

Evaluation and Interpretation of Factors Governing Fatal Traumatic Acute Subdural Haematoma

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Abstract

Background: Traumatic acute subdural haematoma (ASDH) remains one of the most fatal of all head injuries. Its fatality is governed by various factors. **Materials and Method:** Study of 101 cases of head injuries having a subdural hematoma with a definite history of trauma were carried during Sept 2011 to Aug 2013 in central morgue, SCB Medical College, Cuttack. Criteria examined were age, sex, volume, site, size, extension, form and character of ASDH. **Results:** The volume of fatal ASDH ranged from 15- 220 ml, having a male preponderance, with a highest peak of mean volume of 104.83 ml observed in between 71- 80 years of age. It is mostly attributed to road traffic accident (RTA) (86.87%), involving mostly frontal areas, usually fluid, blood in form, diffuse and frequently associated with subarachnoid haemorrhage (24.75%). **Conclusion:** Subdural haemorrhage has been always of a major significance in the absence of injury to the skull and brain. The haemorrhage in its form, location and amount is a determinant factor for the fatality. By post mortem evaluation of such haemorrhage in detail throws vital clues and information to the physician and surgeons to prevent such catastrophe in future patients.

Keywords: Acute subdural haematoma; RTA; Traumatic head injury.

Introduction

Head injury is the most common of all regional injuries and is a large contributor to mortality and morbidity throughout the ages also most important in forensic practice. Among Intracranial haemorrhages Subdural haemorrhage (SDH) is the 2nd most common form seen in head injury. Subdural haemorrhage is found in 26-36 % of serious head injury cases.[1,2] Seventy percent (70%) of all subdural haemorrhages occurs due to fall & assault, and 24% are due to vehicular accidents.[3] It is classified into three types according to the time of onset of symptoms

after the injury- Acute, Sub-acute, Chronic.

Acute Subdural haemorrhage is reserved for those in which haemorrhage occurs immediately or there is very rapid collection of blood in the subdural space which usually manifests within first 72 hours of the infliction of head injury. It arises mostly from rupture of large bridging veins, one of the cortical arteries and surface cerebral vessels and is known to be the marker of brain movement either of linear or angular motion. Such haemorrhage is a well- recognized fatal event in cases of injury in children. The mortality rate associated with acute SDH is around 60-80%.[4] The frequency of SDH, its form, state, amount along with area of distribution is said to be variable even with a fixed magnitude of force ending into either fatality or recovery.

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Materials & Methods

The study was carried during the period of September 2011 to August 2013 and total 2483

cases of head injuries were autopsied at the Central Morgue of SCB Medical College & Hospital, Cuttack. Out of 2483 only 101 cases, those had a head injury along with acute subdural haemorrhage with a definite history of trauma irrespective of the manner of infliction of injury to the head which was within three days at the time of death. A detailed post-mortem examination is conducted in each case as per Virchow's method. The volume, size, site and extension, and character of subdural hematoma are recorded. For the volume measurement of subdural hematoma, the hematoma is allowed to drain and the residual volume in the cranial fossa is removed with the help of a sponge. The collected hematoma is measured in a graduated volumetric flask. In case of firmly clotted hematoma, the measurement is done by displacement of a measured volume of water.

Results

A total of 101 cases having SDH arises out of traumatic head injury is taken for study having an age range of 5 yrs to 95 yrs, with an overall mean age of 41.84 years.

This study comprises of 85 males and 16 females of head injury cases with manifestations of acute subdural haemorrhage leading to death. The age range of male victims is from 19-95 years with a mean of 40.99 years, with a major peak in the 2nd decade with 28 (32.94%) cases. The age range of female victims is from 5-75 years with a mean of 46.38 years, with a major peak in the 3rd decade with 6 (37.5%) cases. The maximum incidence of SDH is observed between 21- 50 years, which constitutes 71 (71.28%) cases irrespective of sex, with a peak incidence of 28 (27.72%) cases

Table 1: Age and sex wise distribution of SDH cases

Age Range (years)	Sex wise distribution				Total no. of cases	Percentage (%)
	Male	Percentage of male (%)	Female	Percentage of females (%)		
0-10	0	0	1	6.25	1	0.99
11-20	3	3.53	0	0	3	2.97
21-30	28	32.94	0	0	28	27.72
31-40	19	22.35	6	37.5	25	24.75
41-50	16	18.82	3	18.75	19	18.81
51-60	6	7.06	4	25	10	9.90
61-70	8	9.41	0	0	8	7.92
71-80	4	4.71	2	12.5	6	5.94
>80	1	1.18	0	0	1	0.99
Total	85	100	16	100	101	100

Table 2: Volume of subdural haemorrhage in different age groups

Age range (years)	Volume of SDH		Total no of cases
	Range (ml) (15 ml to 220 ml)	Mean (ml)	
0-10	34	34.00	1
11-20	18-35	27.00	3
21-30	18-162	47.82	28
31-40	20-210	53.04	25
41-50	15-220	73.84	19
51-60	31-104	57.00	10
61-70	30-170	90.13	8
71-80	34-184	104.83	6
>80	55	55.00	1
Total		60.97	101