External lumbar cerebrospinal fluid drainage occlusion

Incidence rates of EVD occlusion vary between 19 and 47% [1) 2) 3)].

One dedicated study on EVD occlusion found that a small catheter inner diameter (1.5 mm versus 1.9 mm) was significant risk factor for permanent EVD occlusion, with three times higher odds [4)].

In the study, of Arts et al. only 1.5-mm diameter catheters were used. Using a wider catheter seems to have no effect on the number of EVD-related hemorrhages [5)]

Moreover, the clinical relevance of EVD-related hemorrhage is questionable [6)] Therefore, using a 1.9-mm EVD catheter could reduce our permanent occlusion rate and seems to have no disadvantages regarding EVD-related hemorrhage.

Occlusion was registered as a complication if drain reimplantation was needed.

External lumbar cerebrospinal fluid drainage complications were divided into complications with a direct relation to the external CSF drain, which means drain dislodgement, drain occlusion, and meningitis and complications that could not be directly related to the external cerebrospinal fluid drain referred to as medical complications.

The median time between the last drain placement and occlusions of 5 days (range 1–20).

One hundred and forty drains were implanted in 100 aSAH patients. In total, 112 complications occurred in 59 patients. Thirty-six complications were drain-related and 76 were medical complications. The most common complication was infection (n = 34). Drain dislodgement occurred 16 times, followed by meningitis (n = 11) and occlusion (n = 9). A Poisson model showed that the mean number of complications raised by 2.9% for each additional day of drainage (95% CI: 0.6-5.3% p = 0.01).

Complications are common in patients with aneurysmal subarachnoid hemorrhage of which 32% are drain-related. A correlation is present between the drainage period and the number of complications. Therefore, reducing the drainage period could be a target for further improvement of care [7)].

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