ORIGINAL RESEARCH

Comparison of use of drain versus no drain in chronic subdural hematoma

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ABSTRACT

Background: One of the most frequent types of intra-cranial hematomas is chronic subdural hematoma. The present study was conducted to compare use of drain versus no drain in chronic subdural hematoma.

Materials & Methods: 46 chronic subdural hematoma cases of both genders were divided into 2 groups of 23 each. Group I was with drain patients who were treated by burr-hole craniostomy with closed-system drainage, and group II were without drain patients who were treated with burr-hole craniostomy without closed-system drainage. Pre- and post-operative CT scans was used for radiological evaluation. Complaints, co-morbidities, operative characteristics, recurrences and complications etc. was recorded.

Results: Group I had 13 males and 10 females and group II had 12 males and 11 females. Subdural fluid pressure was low in 3 and 4, medium in 15 and 13 and high in 5 and 6. Colour of subdural fluid was straw in 5 and 7, clear in 6 and 8 and mixture in 12 and 8. Brain expression was readily in 16 and 15, partial in 4 and 2 and none in 3 and 6 in group I and II respectively. The difference was significant (P< 0.05). Complaints were hemiparesis in 6 and 7, headache in 12 and 8, dementia in 11 and 10, vomiting in 8 and 16, seizures in 9 and 13 and diplopia in 2 and 4. Co-morbidities were alcohol abuse in 3 and 4, brain atrophy was seen in 1 and 2, CAD in 2 and 5, diabetes in 2 and 3, hypertension in 3 and 4, recurrence in 1 and 3. Complications were ICH in 1 and 2, seizures in 2 and 1 and residual hemeperesis in 1 and 3 in group I and II respectively.

Conclusion: If a subdural drain is placed following burr-hole drainage for chronic subdural hematoma compared to those who do not, the recurrence rate of chronic subdural hematoma is noticeably reduced. A subdural drain should always be inserted after burr-hole drainage since it lowers the recurrence rate in chronic subdural hematomawithout significantly increasing complications.

Key words: subdural drain, chronic subdural hematoma, seizures.

Introduction

One of the most frequent types of intra-cranial hematomas is chronic subdural hematoma (CSDH), which frequently affects older people. In the general population, its frequency is around 5/100,000/year, but it is higher in people over 70, where it is 58/100,000. The most efficient method of managing CSDH is generally agreed to be surgery. Craniotomies, twist drill craniostomies, burr-hole craniostomies, and other surgical procedures have been utilized for many years. A chronic subdural hematoma (SDH) is a type of brain injury characterized by the accumulation of blood between the surface of the brain and the dura mater, the tough outer membrane that surrounds the brain. This condition develops over a period of weeks to months, distinguishing it from an acute subdural hematoma, which occurs rapidly after a traumatic brain injury. Chronic subdural hematomas often result from head injuries, even seemingly minor ones, such as falls in elderly individuals or head bumps. The injury can lead to tiny tears in the blood vessels, causing blood to collect in the space between the brain and the dura. Recurrences are a serious issue that necessitate frequent subdural space rinses. After surgical evacuation, the reported recurrence rate varies from 9.2% to 26.5%. One of the various steps used to stop recurrences is inserting a subdural drain for a day or two. There are some possible side effects from this, such as the chance of pricking the cortex and creating an intracranial or subdural hematoma or a bacterial subdural empyema. The present study was conducted to compare use of drain versus no drain in chronic subdural hematoma.

Materials & Methods

The present study consisted of 46 chronic subdural hematoma cases of both genders. All gave their written consent to participate in the study. Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 23 each. Group I was with drain patients who were treated by burr-hole craniostomy with closed-system drainage, and group II were without drain patients who were treated with burr-hole craniostomy without closed-system drainage. Pre- and post-operative CT scans was used for radiological evaluation. Complaints of patients of chronic subdural hematoma at the time of admission, co-morbidities, operative characteristics, recurrences and complications etc. was recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I: Distribution of patients

Groups	Group I	Group II
Status	Drain	Without drain
M:F	13:10	12:11

Table I shows that group I had 13 males and 10 females and group II had 12 males and 11 females.

Table II: Operative characteristics

Parameters	Variables	Group I	Group II	P value
Subdural fluid pressure	Low	3	4	0.82
	Medium	15	13	
	High	5	6	
Colour of subdural fluid	Straw	5	7	0.71
	Clear	6	8	
	Mixture	12	8	
Brain expression	Readily	16	15	0.64
	Partial	4	2	
	None	3	6	

Table II, graph I shows that subdural fluid pressure was low in 3 and 4, medium in 15 and 13 and high in 5 and 6. Colour of subdural fluid was straw in 5 and 7, clear in 6 and 8 and mixture in 12 and 8. Brain expression was readily in 16 and 15, partial in 4 and 2 and none in 3 and 6 in group I and II respectively. The difference was significant ($P< 0.05$).

Graph I: Operative characteristics

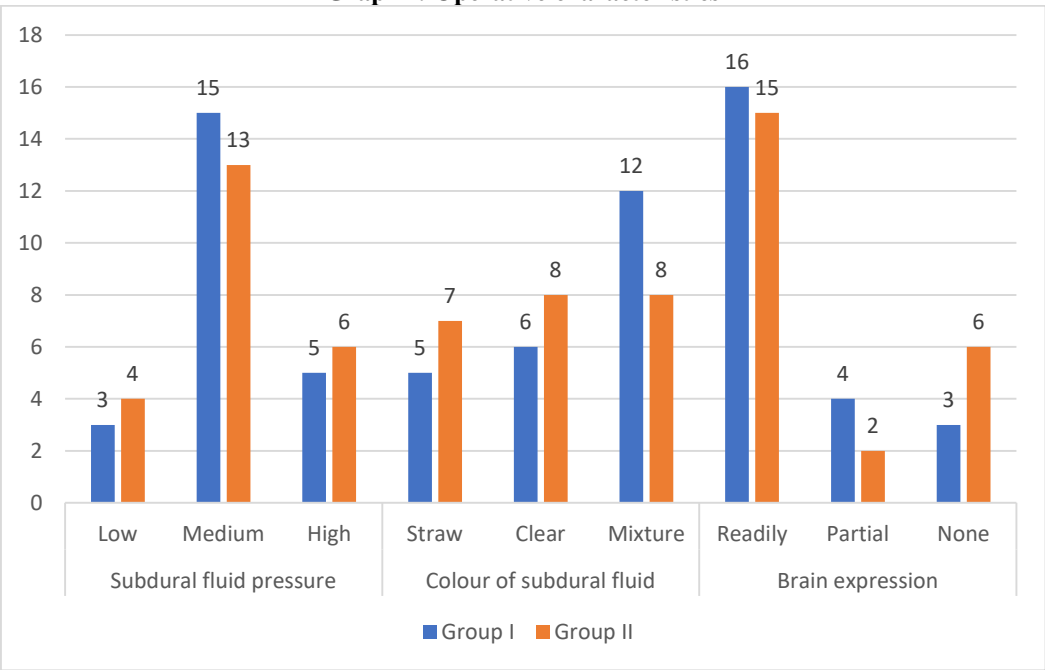

Table III: Assessment of parameters

Parameters	Variables	Group I	Group II	P value
Complaints	Hemiperesis	6	7	0.57
	Headache	12	8	
	Dementia	11	10	
	Vomiting	8	16	
	Seizures	9	13	
	Diplopia	2	4	
Co-morbidities	Alcohol abuse	3	4	0.68
	Brain atrophy	1	2	
	CAD	2	5	
	Diabetes	2	3	
	Hypertension	3	4	
Recurrence	Yes	1	3	0.05
	No	22	20	
Complications	ICH	1	2	0.92
	Seizures	2	1	
	Residual hemeperesis	1	3	

Table III shows that complaints were hemiparesis in 6 and 7, headache in 12 and 8, dementia in 11 and 10, vomiting in 8 and 16, seizures in 9 and 13 and diplopia in 2 and 4. Co-morbidities were alcohol abuse in 3 and 4, brain atrophy was seen in 1 and 2, CAD in 2 and 5, diabetes in 2 and 3, hypertensionin3and 4, recurrence in 1 and 3. Complications were ICH in 1 and 2, seizures in 2 and 1 and residual hemeperesis in 1 and 3 in group I and II respectively.

Discussion

Elderly people frequently have CSDH, and treating them remains difficult. The symptoms of chronic subdural hematoma can be subtle and may not be immediately apparent. They can also vary depending on the size and location of the hematoma. Common symptoms include gradual onset of headache, confusion or changes in behavior, memory problems, difficulty with balance and coordination, nausea and vomiting, weakness or numbness on one side of the body and seizures in some cases.The present study was conducted to compare use of drain versus no drain in chronic subdural hematoma. We found that group I had 13 males and 10 females and group II had 12 males and 11 females. Singh et al[10] found that among 200 patients fulfilling the eligibility criteria, 100 each were assigned to "drain group" (drain inserted into the subdural space following BHD) and "without drain group" (subdural drain was not inserted following BHD) using random allocation software. The primary end point was recurrence needing re-drainage up to a period of 6 months from surgery. Recurrence occurred in 9 of 100 patients with a drain, and 26 of 100 patients in without drain group (P = 0.002). The mortality was 5% in patients with drain and 4% in patients without drain group (P = 0.744). The medical and surgical complications were comparable between the two study groups.

We found that subdural fluid pressure was low in 3 and 4, medium in 15 and 13 and high in 5 and 6. Colour of subdural fluid was straw in 5 and 7, clear in 6 and 8 and mixture in 12 and 8. Brain expression was readily in 16 and 15, partial in 4 and 2 and none in 3 and 6 in group I and II respectively. We found that complaints were hemiparesis in 6 and 7, headache in 12 and 8, dementia in 11 and 10, vomiting in 8 and 16, seizures in 9 and 13 and diplopia in 2 and 4. Co-morbidities were alcohol abuse in 3 and 4, brain atrophy was seen in 1 and 2, CAD in 2 and 5, diabetes in 2 and 3, hypertension in 3 and 4, recurrence in 1 and 3. Complications were ICH in 1 and 2, seizures in 2 and 1 and residual hemeperesis in 1 and 3 in group I and II respectively. Santarius et al[11] have reported recurrence rate of 9.3% in drain group, and 24% in without drain group of CSDH. The limitation the study is small sample size.

Conclusion

Authors found that if a subdural drain is placed following burr-hole drainage for CSDH, compared to those who do not, the recurrence rate of CSDH is noticeably reduced. A subdural drain should always be inserted after burr-hole drainage since it lowers the recurrence rate in CSDH without significantly increasing complications.

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