

Research Article

Chronic Subdural Haematoma in Patients Over 90 Years: Outcome after Surgical Treatment

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Received: August 20, 2014; Accepted: September 12, 2014; Published: September 17, 2014

Abstract

Purpose: This retrospective study evaluates outcomes in patients over 90 years of age who underwent surgery for cSDH.

Methods: A retrospective review of clinical and surgical records of patients operated at our center between 2008 and 2012 for chronic subdural haematoma was performed.

Results: Sixteen patients aged 90 years or older underwent surgery for cSDH at our center between 2008 and 2012; ten were man and six were woman. Two patients required a new surgery for recurrence of hematoma. Two patients died in the postoperative period, five patients were discharged home, seven went to rehabilitation and two come back to a nursing home.

Conclusion: This study shows that surgery in elderly patients can improve neurological status despite medical conditions.

Keywords: Chronic Subdural Haematoma; Elderly Patients; Neurosurgery

Introduction

According to the latest figures from the Eurostat the Italian population of people aged 85 years or older is predicted to increase from 1.8 [1] to 5.6 [2] million by the year 2060, when the Italian population should total 65 million [2]. Given the incidence of Chronic Subdural Haematoma (cSDH), that has been reported as 127.1/100.000/year in patients over 80 years old [3], physicians will consequently be faced with an increasing number of very elderly patients presenting with this pathology. A lot of studies about cSDH in the elderly have been published [4-10,11,12] but the most of them consider as elderly people aged 65 or over. This retrospective study was therefore designed to evaluate the outcome after surgical treatment in aged over 90 years with cSDH and to investigate if there are any factors that can be used to contraindicate the surgical treatment.

Patients and Methods

Institutional review board approval for a retrospective study was obtained. Records of all patients who underwent surgery for cSDH in our institution from January 1, 2008, to December 31, 2012, were screened by age. Data regarding age at time of surgery, gender, therapies, medical co-morbidities and clinical presentation were extracted. Patient race was not recorded, although the majority of patients were known to be Caucasian.

Outcome was measured by Markwalder grading system (MGS) [13] and Glasgow outcome score (GOS) [14]. Survival times were calculated in months from the time of initial surgery until death or the end of follow-up in December 2013. The length of survival was compared with the expected length of survival for the Italian based on life tables obtained from the National Statistics Institution (ISTAT). Data were analyzed by the Kaplan Meier method with log rank significance tests.

Results

From 2008 till 2012 sixteen patients aged 90 years or older underwent surgery at our institution for cSDH. The mean patient age was 92.1 years (range 90 - 101 years, SD 2,49). There were ten men and six women. Two patients were admitted from a nursing home, eleven from home and in three patients their residence was unknown.

At the time of admission, nine patients were under anticoagulant or antiaggregant because of cardiac pathologies or ictus cerebri. In these patients, the therapy was stopped until a CT evaluation in the follow-up; if no signs of rebleeding or recurrence were reported, therapy was restarted.

Five patients (31.25%) had a history of head injury.

As showed in Table 1 the most common clinical presentation was hemiparesis (eight cases), followed by disorientation and dysphasia/aphasia (three cases).

CSDHs were located on the right side in three patients (18.75%), on the left side in eleven patients (68.75%) and bilaterally in two patients (12.5%).

Due to age of patients coexisting diseases at the time of admission were present the majority of the cases; arterial hypertension (seven patients) and cardiac arrhythmia (seven patients) were the most

Table 1: Characteristic and clinical presentation of patients with cSDH.

| | |
|------------------------------------|---|
| Gender n (%) | Male 10(62.5), Female 6 (37.5) |
| Hematoma localitation n (%) | Left 11(68.75), Right 3 (18.75), Bilateral 2(12.5) |
| Therapy n (%) | Anticoagulant 2(12.5), Antiaggregant 7(43.75) |
| Head trauma n (%) | Yes 5(31.25), No 11(68.75) |
| Presenting symptoms n (%) | Hemiparesis 8(50), disorientation 3(18.75), aphasia 3(18.75), dementia 2(12.5), consciousness disturbante 2(12.5), gait disturbante 1(6.25), headache 1(6.25) |

Table 2: Medical conditions at the time of admission.

| | Arterial hypertension | Diabetes mellitus | Cardiac arrhythmia | Cancer | Dementia | Renal failure | Myocardial infarction | Ictus cerebri |
|-------|-----------------------|-------------------|--------------------|---------|----------|---------------|-----------------------|---------------|
| N (%) | 7(43.75) | 3(18.75) | 7(43.75) | 1(6.25) | 1(6.25) | 1(6.25) | 1(6.25) | 1(6.25) |

common, followed by diabetes mellitus (three patients). Table 2 summarizes the medical conditions of the patients at time of admission.

Surgery was performed under local anesthesia; the haematoma was evacuated through a burr whole craniotomy and a subdural drainage was continued for a 1 or 2 days after the operation. Patients with bilateral cSDH received bilateral surgery in one sitting. All patients underwent a CT scan the day after surgery. If the result was satisfactory, a new CT scan was performed after three weeks. If no signs of recurrence were detected and the patient was asymptomatic, he was considered cured. In the case of an asymptomatic radiological recurrence the patient was kept on radiological follow up with CT scans every month.

We compared neurological status at the admission and at the time of discharged with Markwalder grading system (MGS). The 81.25% (n=13) of patients had a MGS of 2 at the admission and 3 patients (18.75%) had a MGS of 3. At the time of discharge eleven patients improved (MGS 0 in eight patients, MGS 1 in three patients, MGS 2 in three patients). Outcome was also measured outcome with Glasgow outcome scale (GOS). A good outcome (GOS 4) was obtained in four patients (25%); ten patients (62.5%) had a GOS of 3. Five patients were discharged home, seven went to rehabilitation, two come back to a nursing home and two patients died in the postoperative period. Table 3 summarizes the clinical outcome.

A total of four patients required additional surgery for recurrence of the hematoma.

Median survival was 36.9 months after surgery. The longest survivor was still alive 69 months after surgery.

Discussion

Chronic subdural hematoma (cSDH) is a common entity in neurosurgery, mainly affecting elderly patients. In literature there are a lot of studies considering patients aged over 65 years, but data regarding patients aged 90 or more are very few.

We measured outcome with GOS and our median GOS was 3. In a previous studies, Gelabert-Gonzalez et al. reported a good GOS in 86.1% of patients older than 80 years [6], Fukui reported an improvement of clinical conditions in 89% of patients with cSDH after surgery [5], Stippler et al. that consider patients older than 90 shows a median GOS of 2 [15].

In our study, at hospital discharge eleven patients (68.75%) showed an improvement in neurological function.

Another relevant factor for outcome is the discharge disposition.

Table 3: Outcome and discharge.

| | |
|------------------------------|---|
| Initial MGS score N (%) | 0 = 0, 1 = 0, 2 = 13 (81.25), 3 = 3(18.75), 4= 0 |
| Discharge MGS score N (%) | 0 = 8 (50), 1 = 3(18.75), 2 = 3(18.75), 3 = 0, 4 = 0 |
| Discharge GOS N (%) | 1 = 2(12.5), 2 = 0, 3 = 10(62.5), 4 = 4(25), 5 =0 |
| Discharge localitation N (%) | Home 5(31.25), rehabilitation 7(43.75), nursing home 2(12.5), death 2(12.5) |

Two patients come back to nursing home; five went to home and seven to rehabilitation; only five patients return to an independent life.

Patients with multiple comorbidities survived as long as patients with only a few or no medical comorbidities. This is not surprising given that individuals with much serious comorbidity are likely to die before age 90 years. In addition, one is unlikely to operate on obviously clinically unstable or very ill patients; basically, the group of nonagenarians for whom surgical treatment for cSDH would be considered is a self-selected group of relatively robust individuals.

We report a post-operative mortality rate of 12.5% (n=2), similar with other studies. Asghar et al. reported 17% mortality after surgery [7].

Our study confirms the despite coexisting diseases and old age surgical evacuation is a reasonable choice for cSDH even in extremely aged patients.

Conclusion

Our study shows that surgical evacuation of cSDH has an indication in patients aged over 90 years, despite their medical conditions. Age is simply one factor of many that may affect health status.

This growing section of the population can safely undergo surgery for cSDH and should not be relegated to other less effective treatments through fear of affecting their survival.

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