Desmopressin for intracerebral hemorrhage

Mengel et al. investigated the hemostatic efficacy of combined desmopressin (1-deamino-8-D-arginine vasopressin) and platelet transfusion in reducing hematoma expansion in acute, spontaneous intracerebral hemorrhage under antiplatelet therapy.

Single-center, nonrandomized study, performed between 2006 and 2014 in a Tertiary University Hospital of Tuebingen.

Adult patients with intracerebral hemorrhage under antiplatelet treatment and follow-up CT at 24 ± 12 hours were included. Exclusion criteria included other intracerebral hemorrhage causes, anticoagulation, coagulopathy, or immediate surgery after baseline-CT.

Treatment with IV 1-deamino-8-D-arginine vasopressin (0.4 µg/kg) + platelet transfusion (2 U) within 60 minutes of intracerebral hemorrhage under antiplatelet treatment diagnosis on brain imaging.

Primary outcome was relative hematoma expansion from baseline to follow-up CT. Secondary outcomes included secondary intraventricular hemorrhage or hydrocephalus upon follow-up CT, thromboembolic events before discharge, and the 3-month functional outcome (assessed by modified Rankin Scale). One-hundred forty patients were included, 72 treated versus 68 controls. Times of symptom-onset-to-baseline-CT (hr) (median [interquartile range]: 3 [4] vs 5 [5]; p = 0.468) and follow-up CT (26 [18] vs 19 [12]; p = 0.352) were similar between groups. No between-group differences of total intracerebral hematoma expansion (%) (median [interquartile range]: 8.5 [12.4] vs 9.1 [16.5]; p = 0.825), intraparenchymal (10.7 [23.1] vs 9.2 [20.7]; p = 0.900), and intraventricular hematoma expansion (14.5 [63.2] vs 6.1 [40.4]; p = 0.304) were noted. Among patients with hematoma expansion greater than or equal to 33% compared with baseline, 16 (52%) received treatment versus 15 (48%) controls. The occurrence of hematoma expansion greater than or equal to 33% was similar between groups (p = 0.981). Rates of secondary intraventricular hemorrhage, hydrocephalus, and thromboembolic events were similar between groups. Treatment with 1-deamino-8-D-arginine vasopressin + platelet transfusion was not associated with the 3-month functional outcome (adjusted odds ratio, 1.570; 95% CI, 0.721-3.419; p = 0.309).

In line with the randomized Platelet Transfusion Versus Standard Care After Acute Stroke Due to Spontaneous Cerebral Hemorrhage Associated With Antiplatelet Therapy trial, our results suggest no hemostatic efficacy of early platelet transfusion in intracerebral hemorrhage under antiplatelet treatment. Contrary to results of preclinical and clinical no intracerebral hemorrhage studies, adjunct 1-deamino-8-D-arginine vasopressin showed no benefit in limiting hematoma expansion or improving functional outcome [1)].

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Mengel A, Stefanou MI, Hadaschik KA, Wolf M, Stadler V, Poli K, Lindig T, Ernemann U, Grimm F, Tatagiba M, Ziemann U, Poli S. Early Administration of Desmopressin and Platelet Transfusion for Reducing Hematoma Expansion in Patients With Acute Antiplatelet Therapy Associated Intracerebral Hemorrhage. Crit Care Med. 2020 Apr 16. doi: 10.1097/CCM.0000000000004348. [Epub ahead of print] PubMed PMID: 32304415.