TRANFUSION GUIDELINES IN THE ICU

PRBC Transfusion - 2023 AABB Guidelines

Restrictive strategy for patients who are hemodynamically stable

- Consider transfusion when the hemoglobin is <7 g/dL
- Clinicians may choose a different threshold in the following conditions:
    - Cardiac surgery 7.5 g/dL
    - Preexisting cardiovascular disease 8 g/dL
    - Orthopedic surgery 8 g/dL
    - Acute MI 8 to 10 g/dl
        - Although AABB did not provide a recommendation for or against a liberal or restrictive transfusion threshold for patients with acute MI, based on other societies guidelines and a more recent study, the MINT trial NEJM December 2023, restricting transfusion to Hb <8 g/dL in acute MI appeared safe.

Acute MI – ACS

- Previous RCTs showed inconsistent results; the largest suggested restricting transfusion to Hb <8 g/dL in acute MI appeared safe, but the trial had a wide confidence interval and was far from conclusive.
- More recent study, the MINT trial NEJM December 2023
    - Multinational RCT including USA with almost no exclusion criteria resulting in a real-world study.
    - 3506 patients with acute myocardial infarction (ST- or non-ST-elevation MI) and anemia randomized to either a liberal transfusion threshold (Hb <10 g/dL) or a restrictive threshold (permitted at Hb < 8 g/dL, strongly recommended at Hb < 7 g/dL).
    - The liberal transfusion strategy:
        - Received more than three times as much blood with an average of 2.5 units transfused per patient but there was no increased rate of heart failure symptoms.
        - It did not significantly reduce the risk of recurrent MI or death at 30 days, however, potential harms of a restrictive transfusion strategy cannot be excluded.
        - The recurrence myocardial infarction or death, although did not reach a statistical significance, were lower in liberal strategy group.

Platelets Transfusion Guidelines

Platelets target threshold for specific conditions

- Spontaneous intracerebral hemorrhage: <100.000.
- Multiple trauma or traumatic brain injury: <100.000.
- Severe bleeding of any source: <50.000.
- Bleeding that is not considered severe or life-threatening: <30.000.

Prophylactic platelets transfusion

- To prevent spontaneous bleeding: <10.000

    - Consider increasing the threshold to <20.000 in patients at risk factors for bleeding (critically ill pts).
- Neurosurgery or ophthalmic surgery: <100.000
- Major surgery or high risk IR procedure: <50.000.
- Minor surgery of low risk IR procedure: <30.000.
- Venous central lines placement: <20.000.
    - Both tunneled and not tunneled.
- Lumbar puncture: <40.000.
- Percutaneous liver biopsy <50.000.
    - Consider trans-jugular biopsy if the platelet count is below this level
- Insertion/removal of epidural catheter: <80.000.

Miscellaneous

- Renal failure: avoid platelet transfusion
    - Infused platelets will acquire a dysfunction similar to the patients' own platelets.
    - Platelet transfusion may result in alloimmunization.
    - Prior to urgent procedures including renal biopsy
        - Ensure potential risk factors for bleeding are corrected:
            - Anemia (iron and erythropoietin)
            - Uremia (dialysis).
        - Consider desmopressin (DDAVP) pre-procedure.
- Thrombotic microangiopathies: only use platelet transfusions to treat life-threatening bleeding.
- Do not give platelet transfusions routinely prior to removal of PICCs or tunneled CVCs.

Platelets and FFP transfusion in Cirrhosis – SIR guidelines

Because of the physiology of rebalanced hemostasis of anticoagulation and procoagulation in cirrhosis abnormal screening coagulation test results , such as prolonged INR and thrombocytopenia, do not correlate with bleeding in this patients.

As a result of consensus opinion the SIR recommends the following thresholds:

- Low risk procedures.
    - Do not monitor INR.
    - Target platelets >20.000 and fibrinogen >100.
- High risk procedures.
    - Target INR <2.5, platelets >30.000 and fibrinogen >100.