

# Chronic sub-dural hematomas: twist drill craniostomy with a closed system of drainage, for 48 hours only, is a valuable surgical treatment

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**Abstract** Twist drill craniostomy with closed drainage system for 48-hour duration is an effective treatment of chronic subdural hematomas.

**Keywords** Chronic subdural hematomas · Traumatology · Anticoagulant/antiaggregant treatments

## Introduction

Chronic subdural hematomas remain a frequent pathology to deal with in current neurosurgical practice. A variety of technical modalities are in use among the neurosurgical community. It appears from a meta-analysis of 48 articles published between 1981 and 2001—from recent literature review, by Weigel et al. [1] and Ibrahim et al. [2] that twist drill with a closed drainage system and open craniotomy have overall similar rate of effectiveness, recurrences and complications. However, analysis of results, publication per publication, shows huge disparities between the various reports. Because of less invasiveness, we started to use the twist drill method 5 years ago. Due to lack of available data from the literature on how long the closed system of

drainage has to stay in place, we decided to carry out a prospective randomized study comparing results (effects/complications) between two drainage durations: 48 h and 96 h.

## Material and methods

The series includes 65 patients operated on between May 2005 and May 2007; population averaged at 75 years of age. Surgery consisted of a twist drill craniostomy associated to a closed drainage system (Integra Neurosciences, reference 951-303). Details are given in a recent paper published elsewhere [2]. The prospective randomized study compared the results between two drainage durations: 48 h (group I = 35 patients) and 96 h (group II = 30 patients). The groups' characteristics were similar.

## Results

### Overall results

Patients were clinically improved up to their previous (normal) status in 85% of the series. Mortality occurred in five patients (i.e., 7.60%) due to neurological (two patients) or general (three patients) complications. The rate of “recurrences” necessitating reoperation amounted to 15.30%. These results are well in the range of the similar published series and reviewed [2].

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### Comparison according to drainage duration

Comparison shows that clinical improvements at discharge were of similar rate: 85.70% for group I and 84.60% for group II. Insufficient evacuations and true recurrences requiring reoperation were 5.70% and 11.40%, respectively, for group I and 3.30% and 10%, respectively, for group II. These differences have no statistical significance ( $p = 0.80$  and  $p = 0.60$ , respectively). But the rate of overall complications was less in group I (10.70%) than in group II (26.90%) ( $p = 0.03$ ) with respective mortality rates of 3.80% and 11.40% ( $p = 0.01$ ).

### Discussion

The main originality of our work [2] is that it was a prospective randomized study comparing the results between

two drainage durations which are 48 h (group I = 35 patients) and 96 h (group II = 30 patients). These data allow the following conclusions: (a) the minimally invasive twist drill with a closed drainage system is valuable in comparison with the open craniotomy procedures [2], and (b) a short (48 h) duration of drainage is as effective as and significantly less risky than longer duration drainage (96 h in this study).

### References

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