

CONTINUOUS TEMPERATURE MONITORING IN THE INPATIENT SETTING USING TEMPTRAQ

Megan Sampson, MD; Victoria Hickey, RN; John Huber, MSc; Priscila Davila, MD; Stella Davies, MBBS, PhD; Christopher Dandoy, MD, MS

Background: Blood stream infections occur in nearly 30% of patients undergoing hematopoietic stem cell transplant (HSCT) and fever is often the first symptom. Timely administration of antibiotics is associated with improved outcomes, thus, early recognition of fever is paramount. Current standard of care (SOC) includes episodic monitoring of temperature in hospitalized patients, which may delay fever detection. Therefore, continuous real-time body temperature measurement may detect fever prior to the current SOC. TempTraq is a Food and Drug Administration cleared class II medical device and consists of a soft, comfortable, disposable patch that continuously measures axillary temperature and wirelessly transmits real time-time data.

Objective: The primary aim of the study was to evaluate the feasibility, safety and tolerability of continuous temperature monitoring in HSCT patients using TempTraq.

Design/Method: We are performing a prospective observational study of pediatric patients (1-12 years of age) undergoing HSCT at Cincinnati Children's Hospital in Cincinnati, Ohio. Enrolled patients wore a TempTraq patch for 5 days. A 1-10 rating scale survey was completed by the parent/guardian at the end of the study to determine tolerability, ease of use, satisfaction and desire for future use in the inpatient and outpatient setting. Temperature data from the TempTraq patch was compared to the standard episodic temperature monitoring to determine detection of febrile episodes.

Results: Seven of ten patients have completed screening. We anticipate completion of the study in early February. The TempTraq patch was well tolerated by study subjects (mean tolerability rating of 8.7/10). One patient developed skin breakdown at the site of the TempTraq patch attributed to recent Thiotepe. The patch was easy to apply with an easy of application rating of 9.7/10. Parents were overall satisfied (rating 8.4/10) and would like to use the TempTraq patches in future hospitalizations (rating 8.4/10) and at home (rating 8.9/10). TempTraq patch identified fever (≥ 100.4 °F) in 4 patients. The fever was never detected by episodic monitoring (SOC) in 2 patients and significantly delayed in the other 2 patients (>12 hours).

Conclusions: Continuous temperature monitoring via TempTraq was well tolerated in pediatric HSCT patients. Timely fever detection was improved in TempTraq over the current SOC.