UNDERSTANDING, MANAGING, AND PREVENTING BLOOD DONOR REACTIONS IN TEENAGERS

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Background

- Donation is a safe and common activity that meets a critically important community need
- 2-5% of whole blood (WB) donations are affected, usually reactions are mild
- Teenagers are at higher risk for vasovagal reactions (VVR) and falls with significant injuries due to
  - Hypovolemia
  - Hypotension
  - Bradycardia
  - American Red Cross and Vitalant data show that teens
    - Accounts for >10% of donations
    - Risk of syncope reactions 2-3 times higher
    - VVR account for 50% of all injuries in this age group
  - Occur anytime from arrival to well after departure from donation site

What Does the Research Show?

- Blood volume
- Fear of donation
- Physiological approaches to mitigating VVRs
  - Muscle Tensing Maneuvers
  - Replacement of fluids and electrolytes to combat orthostatic hypotension
**Research: Blood Volume**
- Limit WB collection in young donors to those with EBV $>3.5$ L based on gender, height and weight
- ARC and Vitalant saw 20% reduction in presyncopal and syncopal reactions


**Research: Fear**

**Fear of:**
- Needles and pain
- The unknown
- Embarrassment in front of their peers if they have a reaction!!


**Research: Physiologic Approaches to ↓ VVR**

**MUSCLE TENSING MANEUVERS**
- Empties large capacitance veins in lower extremities
  - Increases cardiac filling pressure
  - Increases stroke volume
  - Increases cardiac output
  - Increases blood pressure
- Applied Muscle Tension
- Dutch Leg Crossing
- Simple Squat


**REPLACEMENT OF FLUIDS AND ELECTROLYTES LOST TO MAINTAIN BLOOD VOLUME AND COMBAT ORTHOSTATIC HYPOTENSION**
- Orthostasis occurs when 500 ml blood pools upon standing
- Replacement of lost blood with fluids and salts helps maintain blood volume and blood pressure preventing VVR
- Consider providing water and salty snack or electrolyte/glucose solution pre-donation, during and post-donation

**Recommendations**

Reduce Emotional Stressors by
- Pre-donation education: address and reduce fear; empower donor to prevent reactions
- Blood donation area set-up and environment: fluids, privacy, welcoming refreshment area
- Staff supervision and phlebotomy skill: well trained staff that provide support and distraction

Prevent/Counteract physiological changes
- Take into account blood volume
- Provide fluids and electrolyte/salt early: isotonic drinks or water and salty snacks throughout
- Muscle tensing: teach early, support use, make it fun instead of embarrassing
- Post donation instructions: what to do “just in case”