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Letter to the editor

Is there any benefit from short-term perioperative antiepileptic prophylaxis in patients with chronic subdural haematoma?

Dear Editor

We read with interest the timely article [1]:

Battaglia F, Plas B, Melot A, Noudel R, Sol JC, Roche PH, Lubrano V. Is there any benefit from short-term perioperative antiepileptic prophylaxis in patients with chronic subdural haematoma? A retrospective controlled study. Neurochirurgie 2015 Oct;61(5):324-8. doi: 10.1016/j.neuchi.2015.06.004. Epub 2015 Aug 6.

A recent systematic review, incorporating the study by Battaglia et al., concluded that there is a paucity of reliable data regarding the frequency of postoperative seizure with CSDH [2]. In that review, postoperative seizure frequency varied widely from 1–23% [2]. As noted, whilst Battaglia et al. found no significant difference between 'Treatment' and 'No treatment' groups regarding anticonvulsant prophylaxis (ACP) [1], Sabo et al. found significantly lower seizure frequency with ACP (1/42 [2.4%] vs. 16/50 [32%], $P < 0.001$) [3]. Unfortunately, however, Won et al. did not emphasize that, in the underpowered study by Sabo et al. [3], postoperative seizure frequency appeared to differ markedly from that in the available literature in both the 'Treatment' and 'No treatment' groups. This was not the case with Battaglia et al.'s study.

As noted by Won et al., most CSDH studies were retrospective, with a small sample size [2]. Certainly, sample size in the study by Battaglia et al. led to insufficient power to establish a null effect with confidence, although Cohen effect-size analysis could have helped validate this [2]. Notwithstanding, pre-determined power is lacking in all CSDH studies because of the paucity of data for 'No ACP treatment' arms. Thus, even in large studies [4], one of which was recent and prospective [5], the proportion of patients receiving ACP was completely unrecorded. In consequence, no reliable data were available to help Battaglia et al. achieve reasonable power.

This brings us to an apparently unique virtue of the data-set reported by Battaglia et al.: one arm contains a potentially ever-growing 'No ACP treatment' group. This is because, whilst typically covertly, most neurosurgeons seem to 'default' to ACP in CSDH. Battaglia et al. used their null result to justify a placebo-controlled double-blind prospective randomized clinical trial (PRCT) of ACP in CSDH [1]. However, PRCTs are expensive and time-consuming, and may be unrepresentative if the recruitment percentage is, as is frequently the case, low. Even worse, if Battaglia et al. are correct that seizure frequency is comparable in 'No treatment' and 'Treatment', then a very large sample size will be required to establish a null effect. A similar situation prevails in determining 'Treatment' effects in CSDH recurrence, where sample sizes of 750 have been deemed necessary in multiple centers [6]. Notably, in Kolias's PRCT, ACP was not specified, and the paucity of data continues.

Robust data on ACP in CSDH have recently become available in a prospective single-center consecutive cohort in which all patients received ACP [7]. In this study, despite ACP, 6/114 (5%) suffered at least one postoperative seizure [7]. This validates the 'Treatment' seizure frequency observed by Battaglia et al. (i.e., 4.2%) [1], in contradiction to that reported by Sabo et al. (2.4%) [3]. Notwithstanding, the potential dilemma of the 'No treatment' group remains. Importantly, data for seizures in the general population suggest that seizure frequency may be higher in patients aged over 75 years [8]: i.e., of similar age to those with CSDH [5,7]. Whether this effect will be sufficient to counter the results of Battaglia et al. requires to be determined.

Battaglia et al. should therefore continue follow-up in their seemingly unique 'No ACP treatment' group, to achieve a larger sample size. If this confirms their preliminary findings, then 'No ACP treatment' may be empirically justified, without need for a PRCT. However, if the postoperative seizure frequency is higher with 'No treatment', then the results could be used to help power a subsequent placebo-controlled double-blind PRCT of ACP in CSDH. Administering ACP unnecessarily to an aged group, 83% of whom have pre-existent co-morbidities [7], and 47% suffer postoperative morbidity [7], with peers living 12 years longer [9], is unjustifiable.

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Disclosure of interest

The author declares that he has no competing interest.

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