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## Use of forced air warming devices to induce fever-range hyperthermia in critically ill septic patients

Anne M. Drewry, Enyo A. Ablordepey<sup>1</sup>, Marin H. Kollef<sup>2</sup> and Richard S. Hotchkiss<sup>3</sup>

<sup>1</sup> Department of Emergency Medicine, Washington University in St. Louis; <sup>2</sup> Department of Medicine, Washington University in St. Louis; <sup>3</sup> Department of Anesthesiology, Washington University in St. Louis

**OBJECTIVES/SPECIFIC AIMS:** Afebrile septic patients are twice as likely to die and develop nosocomial infections as compared with those with fever; the reason for these differences is unknown. One hypothesis is that elevated temperatures directly boost immunity and inhibit microorganism growth. However, there is little data examining the clinical effects of warming septic patients. The goal of this study was to determine whether warming afebrile septic patients to fever-range hyperthermia with noninvasive forced air warmers is feasible and safe. **METHODS/STUDY POPULATION:** This is an ongoing randomized trial on afebrile mechanically ventilated patients with severe sepsis. The intervention consisted of 48 hours of external warming with a forced air warming device to a goal core temperature of 1.5°C higher than the lowest recorded temperature within the 24 hours preceding enrollment. Efficacy of the intervention and adverse event data (i.e., increases in heart rate and vasopressor doses) were collected. Clinical outcomes included 28-day mortality and acquisition of secondary infections. **RESULTS/ANTICIPATED RESULTS:** In total, 18 patients were randomized to the control and warming groups, respectively. Baseline characteristics (including demographics, comorbidities, and illness severity scores) were similar among the 2 groups, except the control group had more males (61% vs. 28%,  $p=0.04$ ). Median (IQR) body temperature averaged over the 48-hour intervention period was higher in the warming group [38.2 (37.6, 38.6) vs. 37.1 (36.4, 37.4) °C,  $p<0.001$ ). Patients in the warming group achieved core temperatures above their goal for a median of 37 (IQR 11, 45) hours during the 48-hour intervention period. There were no differences in heart rate or vasopressor dose changes or acquisition of secondary infections between the groups. Eight (44.4%) control patients and 3 (16.7%) warmed patients died by day 28 ( $p=0.07$ ). **DISCUSSION/SIGNIFICANCE OF IMPACT:** Externally warming severe septic patients with forced air warming devices effectively raises core body temperature and is safe. Additional research will focus on cellular and immunological changes seen in warmed Versus control patients.

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## Using father-mediated intervention to increase responsive parental behaviors and child communication in children with autism spectrum disorder: A pilot study

Michelle Flippin

University of Rhode Island

**OBJECTIVES/SPECIFIC AIMS:** Although parent involvement is recognized as an integral autism intervention component, and two-thirds of children are currently raised in 2-parent families, the majority of ASD parent research to date has focused on mother-implemented interventions, and fathers have been largely overlooked. However, fathers use interaction styles and language models that are different from mothers and may benefit children with ASD in unique ways. Thus there is a critical need in the field to expand our understanding of the potential contributions of various caregivers to communication outcomes. This investigation aimed to address this void in the research literature and contribute to clinical practice by including fathers in parent-implemented intervention, and adapting parent-implemented autism intervention to fit paternal interaction and communication styles. Specifically, this pilot study investigated the effects of a father-mediated intervention on parent use of responsive verbal and play strategies. Distal effects on child communication and pre-post changes in parental stress levels were also investigated. **METHODS/STUDY POPULATION:** A single subject, multiple baselines across strategies experiment was conducted with one dyad (i.e., father, child with ASD). In-home father coaching sessions were delivered weekly, targeting 4 responsive strategies (i.e., follow-in comments, follow-in directives, symbolic object play, rough-tumble play). Single subject designs are particularly suitable for autism interventions, as they allow for experimental control with participants who are from heterogeneous populations (McReynolds and Kern, 1983). Child participant was 3 years, 1 month at the start of intervention and had previously received a received community diagnosis of ASD by a psychologist. Throughout the duration of the study, the child participant attended part-day community-based day care and received

20 hours per week of Applied Behavioral Analysis intervention both in-home and community daycare, as well as occupational therapy and speech-language therapy for 1 hour per week. The participating father was a biological parent who resided with the child continuously since birth. In addition, the father had no other formal parent training in communication intervention before participating. **RESULTS/ANTICIPATED RESULTS:** The results of the father-implemented intervention program yielded positive results for both father and child participant. The father quickly achieved a high level of competency using 3 of the 4 targeted strategies (i.e., follow-in comments, follow-in directives, and rough-and-tumble/physical play). Follow-in comments were used more frequently than follow-in directives and rough-and-tumble play strategies were used more frequently than symbolic play. Child use of single words increased over baseline and beginning use of multiword utterances was documented. Pre-post changes in parental stress for participating father and his spouse were not significant, however patterns of change across Parental Stress Index subscales scores were noted. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This pilot investigation provided information regarding the treatment efficacy of a clinically relevant instructional program designed to enhance fathers' ability to use responsive strategies to increase communicative acts or children with ASD. The results of this investigation advance clinical practice in the ASD field by providing intervention data relating to the efficacy of father-implemented instructional programs on child communication goals.

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## Uterine serous carcinoma is associated with a high risk of venous thromboembolism regardless of latency from surgical staging

Gregory M. Gressel, Lauren Turker<sup>1</sup>, Shayan Dioun<sup>1</sup> and Nicole S. Nevadunsky<sup>1</sup>

<sup>1</sup> Albert Einstein College of Medicine

**OBJECTIVES/SPECIFIC AIMS:** Patients with gynecologic cancer are known to have an increased risk of venous thromboembolism (VTE) in the post-operative period secondary to hypercoagulability from both malignancy and pelvic surgery. Recent literature suggests that chemotherapy itself may be thrombogenic and prophylaxis may be beneficial in ambulatory patients receiving chemotherapy. Although extended VTE prophylaxis is commonly given after surgical staging, administration of prophylactic anticoagulation during chemotherapy or radiation treatment is not routinely performed. This study seeks to characterize risk factors and timing of VTE in a cohort of women diagnosed with uterine serous carcinoma (USC). **METHODS/STUDY POPULATION:** After institutional review board approval, a cross-sectional study was performed of all women diagnosed with USC between January 1999 and January 2016 at Albert Einstein College of Medicine. Data analysis was performed using Stata version 14.2 (Stata Statistical Software: Release 14, 2015. College Station, TX: StataCorp LP). Baseline clinical data was analyzed to calculate descriptive statistics. Normality of continuous variables was visually assessed and if no substantial violations were noted, data was reported as means  $\pm$  standard deviations. Otherwise, they were reported as medians with interquartile ranges. Categorical data was presented as number of patients with percentages. Bivariate analysis was performed to assess the association between clinical variables and diagnosis of VTE. Continuous variables (age, body mass index, number of risk factors for VTE) were visually assessed for normality. Levene's test was used to assess for equal variance among groups. If no substantial violations were noted, means and standard deviations were calculated using 2 sample *t*-test for equal variance. Variables violating normality assumptions were analyzed using the Mann-Whitney *U*-test, calculating medians and interquartile ranges. Categorical and dichotomous variables (VTE risk factors, race, stage) were examined using the  $\chi^2$  test or Fisher's exact test (if expected values for more than 20% of cells were less than 5). Odds ratios were reported with 95% confidence intervals. Using a backwards stepwise elimination approach, a multivariable logistic regression model was fit to accurately examine association of risk factors with VTE, adjusting for other covariates. The resulting model was assessed for calibration and discrimination using Hosmer-Lemeshow test for goodness of fit, classification table, and ROC curve. Regression diagnostics were run in order to identify potentially influential covariate patterns in the model. First-order interactions were assessed for using product interaction terms (interaction defined as *p*-value for the likelihood ratio test  $<0.05$ ). The resulting model was assessed for calibration and discrimination using Hosmer-Lemeshow test for goodness of fit, classification table, and ROC curve. A Cox proportional hazards model was also fit in order to examine the association between individual covariates and time to clot development. Log-rank testing was performed to compare survivorship experience by groups and survivorship curves were generated using the Kaplan-Meier method. Assumptions of