PIII-38: Inflammatory Proteins, Genetic Variation, and Environmental Influences on Nosocomial Infection Development in Sepsis Patients

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Abstract:
Introduction: Nosocomial infections (NI) affect more than 2 million Americans annually, with approximately 35% occurring in the ICU. Although the central role of the inflammatory response is to control infections, an exaggerated inflammatory response may play a role in the
development of NI. Genetic polymorphisms may influence this response. The purpose of this study is to determine the impact of baseline systemic inflammation (pro-inflammatory cytokines, anti-inflammatory cytokines, and their ratio), genetic variability, and environment on the development of nosocomial infections (NI) among sepsis patients during their ICU stay (or up to 28 days). The research aims are to: 1. Investigate whether baseline protein expression levels of pro-inflammatory cytokines, anti-inflammatory cytokines, or their ratios influence the development of subsequent NI in sepsis patients 2. Investigate the variance in cytokine genes to determine if they influence levels of protein expression or development of NI. 3. Investigate the effects of environment, gene variation, and protein expression on development of NI.

**Method(s):** Prospective observational study among sepsis patients within 72 hours of ICU admission who do not meet exclusion criteria (immunosuppressed, AIDS, severe liver failure). A sample of 78 is estimated to detect a 30% difference in NI rates with a power of 80 among patients with high (4th quartile) and low cytokine measures. All participants will be monitored throughout their ICU stay with equal diligence for NI development using CDC Guidelines. Baseline plasma and buccal swabs will be collected. Multiple plasma cytokines will be measured by luminex technology. Polymorphisms among cytokine genes will be determined by Real-time PCR, RFLPs, and sequencing. Statistical analyses will include Chi-square analysis, Pearson correlations, and Cox regression analysis, and an alpha of 0.05 will be considered significant.

**Results:** Thirty-six patients have been enrolled to date. No results are available at this time.

**Discussion & Conclusions:** The findings of this study may bring awareness to additional risk factors for development of NI, and promote earlier detection and treatment.

**Abstract History:**
This abstract has been presented or accepted for presentation in whole or in part at the SNRS or other scientific meeting.
Presented an early form of this work at the SNRS 2008 conference.

**Financial Disclosure:**
No, I (or a member of my immediate family) have not received something of value* from or own stock (or stock options) in a commercial company or institution related directly or indirectly to the subject of my presentation.

**FDA Disclosure:**
I will not be describing any pharmaceutical and/or medical device.

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