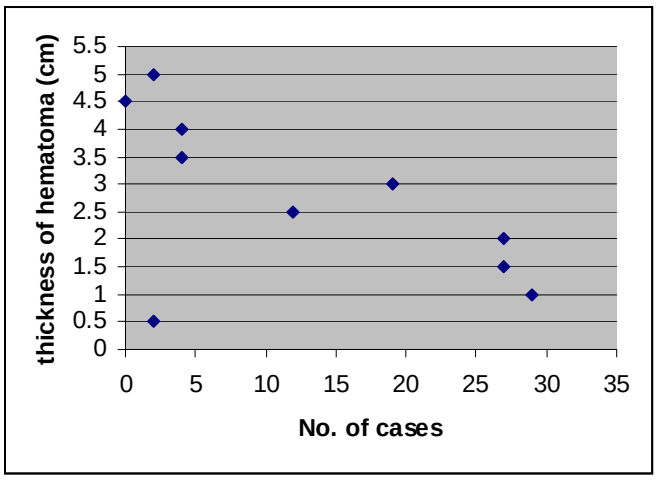

Figure 2.9

The above figure 2.9 shows thickness of haematoma in unilateral cases. In bilateral cases the total size of haematoma on both sides varies between 2 cms to 5 cms .

2.1.2.7 TYPE OF OPERATION

The standard operative procedure consisted of burr-holes evacuation in 73% without external drainage of the subdural space. Craniotomy as first treatment was used in 2% of the patients; 19%

were managed by subtemporal craniectomy as shown in (figure 2.10.)All patients receive prophylactic antibiotics by intravenous route for three doses.Epanutin was given to all patients post-operatively for three months as there is evidence that one third of patients with subdural haematoma will have seizure on presentation or during the first three months after presentation.

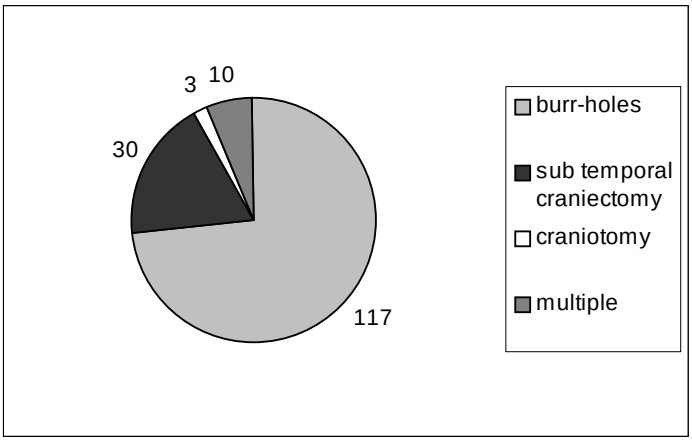

Figure 2.10 Distribution of various operations

2.1.3 POST-OPERATIVE CLINICAL DATA

2.1.3.1 SYMPTOMATIC RECURRENCE

Of 150 cases 7% had recurrences, of which three patients had craniotomy, three had subtemporal craniectomy and the rest had drainage of haematoma through the same burr- holes.

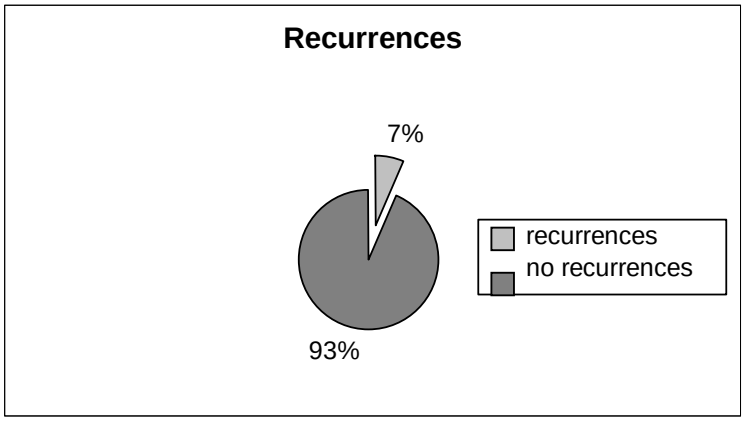

Figure 2.11

2.1.3.2 OUTCOME DATA

The patient's outcomes were determined according to the Glasgow outcome score (4). The following figure 2.12 indicates the number of patients falling into each category of the Glasgow

outcome score(1=death, 5=good recovery)

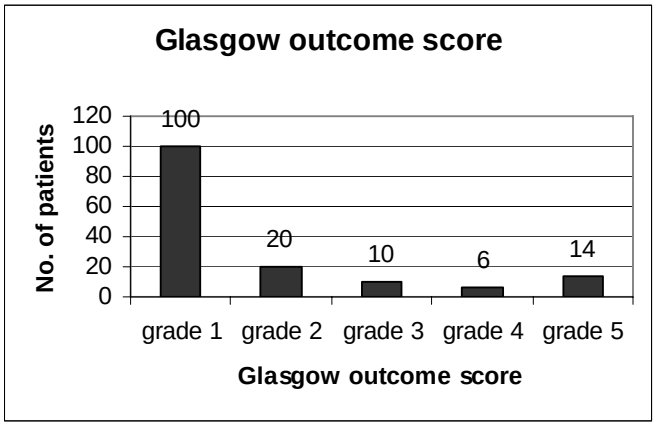

Figure 2.12 Glasgow outcome score categories versus number of patients Category.