

Intrathecal Nicardipine for Treatment of Cerebral Vasospasm after Aneurysmal Subarachnoid Hemorrhage

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Introduction

The purpose of this study was to review our institution's experience with intrathecal (IT) nicardipine delivered through an external ventricular drain (EVD) for the treatment of cerebral vasospasm.

Methods

A retrospective chart review was performed from June 2012 to December 2016 of patients with aneurysmal SAH. Patients were categorized as having received standard therapy (ST) alone or standard therapy plus IT nicardipine (ITN). Primary endpoint was mRS at latest follow up. Secondary endpoint included max TCD values, ICU stay, ventriculitis, and need for CSF diversion. A subgroup analysis of patients with severe vasospasm (MCA > 200 cm/s) was also performed.

Results

A total of 247 patients (225 ST vs 22 ITN) were included. The ITN group had significantly worse H&H score (3.68 vs 2.77, p = 0.001) and Fisher grade (3.68 vs 3.22, p=0.002). Additionally, an increased percentage of ITN group were surgically clipped (73% vs 41%, p=0.009).

The ITN group had significantly higher max values in the MCA (191 vs 113, p<0.001). Ventriculitis rate was similar between groups (4.55% vs 1.33%, p=0.25). ICU stay (17.86 vs 10.53 days, p<0.001), and rate of shunting (31.82% vs. 9.78%, p=0.002) was significantly higher. Finally, there was no difference in the mRS (3.23 vs. 2.48, p=0.11) or mean follow up between the groups(9.9 vs. 9.6 months, p=0.89).

The severe vasospasm subgroup analysis had 32 patients (19 ST vs 13 ITN). Max TCD values, Lindegaard Ratio, ventriculitis rate, shunt rate, mRS and mean follow up time were not significantly different between the two groups.

Conclusions

Intrathecal nicardipine administered through an external ventricular drain does not appear to provide any benefit to the patient in this single institution retrospective review.

Learning Objectives

By the conclusion of this session, participants should be able to understand the role of intrathecal nicardipine in the treatment of cerebral vasospasm.

References

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