Comprehensive Testing for HSCT-TMA

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HCST-Associated Thrombotic Microangiopathy Testing Algorithm

**SCREEN For TMA During HSCT**
- Daily CBC
- Twice weekly LDH
- Weekly urinalysis
- Routine BP assessment

**SUSPECTED HSCT-TMA**
- Elevated LDH
- Proteinuria
- Hypertension – (requiring >2 medications)

**RULE OUT TTP: ADAMTS13 Activity**
- ≤ 10% → TTP
- > 10%

**CONFIRM HSCT-TMA: A or B**
- Both present
- Consider Treating With Eculizumab
  (See Therapy Algorithm)*
- One Present
  - Consider Evaluating Complement System
  - Case-by-case decision based on severity of TMA
- Both absent
  - Continue monitoring

**A: TMA By Tissue Histology**
- B: TMA by Laboratory and Clinical Markers (at least 5 of 7 present)
  1. LDH above normal for age
  2. Schistocytes on blood smear
  3. De novo thrombocytopenia/transfusion requirement
  4. Hypertension >95% for age (<18y): >140/90 (≥18y)
  5. Proteinuria (≥30mg/dL on random urinalysis)
  6. Terminal complement activation (elevated sC5b-9)

**PROGNOSIS of TMA**
- 1. Proteinuria ≥30 mg/dL
- 2. sC5b-9 above normal

**Quantitative Complement Tests**
- Serum C3 and C4 level
- Complement factors H:B level
- Complement Factor H autoantibody
- MCP / CD46 Flow Cytometry

**Complement Functional Assessment**
- CH50
- sC5b-9
- Bb

**Complement Genes**
- (Recipient and donor DNA)
  - C3
  - CFB
  - CFH
  - DGKE
  - MCP/CD46
  - THBD
  - CFHR1
  - CFHR3
  - MLPA for CFHR1-CFHR3 deletion
  - CFHR5
  - CFI

* Jodele et al, Blood Reviews, 2014