DECSA trial

Chronic subdural hematoma (CSDH) is a common disease with a rapidly rising incidence due to increasing age and widespread use of anticoagulants. Surgical intervention by burr hole craniotomy (BHC) is the current standard practice for symptomatic patients, but associated with complications, a chronic subdural hematoma recurrence rate of up to 30%, and increased mortality. Dexamethasone (DXM) therapy is, therefore, used as a non-surgical alternative but is considered to achieve a lower success rate. Furthermore, the benefit of DXM therapy appears much more deliberate than immediate relief from BHC. Lack of evidence and clinical equipoise among caregivers prompts the need for a head-to-head randomized controlled trial. The objective of this study was to compare the effect of primary DXM therapy versus primary BHC on functional outcomes and cost-effectiveness in symptomatic patients with CSDH.

In a multicenter, open-label, controlled, noninferiority trial, Miah et al. randomly assigned symptomatic patients with chronic subdural hematoma in a 1:1 ratio to a 19-day tapering course of dexamethasone or to burr-hole drainage. The primary endpoint was the functional outcome at 3 months after randomization, as assessed by the score on the modified Rankin scale (range, 0 [no symptoms] to 6 [death]). Noninferiority was defined by a lower limit of the 95% confidence interval of the odds ratio for a better functional outcome with dexamethasone than with surgery of 0.9 or more. Secondary endpoints included scores on the Markwalder Grading Scale of symptom severity and on the Extended Glasgow Outcome Scale.

From September 2016 through February 2021, we enrolled 252 patients of a planned sample size of 420; 127 were assigned to the dexamethasone group and 125 to the surgery group. The mean age of the patients was 74 years, and 77% were men. The trial was terminated early by the data and safety monitoring board owing to safety and outcome concerns in the dexamethasone group. The adjusted common odds ratio for a lower (better) score on the modified Rankin scale at 3 months with dexamethasone than with surgery was 0.55 (95% confidence interval, 0.34 to 0.90), which failed to show noninferiority of dexamethasone. The scores on the Markwalder Grading Scale and Extended Glasgow Outcome Scale were generally supportive of the results of the primary analysis. Complications occurred in 59% of the patients in the dexamethasone group and 32% of those in the surgery group, and additional surgery was performed in 55% and 6%, respectively.

In a trial that involved patients with a chronic subdural hematoma and that was stopped early, dexamethasone treatment was not found to be non-inferior to burr-hole drainage with respect to functional outcomes and was associated with more complications and a greater likelihood of later surgery. (Funded by the Netherlands Organization for Health Research and Development and others; DECSA EudraCT number, 2015-001563-39.) [1)].

Consecutive patients with a CSDH with a Markwalder Grading Scale (MGS) grade 1 to 3 were randomized to treatment with DXM or BHC. The DXM treatment scheme was 16 mg DXM per day (8 mg twice daily, days 1 to 4) which is then halved every 3 days until a dosage of 0.5 mg a day on day 19 and stopped on day 20. If the treatment response is insufficient (i.e. persistent or progressive symptomatology due to insufficient hematoma resolution), additional surgery can be performed. The primary outcomes are the functional outcome by means of the modified Rankin Scale (mRS) score at

3 months and cost-effectiveness at 12 months. Secondary outcomes are quality of life at 3 and 12 months using the Short Form Health Survey (SF-36) and Quality of Life after Brain Injury Overall Scale (QOLIBRI), hematoma thickness after 2 weeks on follow-up computed tomography (CT), hematoma recurrence during the first 12 months, complications and drug-related adverse events, failure of therapy within 12 months after randomization and requiring intervention, mortality during the first 3 and 12 months, duration of hospital stay and overall healthcare and productivity costs. To test the non-inferiority of DXM therapy compared to BHC, 210 patients in each treatment arm are required (assumed adjusted common odds ratio DXM compared to BHC 1.15, the limit for inferiority < 0.9). The aim was to include a total of 420 patients in 3 years with an enrolment rate of 60%.

The present study should demonstrate whether treatment with DXM is as effective as BHC on functional outcomes, at lower costs.

TRIAL REGISTRATION:

EUCTR 2015-001563-39 . Date of registration: 29 March 2015 [2)]

[1)]
Miah IP, Holl DC, Blaauw J, Lingsma HF, den Hertog HM, Jacobs B, Kruyt ND, van der Naalt J, Polinder S, Groen RJM, Kho KH, van Kooten F, Dirven CMF, Peul WC, Jellema K, Dammers R, van der Gaag NA; DECSA Collaborators. Dexamethasone versus Surgery for Chronic Subdural Hematoma. N Engl J Med. 2023 Jun 15;388(24):2230-2240. doi: 10.1056/NEJMoa2216767. PMID: 37314705.

[2)]
Miah IP, Holl DC, Peul WC, Walchenbach R, Kruyt N, de Laat K, Koot RW, Volovici V, Dirven CMF, van Kooten F, Kho KH, den Hertog HM, van der Naalt J, Jacobs B, Groen RJM, Lingsma HF, Dammers R, Jellema K, van der Gaag NA; Dutch Subdural Hematoma Research Group (DSHR). Dexamethasone therapy versus surgery for chronic subdural haematoma (DECSA trial): study protocol for a randomised controlled trial. Trials. 2018 Oct 20;19(1):575. doi: 10.1186/s13063-018-2945-4. PubMed PMID: 30342554.