



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.2594092>Available online at: <http://www.iajps.com>

Research Article

**A RESEARCH STUDY TO ASSESS THE ASSOCIATION OF
ASSOCIATED RISK FACTORS OF BURR HOLE SURGERY
FOR REOCCURRENCE OF CHRONIC SUBDURAL
HEMATOMA**¹Dr. Humera Karim, ²Ayesha Yousaf, ³Hamna Iqbal¹WMO Surgimed Hospital, Lahore, ²THQ hospital Samundari, ³Government General Hospital GMabad Faisalabad.**Article Received:** December 2018**Accepted:** February 2019**Published:** March 2019**Abstract:**

Background: The incidence of chronic subdural hematoma (CSDH) is mostly found in elderly patients. In daily neurosurgical operation, the most frequently found entity is a chronic subdural hematoma. It is a common type of intracranial haemorrhage.

Objective: The objective of this study was to assess the prevalence of and associated factors of chronic subdural hematoma repeating after burr hole surgery.

Patients and Methods: The current study was arranged at Jinnah Hospital, Lahore (October 2017 to September 2018). The patients selected for this study were identified as CSDH. On carrying out computed tomography (CT), the identification was confirmed. Through hematoma evacuation and drainage by cranial bur hole, the disease was managed. Regular computed tomography (CT) one day after surgery, one week after surgery and two months after surgery was carried out in all the patients. In order to measure the repeating rate, results of before and after CT scan were compared. The value of P was (0.05) which was taken as significant. SPSS was used for data entry and assessment.

Results: The percentage of male and female was 72.64% and 27.36% respectively. The age of 78.31% of patients was under 70 years. 10.8% (12) patients were found with repetition of a chronic subdural hematoma after the burr holes craniotomy. Re-expansion of the brain after operation and age equal to 70 years were the factors responsible for this repetition. According to the results of CT Scan, CSDH as hypodense to cerebral parenchyma is dense and hyperdense were observed in 49.05%, 29.24% and 21.7% patients respectively.

Conclusion: The results showed that re-expansion of the brain after operation and age were the factors responsible for the repetition of chronic subdural hematoma.

Keywords: Chronic Subdural Hematoma (CSDH), Expansion, Brain, Surgery and Operation.

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Please cite this article in press Humera Karim et al., A Research Study To Assess The Association Of Associated Risk Factors Of Burr Hole Surgery For Reoccurrence Of Chronic Subdural Hematoma., Indo Am. J. P. Sci, 2019; 06(03).

INTRODUCTION:

The incidence of Chronic Subdural Hematoma (CSDH) is mostly found in elderly patients with an observed repetition rate of 2.3% to 33% [1, 2]. In daily neurosurgical operation, the most frequently found entity is Chronic Subdural Hematoma (CSDH). It is a common type of intracranial haemorrhage.

Head Trauma has been found as a cause of Chronic Subdural Hematoma (CSDH) in almost 50% of patients. Use of anticoagulant, alcoholism, coagulopathy, patients near falls and seizures are some other causes [3]. Formal craniotomy with the mastoidectomy of the subdural membrane and single large bur hole, two bur holes with or without subdural drain are various techniques used for management of CSDH [4]. Commonly, the treatment of CSDH is carried out by two bur holes. One is placed in the frontal region and the second in the parietal region. The subdural drain is also placed for one or two days with the irrigation of subdural space with normal saline [5]. Age, repeated traumas, anticoagulant management and re-expansion of the brain after the surgery is the factors associated with repetition of a subdural hematoma after surgery. Indications are upgraded considerably by the decompensation of Chronic Subdural Hematoma (CSDH) by bur holes surgery. This method is proved harmless and secure to most of the patients with reliable results after surgery [6]. The objective of this research was to assess the prevalence and associated factors of Chronic Subdural Hematoma (CSDH) after burr holes surgery.

PATIENTS AND METHODS:

The current study was arranged at Jinnah Hospital, Lahore (October 2017 to September 2018). The patients selected for this research were identified as CSDH. On carrying out Computed Tomography (CT), the identification was confirmed. Through hematoma evacuation and drainage by cranial burr hole, the disease was managed. The patients who were unsatisfied and who had an older record of surgery for CSDH were excluded from the research study. The questionnaire was fulfilled and a written agreement was signed by all participants before surgery.

Commonly, the treatment of CSDH is carried out by two burr holes. One is placed in the frontal region and second in the parietal region. The subdural drain is also placed for one or two days with the irrigation of subdural space with normal saline. Regular computed tomography (CT) one day after surgery, one week after surgery and two months after surgery was carried out in all patients. Before and after operation measurement was made related to subdural air accumulation, the density of the hematoma and re-

expansion of the brain. Then in order to find out risk factors and their repetition, the results of the above measurements were compared. If hematoma established after two days to three months after the burr holes craniotomy, the repetition was marked. SPSS was used for data entry and assessment. The patients were grouped on the basis of repetition and non-repetition of disorders. In order to examine any statistical dissimilarity in factors responsible for the disorder, Fischer's exact test was carried out. Repetition was marked when there is a collection of blood between dura matter and cerebral parenchyma after burr holes surgery on CT Scan after day two up to three months. Subdural air collection was considered with the jet-black spots between cerebral parenchyma and dura matter after the evacuation of hematoma on CT scan. When there exists space between dura mater and brain parenchyma on CT Scan, it was considered re-expansion of the brain. The value of P was under 0.05 which was taken as significant.

RESULTS:

Total patients enrolled for this research were 109. After the operation, three patients were subjected to death within one day. The assessment was made for the information of rest of patients who were 106. The percentage of male and females was 72.64% and 27.36% respectively. The age of 78.31% of patients was 70 years and the age of 21.69% of patients was less than 70 years. According to computed tomography (CT), CSDH was found on the left side, right side and bilateral in 51.88%, 34.98% and 13.10% respectively. Moreover, CSDH as hypodense to cerebral parenchyma, isodense and hyperdense were observed in 49.05%, 29.24% and 21.7% patients respectively. 12 patients (10.8%) patients were found with repetition of a chronic subdural hematoma after the burr holes craniotomy. In the current study, 83.33% males and 16.67 females were found with repeated chronic subdural hematoma after burr holes operation. Of these, 75% of patients were more or equal to seventy years and 25% were under seventy years of age. In 25% of patients, with re-expansion of the brain to its actual place, there observed repeating hematoma and repetition was not found in 95.84% patients. 41.66% and 17.70% of patients were found with subdural air accumulation after surgery with repeated CSDH and with no repetition respectively. In patients with repetition of disorders, anticoagulant drugs, alcoholism, neurosurgery and head injury were the causes in 5.23%, 4.16%, 17.7% and 72.91% patients respectively.

Table – I: Characteristics of Patients with Low Subdural Hematoma

Variable		Number	Percentage
Gender	Male	77	72.64
	Female	29	27.36
Age Group	Under 70 Years	23	21.69
	Above 70 Years	83	78.31
Hematoma Location	Left	55	51.88
	Right	33	34.98
	Bilateral	18	13.14
Hematoma Density on CT	Low	52	49.05
	Iso	31	29.24
	High	23	21.71

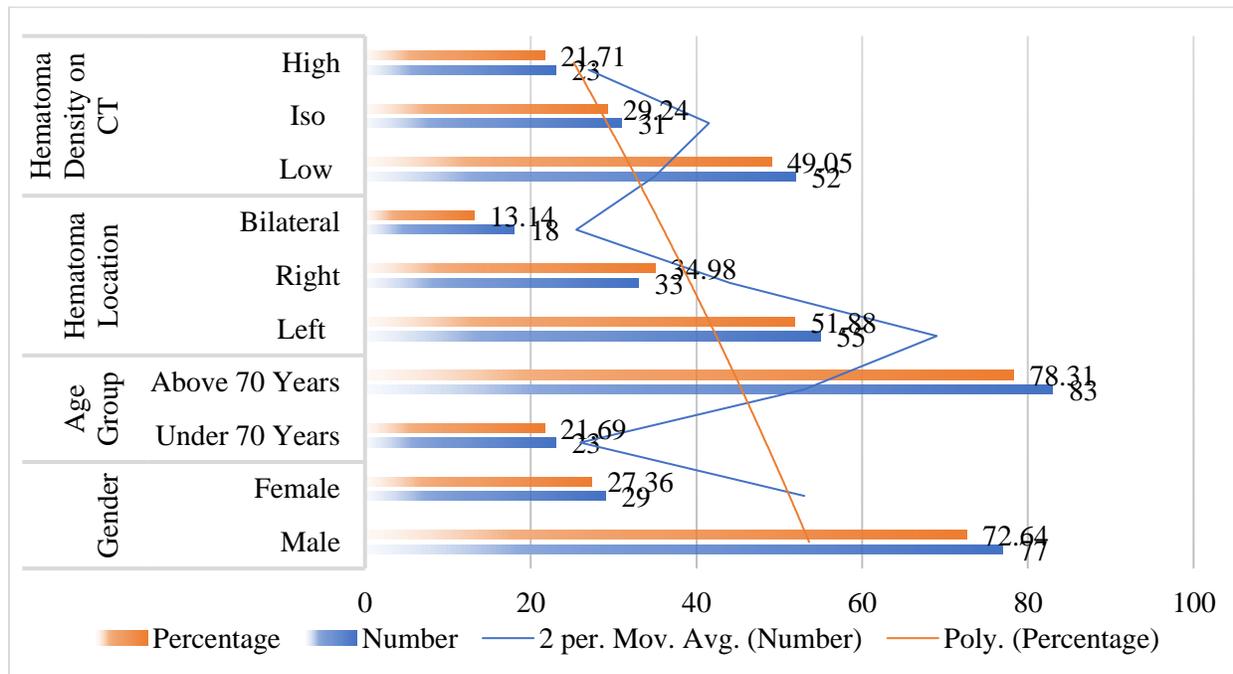
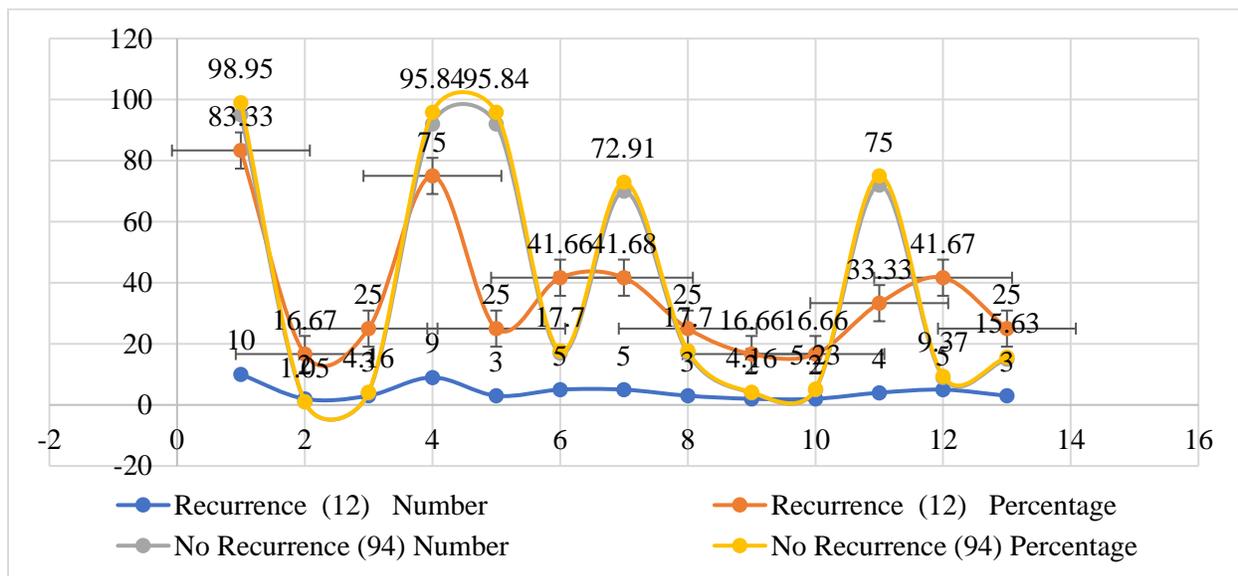


Table – II: Factors associated with the Patients with Low Subdural Hematoma

Factors		Recurrence (12)		No Recurrence (94)		P-Value
		Number	Percentage	Number	Percentage	
Gender	Male	10	83.33	95	98.95	0.9989
	Female	2	16.67	1	1.05	
Age	< 70 years	3	25	4	4.16	0.0289
	> 70 years	9	75	92	95.84	
Brain Re-Expansion	Brain's Re-expansion to Actual Place	3	25	92	95.84	0.0657

	Subdural Air Accumulation After Operation	5	41.66	17	17.7	
CSDH Causes	Head injury	5	41.68	70	72.91	NS*
	Neurosurgery	3	25	17	17.7	
	Alcoholism	2	16.66	4	4.16	
	Anticoagulant drugs	2	16.66	5	5.23	
CT Outcomes	Low density	4	33.33	72	75	
	Iso dense	5	41.67	9	9.37	
	Hyperdense	3	25	15	15.63	



DISCUSSION:

Repeated surgical treatment is required for a usually treatable condition called CSDH. It occurs between the range of 2.7% to 33% [2]. Closed drainage burr hole drainage and irrigation are the most commonly used methods for the management of CSDH. The percentage of males and females was 72.64% and 27.36% respectively. The age of 21.69% of patients was less than seventy years and the age of 78.31% of patients was seventy years. According to CT Scan, CSDH was found on the left side, right side and bilateral in 51.88%, 34.98% and 13.14% patients respectively. Moreover, CSDH as hypodense to cerebral parenchyma, isodense and hyperdense were observed in 49.05%, 29.24% and 21.7% patients respectively. After the burr holes operation, the incidence rate of chronic subdural hematoma was 10.8%. Our outcomes are similar to various other authors conducted at various time durations [6 – 8]. According to our research, re-expansion of the brain (P-value = 0.0381) and age (P-value = 0.0289) were the factors associated with repetition of hematoma.

These results are comparable to the results of Mori K et al. research [1]. Various other outcomes of our research are also comparable with studies conducted by Kong and Tugou et al. [9, 10]. The results of our research are restricted to certain levels. In order to find out the exact factors associated with the repetition of a chronic subdural hematoma after holes evacuation, there is a requirement of more research studies with a large sample size.

CONCLUSION:

The result of our research concluded that re-expansion of brain and age of the patient before and after the operation are the factors responsible for the repetition of a chronic subdural hematoma after burr holes evacuation.

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