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901.HEALTH SERVICES AND QUALITY IMPROVEMENT - NON-MALIGNANT CONDITIONS

Treatment of Critical Bleeding Events in Patients with Immune Thrombocytopenia: A Systematic Review

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Background: Intracranial hemorrhage and other critical bleeds in adults and children with immune thrombocytopenia (ITP) represents a medical emergency; however, evidence-based treatment protocols are lacking. To inform a clinical practice guideline, we performed a systematic review of treatments for critical bleeding in patients with ITP.
Methods: We conducted literature searches in four electronic databases: Ovid MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and PubMed. Eligible studies included randomized controlled trials, observational studies, case series, or case reports that enrolled patients with ITP who received one or more interventions for the management of critical bleeding and reported any outcome. We reported the worst critical bleed per patient. Where possible, we described the effects of each of the following interventions (alone or in combination with other treatments) on mortality, platelet count response, bleeding, and disability: IVIG, corticosteroids, platelet transfusions, urgent splenectomy, and TPO receptor agonists (TPO-RAs). We used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to evaluate the certainty of the evidence.

Results: Our initial screen yielded 14,134 studies, of which 42 were eligible (Table 1). These studies reported on 79 patients including 41 children (median age = 9 years), 19 adults (median age = 54 years), and 19 (24.1%) with age unknown. 34 (43%) were females, 23 were males, and 22 were sex unknown. The majority of critical bleeds were ICH (n=66); others were gastrointestinal bleeding (n=4), ocular bleeding (n= 1), and intraperitoneal bleeding (n=1).
Either alone or in combination, patients received IVIG (n=40), corticosteroids (n=37), platelet transfusion (n=19), TPO-RA (n=7), and splenectomy (n=7). There were 35 unique combinations of treatments reported. The most common interventions were IVIG alone (n=18), corticosteroids+IVIG (n=11), corticosteroids+platelet transfusion (n=4), corticosteroids alone (n=4), and corticosteroids + IVIG + platelet transfusion (n= 3).
Mortality was reported in all 42 studies (n=79), platelet count response (complete or minimal) was reported in 22 studies (n=33), bleeding resolution was reported in 17 studies (n=20), and disability, defined as neurological sequelae or altered mental state, was reported in 15 studies (n=32) (Table 2).
Corticosteroids vs. no corticosteroids: 8/12 patients who received corticosteroids achieved complete platelet count response compared to 10/21 patients who did not receive corticosteroids (complete platelet count response: 66.7% vs. 47.6%).Disability was reported in 6/24 patients who received corticosteroids and 3/8 patients without corticosteroids (disability: 25% vs. 37.5%).
IVIG vs. no IVIG: 7/40 patients who received IVIG died, and 11/39 patients who did not receive IVIG died (mortality: 17.5% vs. 28.2%).
Platelet transfusion vs. no platelet transfusion: 7/8 patients treated with platelet transfusion achieved complete platelet count response compared to 11/25 patients not treated with platelet transfusion (complete platelet count response: 87.5% vs. 44%).
*Splenectomy vs. no splenectomy:*4/5 patients treated with splenectomy achieved complete platelet count response compared to 14/28 patients without splenectomy (complete platelet count response: 80% vs. 50%).
TPO-RA (eltrombopag or romiplostim) vs. no TPO-RA: 3/7 patients who received TPO-RA died, and 15/72 patients who did not receive TPO-RA died (mortality: 42.9% vs. 20.8%).
Inferences on mortality, bleeding resolution, platelet count responses, and disability were highly uncertain due to the very low quality of the evidence. Limitations of this review include potentially missing data on interventions prior to critical bleeds and reporting bias in primary studies.
Conclusions: Studies reporting the effectiveness of interventions for the treatment of critical bleeding are lacking. Corticosteroids, IVIG, platelet transfusion, TPO-RA, and splenectomy often administered in combination have been used, but the quality of the evidence is very low.

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Figure 1

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