Reduce the use of Red Blood Cell Transfusions

Scope of the Problem: Red blood cell (RBC) transfusion has been associated with higher in-hospital mortality following cardiac surgery. In a recent study by the NNECDSG we observed a 16% decrease in long-term survival for patients exposed to even a small amount of allogeneic RBCs (1 to 2 units). This adverse impact on in-hospital mortality and survival was not explained by differences in patient and disease characteristics. With this growing evidence and wide variation of use of RBCs by NNECDSG centers (26.2% to 77.5%), the NNECDSG has undertaken efforts to optimize RBC conservation and to reduce unwarranted RBC transfusions.

Goal: Our goal is to develop efforts to optimize pre-surgical hemoglobin levels, minimize blood loss, and avoid allogeneic transfusions. Centers will implement strategies to reduce their red blood cell use to <20% of elective and urgent cases.

Strategies:

1. Develop a systematic and multidisciplinary approach to blood conservation and management.
    - Educate staff about the negative consequences of red blood cell transfusion
    - Reduce number of blood draws. For blood draws use pediatric tubes or point of care testing modalities.
    - Avoid hemodilution: size perfusion pumps to the size of the patient
    - Use normovolemic hemodilution whenever possible
    - RAP (retrograde autologous prime)
    - Consider anti-fibrinolytics in selected patients (e.g. tranexamic acid)
    - Meticulous surgical hemostasis
    - Tolerate lower hematocrits during pre-, intra- and post-operative care
    - Use intraoperative cell salvage for all patients and optimize salvage efficiency
    - Institute specific blood-transfusion algorithms
    - Selective use of intravenous iron and limited use of ESA for perioperative management of anemia

Activities:

1. In 2007 five centers implemented blood conservation programs. Specifically, Eastern Maine Medical Center, Maine Medical Center, Central Maine Medical Center, Portsmouth Regional Hospital, Catholic Medical Center.
2. In 2007, 6 of 8 medical centers have reduced the use of RBC transfusion in their elective and urgent patients. (Data from Cardiac Surgery June 2008 Report)

Progress:

1. To continue implementing strategies to reduce overall transfusion rates to <20% among elective and urgent patients.

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