

Bleeding news



Patient blood management guideline for adults with critical bleeding.

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In this edition of **bleeding news** we discuss the latest **Australian guidelines** on PBM in adult patients with critical hemorrhage.

To assess the quality of the evidence, the authors used the GRADE system—Grading of Recommendations, Assessment, Development and Evaluation,— and, to draft the guidelines, they used AGREE—Appraisal of Guidelines for Research and Evaluation.

The accuracy with which they have assessed the quality of the evidence is remarkable, leading in some cases to different recommendation degrees to American, European, or Spanish guidelines.

RECOMMENDATIONS:

1. In the case of **patients with critical bleeding**, institutions should have a multidisciplinary **MTP** (Strong Recommendation). All international guidelines, including the Spanish ones (HEMOMAS II), agree with this degree of recommendation.
2. In **patients with critical bleeding** requiring the activation of MTPs, the early and frequent measurement of the following parameters is recommended: **temperature, pH, ionic Ca, Hb, PLQ, TP, INR, rTTPA, and fibrinogen** (Strong Recommendation). All international guidelines, as well as HEMOMAS II, agree with this degree of recommendation.
3. In **patients with critical bleeding**, high transfusion ratios of **pRBC:FFP:PLT** may be beneficial, although there is not enough evidence to recommend 1:1:1 ratios over 2:1:1 ratios (Weak Recommendation). Most international guidelines, including HEMOMAS II, agree with this degree of recommendation.
 - a. Monitoring **fibrinogen levels** is also required, either through viscoelastic tests or conventional coagulation tests. On this issue, HEMOMAS II recommends the use of viscoelastic tests over conventional tests to guide the administration of fibrinogen in traumatic critical bleeding.
4. In **patients with critical bleeding**, the administration of at least 1 unit of FFP for each 2 pRBCs is recommended, and at least one PLT pool for each 8 pRBCs administered (Weak Recommendation). Most international guidelines, including HEMOMAS II, make no reference to these ratios, but to the ones recommended in the previous section.

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- a. Supplementing **fibrinogen with 3-4 grams** whenever necessary.
 - b. **PCC, 25-50 UI/Kg**, to revert the effect of warfarin.
5. In **patients with critical bleeding**, it is suggested over routine use of **recombinant factor VII** (Weak Recommendation). In HEMOMAS this was considered as a Moderate Recommendation.
 6. In **trauma** patients with critical bleeding, early use of **tranexamic acid** is recommended as part of MTPs (Weak Recommendation). Most international guidelines, including HEMOMAS II, consider this as a Strong Recommendation. Australian authors considered that the decrease in mortality due to the administration of tranexamic acid is too low to be appointed a Strong Recommendation, taking into account the low mortality rate of critical hemorrhages caused by trauma in Australia.
 - a. There is not enough data to recommend the administration of **tranexamic acid** in gastrointestinal bleeding.
 7. In **obstetric** patients with critical bleeding, early administration of **tranexamic acid** should be considered within MTPs (Weak Recommendation). HEMOMAS II did not include recommendations on obstetric bleeding, but half of the international guidelines recommend with a higher degree the administration of tranexamic acid.
 8. The use of **viscoelastic tests** may be beneficial in patients with critical bleeding, but they reckoned there was not enough evidence to recommend them. Anyway, they do mention that, if they are used, it should be within an algorithm and an MTP. In trauma critical hemorrhage, most international guidelines, including HEMOMAS II, increase the degree of recommendation of viscoelastic tests to guide transfusion within MTP algorithms.

In conclusion, many international guidelines have been published with the goal of optimizing the prognosis of patients with critical hemorrhage, but choosing the appropriate guideline will very important depending on the mechanism causing the hemorrhage and the geographical area where we are working.

Abbreviations. PBM: Patient Blood Management. MTP: Massive Transfusion Protocol. Hb: Hemoglobin. PLT: Platelets. PT: Prothrombin Time. INR: International Normalized Ratio. APTTR: Activated Partial Thromboplastin Time Ratio pRBCs: Packed Red Blood Cells. FFP: Fresh Frozen Plasma. PCC: Prothrombin Complex Concentrate