653. Diagnosis of Burn Sepsis Using the FcMBL ELISA: A Pilot Study in Critically Ill Burn Patients
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Background. Infection is the leading cause of death among burn survivors, with sepsis associated with more extensive burns. Conventional diagnostic criteria are insensitive in this population. We examined a novel diagnostic ELISA based on Mannose-Binding Lectin (MBL) linked to an immunoglobulin Fc domain, which measures the concentration of Pathogen-Associated Molecular Patterns (PAMPs) across a broad range of bacterial and fungal organisms, for diagnosis and antimicrobial management of sepsis in burn patients.

Methods. We prospectively enrolled burn patients with ≥15% Total Body Surface Area (TBSA) burns into groups of noninfected, sepsis, or incipient infection, and healthy volunteers. Sepsis was defined by clinical actions responsive to sepsis. The FcMBL ELISA was performed daily using fresh whole blood. Burn subjects were sampled daily until completing antimicrobials, for 14 days if noninfected, and once for healthy controls. Differences in median PAMP concentrations between groups were assessed using the Kruskal-Wallis test, including multiple comparisons between categories.

Results. 14 burn patients (3 noninfected, of whom 1 died prior to sampling, 4 Sepsis, 7 Incipient) were enrolled. The median (25–75% CI) PAMP concentration was 0.53 (0.12–1.34) ng/ml in healthy controls, 3.725 (2.53–3.94) ng/ml in noninfected, 2.72 (1.29–6.12) ng/ml in incipient, 0.83 (0.29–4.29) ng/ml in sepsis groups. PAMP concentrations in sepsis differed (P = 0.0057) from noninfected, but incipient did not differ from noninfected (P = 0.2025). The dynamic range was lower in healthy controls (2.69 ng/ml) than incipient (4.57 ng/ml), sepsis (4.70 ng/ml), or noninfected (5.90 ng/ml). PAMP elevations correlated with clinical determination of infection, and were not associated with OR visits for debridement and grafting. 7 of 11 infected patients had declining PAMP levels at completion of antimicrobial therapy; 2 subjects had PAMP elevations associated with Aspergillus molds in their burn wounds.

Conclusion. The FcMBL ELISA assay may be useful for diagnosis of infection in burn patients, and may facilitate earlier discontinuation of antimicrobials. This assay may also have a novel utility for early diagnosis of Invasive Fungal Infection.

Disclosures. All authors: No reported disclosures.

654. Evaluation of the Febrilis Host Response Point-of-Care Test to Differentiate Viral From Bacterial Etiology in Adults Hospitalized with Acute Respiratory Illness During Influenza Season
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Background. Antibiotics are overused in patients hospitalized with acute respiratory illness (ARI). Diagnostic uncertainty regarding microbial etiology contributes to this practice and so a host response test that can distinguish between viral and bacterial infection has the potential to reduce unnecessary antibiotic use. The Febrilis is a low cost, rapid, host response POCT that uses fingerpick blood samples to distinguish between viral and bacterial infection but has not been evaluated in hospitalized adults with ARI.

Methods. We took fingerpick blood samples from adult patients with ARI, hospitalized during influenza season, and tested them on the Febrilis. Respiratory samples were tested for viruses on the FilmArray Respiratory Panel (FARP). The Febrilis was evaluated for ease of use, failure rate and accuracy of the results (Viral, Bacterial, Negative).

Results. 149 patients were approached and 10 patients declined fingerpick testing. A valid result was obtained from 124/139 (89%) overall. Common user comments included test failure due to difficulty of getting blood to fill the capillary tube and difficulty in interpreting the results lines due to the variability of color change. 111/124 (89%) were tested for viruses by FARP: 69/111 (62%) had viruses detected. Of 69 patients with viruses detected, 41 (59%) had influenza, 12 (17%) rhino/en- terovirus and 16 (23%) other viruses. 44/69 (64%) had a viral Febrilis result. For influenza-positive patients 34/41 (83%), 1/12 (8%) for rhino/virus-positive patients had a viral Febrilis result and 9/16 (56%) of patients with other viruses detected had a viral Febrilis result. These are interim results. Full results for 200 patients will be available at presentation.

Conclusion. The use of the Febrilis POC was associated with a failure rate of <10% and problems with the interpretation of result lines. Febrilis was not sufficiently accurate in differentiating viral and bacterial infection when using detection of virus by PCR as the definition of viral infection; however, Febrilis had a high PPV for all viral