

*Alternatives to Allogeneic Blood  
Transfusion*

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۱۸/۹/۹۸

# Importance:

- Given the risks associated with component transfusion, it stands to reason that alternative therapies to reduce allogeneic exposure have been sought

- A.Meticulous surgical technique(MICRO}
- preoperative and intraoperative protocols designed to reduce red cell mass loss :
  
- 1.hypotensive procedures
- 2.surgical tourniquets
- 3. preoperative anemia correction with human EPO
- 4.hemostatic adjuncts (eg, surgical, thrombin, procoagulant gels, platelet gel)
- 5. lower hemoglobin transfusion triggers are standard in the modern armamentarium to reduce banked blood use

# EPO

- 1.treatment of chemotherapy-induced anemia is well established.
- 2.critically ill patients and in those with multiple injuries.
- 3.Patients with suboptimal initial hemoglobin levels undergoing elective surgery can also be treated with rHuEPO, ( preoperatively or postoperatively)

# Recombinant factor VIIa

- rFVIIa is a thrombotic drug licensed for use in patients with hemophilia A or B with inhibitors. Approved use also includes patients with acquired inhibitors to factor VIII or IX.

# Antifibrinolytics

- can reduce perioperative blood loss by retarding or arresting fibrinolysis.

# Red blood cell substitutes

- **Oxygen-carrying blood substitutes :**
- (1) fluorocarbon-based synthetic oxygen carriers,
- (2) stroma-free, cross-linked (polymerized human or nonhuman hemoglobin preparations.)
  
- These compounds may be useful in:
  - 1. acute massive blood loss,
  - 2. in patients declining transfusion for religious reasons.
  
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- The **fluorocarbon-based oxygen carriers**
- **Superiority:**
  - 1. are easily produced,
  - 2. long shelf life,
  - 3. minimal infectious
  - 4. immunologic complications.
- **Defects:**
  - 1. require a high  $\text{FiO}_2$
  - 2. are cleared rapidly.



# *hemoglobin-based oxygen carriers*

- **Superiority:** 1.high oxygen-carrying capacity, 2.significant oncotic effect, 3.long shelf life.
- **Defects:**1.rapidly cleared 2. induce systemic and pulmonary hypertension ( vasoactivity.)
- 2. small studies ( case reports)
- ongoing efforts with respect to further clinical development have been disappointing and plagued with safety concerns.

# Bloodless Surgery Programs

- religious reasons has led to the emergence of healthcare centers with bloodless medicine and surgery programs.
- Integrated preoperative, intraoperative, and postoperative conservation approaches are used. Included are preoperative autologous donation, erythropoietic support, acute normovolemic hemodilution, individualized assessment of anemia tolerance, implementation of conservative transfusion thresholds, meticulous surgical techniques, judicious use of phlebotomy, and pharmacologic agents

- باتشکر از توجه شما