2151. Accuracy of Physician Adjudication of Infection in Patients with Systemic Inflammatory Response Syndrome (SIRS)

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Background. The definition of sepsis evolves with improved understanding of the pathophysiology, but the presence of infection remains essential for the diagnosis. Despite this fact, there are currently no universal objective definitions for infections, which increases the variability in sepsis diagnoses. This variation makes interpretation of diagnostic studies, therapeutic interventions, and prognostic tools challenging. In this study, we compared physician adjudication of infection to standardized definitions of infection in patients meeting two of four Systemic Inflammatory Response Syndrome (SIRS) criteria.

Methods. In a prospective observational study performed in two academic medical centers, patients with two of four SIRS criteria were enrolled in Emergency Departments from February 2016 to December 2016. Diagnostic and physiologic data were abstracted for 151 patients at admission. Each medical record was independently reviewed by one Emergency Medicine and one critical care (CC) physician from a 10-member adjudicating committee to determine the presence of infection. In the case of disagreement, a third CC physician served as the tiebreaker. Objective definitions of infection were derived from consensus surveillance definitions.

Results. Overall, both adjudicators and the objective definitions agreed on the presence of infection 93% of the time and on the absence of infection 82.7% of the time. Of the patients adjudicated as indeterminate or not infected, eight and 13 met one objective definition of infection, respectively. The greatest discordance between physician adjudicated infection and objective definitions occurred in pneumonia patients (Table 1).

| Physician Adjudication | Objective definition of infection | Total |
|-------------------------|----------------------------------|-------|
| Not infected | 4 | 11 | 62 |
| Infected (Pneumonia) | 53 | 8 (5) | 13 (4) |
| Total | 57 | 19 | 75 |

Conclusion. Implicit to the definition of sepsis is the presence of infection. Therefore, standardized methods of defining infections are necessary to decrease the variability in diagnoses and allow comparability among clinical trials. The application of objective definitions could prove to be a reproducible and reliable foundation for use by clinical investigators.

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2152. Epidemiology and Clinical Outcomes of Contemporary, Third-Generation Left Ventricular Assist Device (LVAD) Infections

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Background. Infection is a common complication following implantation of an LVAD. The purpose of this study was to characterize the epidemiology and clinical outcomes of infections in patients who received the HeartWare LVAD, a newer intracardiac device.

Methods. Adult patients with a HeartWare LVAD implanted between 2009 and 2017 at Michigan Medicine were screened for inclusion. LVAD-associated infection was defined using INTERMACS criteria. Patients were followed from device implantation to either infection, death, heart transplantation, device exchange, or last known follow-up to date. Exclusions included implantation of a right-sided VAD, alone or in combination with an LVAD. The primary outcomes were the incidence of LVAD-associated infections per 1,000 device days and per 100 person-years.

Results. Of the 183 patients included, 43 (23.5%) developed an LVAD-associated infection with incidence rates of 0.39 infections per 1,000 device days and 14.3 infections per 100 patient years. The median time to infection was 305 days (IQR, 172–581). Staphylococcus spp. (26%) and Streptococcus spp. (20%) were the most common pathogens identified. The results of a univariate analysis of risk factors for infection are shown in Figure 1. There were no statistically significant differences in all-cause mortality (40% vs. 17%, P = 0.08) and incidence of heart transplantation (19% vs. 34%, P = 0.09) between those with infection and those without infection; the number of hospital readmissions were more common in patients with infection (median, 4 vs. 2, P < 0.01).

Conclusion. LVAD-associated infection remains a major complication among recipients of the HeartWare LVAD, with about one-quarter of patients developing infection over time despite improved device design. Infection contributes to the increased hospitalizations seen in this population.

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2153. Impact of Norovirus Testing Changes on Hospital-Acquired Norovirus Infections

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Background. Norovirus is highly contagious and can spread rapidly through healthcare facilities. Controlling transmission of norovirus infections can be challenging. Early diagnosis allows for infection prevention measures to be implemented in a timely manner. The objective of this study was to determine the effect of decreasing barriers to norovirus testing on hospital-acquired (HA) cases.

Methods. A before-after study was conducted evaluating the impact of increasing the availability of norovirus testing on HA infections. From January 1, 2012 to October 16, 2017, all norovirus tests required the approval from the laboratory medicine resident, and testing was performed once a day. A polymerase chain reaction (PCR) system that required a two-step process was used. On October 17, 2017, the laboratory began using a PCR that performs testing in one step, allowing the laboratory to perform testing more frequently. Approval of the laboratory medicine resident was no longer required. HA norovirus rates and percent of positive test pre and post-implementation were compared using chi-square analysis. HA cases were defined as patients admitted without signs or symptoms of norovirus infection on inpatient units. A Mann–Whitney U test was used to compare the average of HA infections per cluster pre and post-implementation. A cluster was defined as two or more associated cases. No other infection prevention interventions were implemented during this time frame.

Results. After implementation of the new testing methodology, there was no difference in percent of positive norovirus test between the study periods [9.4% (46/487) pre-implementation vs. 6.9% (11/160) post-implementation, P = 0.16]. The proportion of norovirus infections that were HA increased slightly after implementation [37% (17/46) pre-implementation vs. 55% (6/11) post-implementation, P = 0.16]. There was no difference in HA norovirus infections associated with a cluster between the study periods [3.6 cases/cluster pre-intervention vs. 2.5 cases/cluster post-intervention, P = 0.86].

Conclusion. There was no significant difference in the number of HA norovirus cases with improved testing availability. A limitation to this study is the short length of the post-implementation evaluation period compared with the pre-implementation period.

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2154. How Well Are We Estimating the True Burden of Acute Gastroenteritis? Validation of Acute Gastroenteritis-Related ICD Codes in Pediatric and Adult U.S. Populations

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