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Retrospective observational study on the timing of aneurysm surgery in The Netherlands

Nieuwkamp et al., performed a retrospective observational study on the timing of intracranial aneurysm surgery in The Netherlands over a two-year period.

In eight hospitals they identified 1,500 patients with an aneurysmal subarachnoid hemorrhage. They were subjected to predefined inclusion criteria. We included all patients who were admitted and were conscious at any one time between admission and the end of the third day after the haemorrhage. We categorised the clinical condition on admission according the World Federation of Neurological Surgeons (WFNS) grading scale. Early aneurysm surgery was defined as operation performed within three days after onset of subarachnoid haemorrhage; intermediate surgery as performed on days four to seven, and late surgery as performed after day seven. Outcome was classified as the proportion of patients with poor outcome (death or dependent) two to four months after onset of subarachnoid haemorrhage. We calculated crude odds ratios with late surgery as reference. We distinguished between management results (reconstructed intention to treat analysis) and surgical results (on treatment analysis). The results were adjusted for the major prognosticators for outcome after subarachnoid haemorrhage.

They included 411 patients. There were 276 patients in the early surgery group, 36 in the intermediate surgery group and 99 in the late surgery group. On admission 78% were in good neurological condition (WFNS I-III). MANAGEMENT

Overall, 93 patients (34%) operated on early had a poor outcome, 13 (36%) of those with

intermediate surgery and 37 (37%) in the late surgery group had a poor outcome. For patients in good clinical condition on admission and planned for early surgery the adjusted odds ratio (OR) was 1.3 (95% CI 0.5 to 3.0). The adjusted OR for patients admitted in poor neurologicalcondition (WFNS IV-V) and planned for early surgery was 0.1 (95% CI 0.0 to 0.6). SURGICAL RESULTS: For patients in good clinical condition on admission who underwent early operation the adjusted OR was 1.1 (95% CI 0.4 to 3.2); it was 0.2 (95% CI 0.0 to 0.9) for patients admitted in poor clinical condition. CONCLUSIONS: In this observational study we found no significant difference in outcome between early and late operation for patients in good clinical condition on admission. For patients in poor clinical condition on admission outcome was significantly better after early surgery. The optimal timing of surgery is not yet settled. Ideally, evidence on this issue should come from a randomised clinical trial. However, such a trial or even a prospective study are unlikely to be ever performed because of the rapid development of endovascular coiling [1)].

1)
Nieuwkamp DJ, de Gans K, Algra A, Albrecht KW, Boomstra S, Brouwers PJ, Groen RJ, Metzemaekers JD, Nijssen PC, Roos YB, Tulleken CA, Vandertop WP, van Gijn J, Vos PE, Rinkel GJ. Timing of aneurysm surgery in subarachnoid haemorrhage–an observational study in The Netherlands. Acta Neurochir (Wien). 2005 Aug;147(8):815-21. PubMed PMID: 15944811.