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Epidural Hematoma In Adults: A Descriptive Study

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ABSTRACT

An important complication of head trauma is acute epidural hematoma. In this study, we investigated clinical outcomes in patients with epidural hematoma and the prevalence of epidural hematoma in the referral hospital of Bandar Abbas-Iran. In this descriptive study conducted in 2013, medical records of 230 patients with epidural hematoma who were hospitalized in Shahid Mohammadi hospital of Bandar Abbas within 2011 to 2013 were studied. Exclusion criteria included information defect in medical records or inaccessibility to them for any reason. Data was collected using a checklist that included demographic information and clinical outcomes, medical information, and causing factors of head trauma. Collected data was entered in the SPSS software version 16, and used the descriptive statistical and correlation tests for analyzing. From 230 medical records were studied, 15 patients (7%) were females and 215 (93%) were males. The average age of patients was 27.2. In terms of medical interventions, 136 patients (59.1%) underwent surgery, and 94 patients (40.9%) were observed in the relevant wards. Of causing factors, 122 cases were motor accident, 25 cases were falling down, one case was due to knife injury, 45 cases were car accident, 6 cases were assault, and 131 cases were unspecified. Clinical outcome in 27 cases were (11.7%) death. Eventually, the prevalence of epidural hematoma among multiple trauma cases was calculated 4.34%. Based on the results of this study, the prevalence of epidural hematoma among multiple trauma cases was 4.34%, and totally, the clinical outcome in 11.7% of cases is death.

Keywords: Head Trauma – Epidural Hematoma – Multiple Trauma.

INTRODUCTION

Among all the organ trauma, head trauma due to its severe consequences such as death is considered more important [1, 2]. According to the statistics in USA, about 7.1 million people are seized to damages caused by cerebral trauma every year [3].

Cerebral hemorrhage is one of the most important and the most common complications related to the head trauma. Intradural hemorrhage and epidural hematoma are two important types of them [2]. Intradural hemorrhage divided into two groups: subdural and intracranial. Epidural hematoma, in fact, is one type of intracranial hemorrhage in which blood is accumulated in the space between the dura matter and the skull. Since dura also covers the spinal cord, epidural hematoma can also be detected in the spinal column. Epidural hematoma may be started spontaneously, but it is often caused trauma. This can be fatal since accumulated blood increases intracranial pressure, applies additional pressure on brain tissue, and causes brain shift which are life-threatening per se. In 1/3 of cases, head trauma leads to epidural hematoma [4]. Of these, a significant number (15-20%) are children. In comparison to adults, epidural hematoma caused by trauma is milder in children [5]. Since epidural hematoma is arterial, bleeding process is started quickly, in such a way that blood is accumulated within 6-8 hours after injury and reaches its maximum [6]. In the examination, fixed or dilated pupils are seen at the same side of head injury. Head trauma may also causes dysfunction of nerves 4 and 6 resulted in strabismus. Other symptoms include weakness of organs in opposite side of head trauma [7]. According to the studies previously done in Iran, the most common mechanism for creation of epidural hematoma is falling and head trauma caused by strife, while in young adults it is caused by traffic accident which leads Acceleration-Deceleration mechanism. Intracranial hemorrhage in not always life-threatening, as it can be uncomplicated. Life-threatening factors include midline shift, swelling of the brain, intracranial ischemia, and increasing intracranial pressure all which are seen critically ill patients [1, 8]. According to existing statistics, the incidence rate of injuries caused by brain trauma is 80-250 cases per 100,000 in rear. While this rate is much more in Europe and South Africa, and as it was mentioned, about 1/3 of cases resulted in epidural hematoma [4].

Since, there is no detailed information about prevalence rate of epidural hematoma in south of Iran, this study was conducted to investigate the prevalence of epidural hematoma in Bandar Abbas city from 2011 to 2013.

METHOD

In this descriptive and cross-sectional study which is done in Shahid Mohammadi hospital of Bandar Abbas in 2013, 230 medical records were studied. These medical records were available to researchers in collaboration with Medical Reports Department of the hospital, as well ethical considerations were observed. The population was all patients were hospitalized in the center with diagnosis of epidural hematoma. Exclusion criteria included information defect in medical records or inaccessibility to them for any reason. Data was collected by the use of a checklist created by the investigator. The first part of the checklist included demographic information (age and sex), and the second part consisted of medical history (surgical procedure, causing factors, and clinical outcomes). Collected data was entered in the SPSS software version 1, and because the data distribution was not normal, descriptive statistical tests such as Mann-whitney and Spearman Correlation were used to analyze data. Causing factors were classified based on ICD-10 category.

RESULTS

In this descriptive and cross-sectional study, 230 medical records were studied. In total, 5299 patients with initial diagnosis of multiple traumas were hospitalized in this center, of which 230 patient were finally diagnosed epidural hematoma. Of this number, 15 patients (6.5%) were female, and 215 (93.5%) were male. The average age was 27.44 in men group, and 23.87 in women group. Of 230 patients, 136 patients (59.1%) underwent surgery, and 94 patients (40.9%) were discharged with no need to surgery. Among all causing factors of epidural hematoma, motor accident was the most prevalent, as it allocated 122 (53.04%) of cases. Frequency of causing factors in terms of sex is available in table 1.

Table 1 (frequency of causes)

		Causes						Total
		Motor accident	Falling	Knife	Car accident	Unspecified	assault	
Gender	Female	1	5	0	5	4	0	15
	Male	121	20	1	40	27	6	215
Total		122	25	1	45	31	6	230

There was no significant difference in the frequency of causing factors between two sex groups ($p > 0.05$). Of patients who underwent surgery, 27 (11.7%) patients died, and 203 (86.3%) were discharged from hospital. Of patients who died, zero (0%) was female and 27 (11.7%) were male. There was a significant relationship between the number of deaths and sex ($p = 0.001$). The most important cause of death was motor accident as it allocated 66.66% (18 cases) of deaths. The frequency of causes of death is shown in table 2.

Table 2 (Cause of patient's death)

		Causes						Total
		Motor accident	Falling	Knife	Car accident	Unspecified	Assault	
Expire	Yes	18	1	0	5	2	1	27
	no	104	24	1	40	29	5	203
Total		122	25	1	45	31	6	230

CONCLUSION

Head trauma is one of the most important causes of death in many countries. Epidural hematoma is the acute complication of head trauma. However, some studies reported progressive epidural hematoma and/or chronic epidural hematoma after trauma. In this study, the most frequent cause of epidural trauma was motor accident. In the similar studies performed in Iran, traffic and vehicle accident were the most frequent cause of head trauma resulted in epidural hematoma. But in these studies, car accident allocated the most cases of traffic and vehicle accident [2, 8, 9]. In our study, the number of deaths caused by epidural hematoma in male was significantly more than female. Other studies with similar subject conducted in Iran also show the same results [2, 9, 10] indicating that men are more at the risk of head trauma and its complications. In our study, total average age of patients with epidural hematoma was 27.20 years old, while in the study of Tausky et al performed in Switzerland in 2008 the average age was 54 years old. The difference between mean ages in these studies indicates the most age group at the risk of epidural hematoma as a consequence of head trauma in our study are young adults [11]. Moreover, there was a reverse and significant relationship between age and the number of deaths (Pearson Correlation= 0.194, P value=0.003). In the study period the number of 5299 patients with multiple trauma were hospitalized in Shahid Mohammadi hospital of Bandar Abbas, the prevalence rate of epidural hematoma in these patients was 4.34%.

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