Spontaneous Intracerebral Hemorrhage During Administration of Alemtuzumab for Multiple Sclerosis: A Case Series

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Objective: To report five cases of spontaneous intracerebral hemorrhage (ICH) that occurred during the initial week of alemtuzumab administration for MS.

Background: One well-known ICH due to immune thrombocytopenia occurred during the Phase 2 CAMS223 study 19 months after alemtuzumab, and another ICH was reported 27 months after alemtuzumab with normal platelet count. ICH has not been reported during the initial week of alemtuzumab administration.

Design/Methods: We retrospectively identified five cases of spontaneous ICH that occurred during the initial week of alemtuzumab administration from four MS centers. Patient characteristics, infusion center records, and pertinent diagnostic studies were reviewed, including blood pressure trends throughout the infusion week and platelet counts pre- and post-alemtuzumab.

Results: All five patients were females ages 38-49 with RRMS of 8-21 years duration and exposure to ≥2 previous DMTs. None had a history of bleeding disorder, stroke, ICH, hypertension, or aneurysm. No unusual side effects occurred during the infusion. In each case, spontaneous ICH occurred after leaving the infusion center on Day 3, 4, or 5 of alemtuzumab. 4 of 5 ICHs were basal ganglia and one was lobar, suggesting hypertension as the etiology. In 4 of 5 patients, blood pressure trended upward throughout the infusion week, with increases in mean SBP of 18, 22, 24, and 57mmHg on the final infusion day compared to Infusion Day 1 (≥20% above baseline). Platelet counts decreased by ≥30% in each patient (mean -40.1%) on day of ICH compared to pre-alemtuzumab; 3 of 5 patients were mildly thrombocytopenic (100,000-150,000 x 10^9/L).

Conclusions: Rising SBP throughout the infusion week was the only harbinger of ICH in these five patients with spontaneous ICH during alemtuzumab administration. Mild thrombocytopenia may have contributed. An increase in mean SBP of ≥20mmHg or ≥20% above baseline during the infusion week should prompt concern for elevated ICH risk during alemtuzumab administration.