Background

- The CDC states that candidemia carries a 35% mortality rate and is the 4th leading hospital-acquired bloodstream infection.
- Blood cultures take 2-6 days to result and fail to identify 40-50% of Candida infections.
- The T2 Candida Panel is a diagnostic test which utilizes whole blood to provide rapid (3-5 hours) species-specific detection of fungal pathogens.
- T2 is also designed to provide:
  - High sensitivity and specificity
  - Accurate results even with current antimicrobial therapy
  - Limits detection as low as 1 CFU/mL
- Use of this panel could enable clinicians to initiate anti-fungal treatment quicker, de-escalate therapy faster, and possibly decrease mortality.

Purpose

- Continued evaluation of the utilization of T2 Candida Panel in a large community hospital.

Methods

- The T2 Candida Panel was restricted to two specialty departments, Infectious Disease (ID) and Oncology for use in specific patient populations.
- Patient populations included:
  - Patients with febrile neutropenia without observed cause
  - Patients with central venous line and unexplained fever
  - Use of broad-spectrum antibiotics, in nutrition (TPN), neutropenia, renal/hepatic failure, acute pancreatitis, recent major surgery, total parenteral nutrition (TPN), neutropenia, renal/hepatic failure, acute pancreatitis, recent major surgery, total parenteral nutrition (TPN), corticosteroids
- Endpoints were defined as medication use, patient characteristics and risk factors, T2 Candida Panel results, corresponding blood cultures, time to de-escalation, and duration of therapy (DOT).

Results

- **Evaluation of True Positives**
  - **T2 Tests (n=345)**
    - Negative T2 Results (n=311)
      - Therapy continued
      - Therapy not initiated
      - Therapy discontinued
  - **Positive T2 Results (n=34)**
    - Therapy initiated
    - Therapy not initiated
    - Therapy discontinued

- **Blood Cultures**
  - **Blood Culture (+)**
    - 8 (24%)
  - **Blood Culture (-)**
    - 26 (76%)

- **Average DOT of Micafungin**
  - **Negative (n=128)**
    - 8.7 days
  - **Positive (n=129)**
    - 10.8 days

Discussion

- **T2’s sensitivity claim of 96.4% and its superiority claim** over blood cultures.
- **Of the patients with a positive T2 result (83/345, 24%) had a positive corresponding blood culture**.
- **Of 36 true positives, T2 detected 34 (94.9%) positive results**.
- **111/311 (36%) antifungal regimens were not discontinued despite a negative T2 test**.
- **83/345 (24%) T2 results did not have a concurrently drawn blood culture**.
- **Average time to de-escalation was 40.8 hours**.
- **Negative T2 results decreased average duration of therapy of micafungin by 2.1 days**.

Conclusions

- **At our facility the T2 Candida Panel demonstrated greater sensitivity to Candida infection and produced results much quicker when compared to blood cultures**.
- **Despite the test’s rapid nature and high sensitivity, time to de-escalation remains at 2 days suggesting variations in physicians’ utilization of T2 test results**.

References