ORIGINAL ARTICLE

Examine the Risk Factors Associated with Chronic Subdural Hematoma in Minor Head Injury

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ABSTRACT

Objective: To determine the factors causing chronic subdural hematoma in patients following trivial head injury.
Study Design: Descriptive/observational
Place & Duration of Study: Department of Neurosurgery Unit-1, Sandeman Provincial Teaching Hospital Quetta from 1st January 2017 to 31st December 2017.
Methods: A total of 52 patients of either genders clinically diagnosed as chronic subdural hematoma due to minor head injury received surgical treatment were included in this study. Patient's ages were above 50 years. Detailed medical history, including age, sex, residency and causes of head injury were examined as a baseline characteristics. Risk factors associated to chronic subdural hematoma were recorded.
Results: Thirty nine (75%) patients were male while 13 (25%) were females. The age of 22 (42.31%) patients between 50 to 60 years, 26 (50%) patient had 61 to 70 years age and 4 (7.69%) patients had ages >70 years. Decreased level of consciousness was noticed in 14 (26.92%) while severe headache in 11 (21.15%) and loss of memory in 7 (13.46%) cases, Further, personality changes were seen in 10 (19.23%), motor deficit in 4 (7.69%) patients, aphasia in 6 (11.54%) patients. Hypertension was the most common risk factor associated to chronic subdural hematoma and rated 42.31% followed by diabetes mellitus and ischemic heart disease.
Conclusion: Hypertension followed by ischemic heart disease and risk of diabetes mellitus are common risk factors associated with chronic subdural hematoma.
Keywords: Risk factors, Chronic subdural hematoma, Head injury

INTRODUCTION

Chronic subdural hematoma (CSDH), a progressive collection of unabsorbed and liquefied hematoma in the subdural space, is one of the most common diseases requiring neurosurgical intervention.[1] Generally CSDH is considered a delayed manifestation of head trauma and is mostly encountered in older patients.[2-4] However, the presence of head trauma is only identified in 50–80% of patients with CSDH.[5-7]

The presence of head trauma is only identified in 50–80% of patients with CSDH.[8] Chronic subdulral hematoma has also involvement of predisposing factors, including antiplatelet/ anticoagulant therapy, a history of alcohol abuse, liver disease and renal disease with hemodialysis.[2,6,7] Various surgical techniques, such as twist-drill craniotomy, burrhole craniotomy, an endoscopic approach, and minimally-open or open craniotomy, have been introduced to treat symptomatic CSDH. Favorable outcomes have been reported in the main in terms of postoperative neurological performance.[9,10]

The present study was conducted for examining the risk factors that cause chronic hematoma after minor head trauma associated patients of elderly ages. This study may help in morbidity reduction and lowering mortality rate associated with CSDH and provides better treatment plan in future against CSDH cases.

MATERIALS AND METHODS

This descriptive/observational study was conducted at Department of Neurosurgery Unit-1, Sandeman Provincial Teaching Hospital Quetta from 1st January 2017 to 31st December 2017. Fifty two patients of both genders were included. These patients had clinically diagnosed for chronic subdural hematoma due to minor head injury and were receiving surgical treatment. Patient's age was >50 years. Detailed medical history, including age, sex, residency, causes of head injuries were were noted as a baseline characteristics. The diagnosis was made clinically by physical examination and confirmed by CT scan (brain). The type of chronic subdural hematoma was classified on the basis of density of blood with reference to brain parenchyma. Chronic subdural hematoma was also determined through CT (brain). The comparison of blood hypodensity against brain parenchyma was noted in CT parameters. Clot volume was calculated through Peterson formula. Patient's had severe head injuries causes to other neurological defects and previous surgical treatment of subdural hematoma was excluded. All the significant signs and symptoms associated to subdural hematoma were recorded. Risk factors associated chronic subdural hematoma was examined. The data was analyzed using SPSS 20. When p-value <0.05 was considered as significant.

RESULTS

There were 39 (75%) males and 13 (25%) females with age ranges between 50 to >70 years. Twenty eight (53.85%) patients had urban residency while 24 (46.15%) patients had rural residency. Etiology of head injury was noted as road traffic accidents, fall from height and others in 30 (57.69%), 13 (25%) patients and 9 (17.31%) patients respectively (Table 1).

Symptoms associated to chronic subdural hematoma were recorded. Decrease level of consciousness was found

in 14 (26.92%), severe headache in 11 (21.15%), loss of memory in 7 (13.46%), changes in personality in 10 (19.23%), motor deficit in 4 (7.69%) patients and aphasia in 6 (11.54%) patients. There were 44 (84.62%) patients had unilateral chronic subdural hematoma while 8 (15.38%) patients having bilateral chronic subdural hematoma (Table 2).

Hypertension was the most common risk factor associated to chronic subdural hematoma found in 22(42.31%) followed by ischemic heart disease in 16 (30.77%) patients, diabetes mellitus in 7 (13.46%) patients, arterial fibrillation in 5 (9.62%) patients and rheumatic heart disease in 2 (3.85%) patients respectively (Table 3).

Table 1: Demographic information of the patients

Variable	No.	%
Sex		
Male	39	75.0
Female	13	25.0
Age (years)		
50 – 60	22	42.31
61 -70	26	50
>70	4	7.69
Residency		
Urban	28	53.85
Rural	24	46.15
Etiology		
RTA	30	57.69
Fall from height	13	25
Other	9	17.31

Table 2: Symptoms associated to chronic subdural hematoma and types of subdural hematoma in all the patients

Characteristics	No.	%
Symptoms		
Un-consciousness	14	26.92
Severe Headache	11	21.15
Loss of Memory	7	13.46
Changes in personality	10`	19.23
Motor deficit	4	7.69
Asphasia	6	11.54
Types		
Unilateral	44	84.62
Bilateral	8	15.38

Table 3: Risk factors followed to chronic subdural hematoma

Risk factors	No.	%
Hypertension	22	42.31
Ischemic heart disease	16	30.77
Diabetes mellitus	7	13.46
Arterial fibirillation	5	9.62
Rheumatic heart disease	2	3.85

DISCUSSION

Many subdural hematoma begins as an acute hematoma and then starts a complex mechanism of inflammation, enzyme fibrinlysis, new blood vessel formation and blood clot liquefaction to form chronic subdural hematoma. Chronic subdural hematoma with mid line shift with presentation of headache, vomiting and neurological deficit should be operated in emergency for low complications and death rate.[11,12] In our study total 52 patients visited neurosurgical department clinically diagnosed to have chronic subdural hematoma after minor head injuries. Out of 52 patients 75% patients were males while rest 25% were females. These results shows similarity to other studies in which male patients population was high as 75 to 85% as compared to females.[13,14] The incidence of chronic subdural hematoma due to minor head injury in male population was high due to road traffic accidents and it rated 57.69% from all the patients. Some other studies regarding subdural hematomaafter minor injury illustrated that road traffic accidents was the most common cause of head injuries.[15,16]

In our study maximum patients were ages 50 to 70 years 92.31%. Symptoms associated to chronic subdural hematoma was recorded such as decrease level of consciousness found in 14 (26.92%), severe headache in 11 (21.15%), Loss of memory in 7 (13.46%), changes in personality in 10 (19.23%), motor deficit in 4 (7.69%) patients, aphasia in 6 (11.54%) patients. We found that low level of consciousness was the most common indication of chronic subdural hematoma. A study conducted by Azam et al[17] reported that decrease level of consciousness was the most common symptom of chronic subdural hematoma and rated 23.91%. In the present study severe headache was noticed as second most common symptom and found in 21.15% followed by loss of memory and change in personality and motor deficit.

The current study showed that hypertension was the most common risk factor found in 42.31% patients. Some other studies also shows the similarity to our study in which hypertension found to be frequent risk factor associated to chronic subdural hematoma after minor head injury.[18,19] Ischemic heart disease was the second most common risk factor and found in in 16 (30.77%) patients, diabetes mellitus in 7 (13.46%) patients, arterial fibrillation in 5 (9.62%) patients and rheumatic heart disease in 2 (3.85%) patients respectively. A study conducted by Berghauseret al[20] reported that diabetes mellitus and ischemic heart disease was the most common risk factors after hypertension.

CONCLUSION

Hypertension, ischemic heart disease and diabetes mellitus are the common risk factors associated to chronic subdural hematoma. Early diagnosis and better management may reduce the morbidity and mortality rate. Awareness about traffic rules is a mandatory requirement for health safety.

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