

2103. Clinical Profile of Patients with *Burkholderia cepacia* complex Bacteremia and Contaminated Ultrasound Gel as Possible Source of Infection

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Saturday, October 6, 2018: 12:30 PM

Background. *Burkholderia cepacia* complex (*Bcc*) is Gram-negative bacteria commonly affecting those with cystic fibrosis, causing pneumonia and also a nosocomial pathogen. We looked at the clinical profile and possible source of *Bcc* bacteremia in patients without cystic fibrosis, admitted to a tertiary care hospital in South India.

Methods. Retrospective chart review was done of patients with *Bcc* bacteremia over the period 2012–2017. Patient risk factors, outcome, sensitivity profile were looked into. Possible sources for *Bcc* were analyzed.

Results. Twenty-two patients with *Bcc* bacteremia were identified during this period. Age of patients ranged from 16 months to 83 years, averaging 47 years. 89.5% were nosocomial; 77.3% had indwelling vascular catheter, either CVC, dialysis catheter or permacath. When 30 days mortality was looked at, 17 patients survived and five patients expired. Those who expired had high Pitt's bacteremic score (scoring done either prior to or within 48 hours of positive culture). Four patients had underlying pneumonia, among whom two patient's respiratory sample grew *Bcc*, three also had underlying vascular catheters. Sensitivity pattern of *Bcc* was noted as follows- trimethoprim sulfamethoxazole was uniformly sensitive (100%), ceftazidime was sensitive in 86.5%, minocycline in 73% of isolates. Meropenem was tested in 19 and was found sensitive in 15 isolates (79%), fluoroquinolone was tested only in eight isolates and was sensitive in 7.

As majority was CLABSI, the bundle compliance and common products used for cvc were audited. Feedback and training for bundle compliance were given. The ultrasound gel, even the unopened bottle used for cvc insertion grew *Bcc*. Despite sterile cover around the probe after the application of contaminated gel, an associated risk was considered and was replaced with sterile gel sachet. At 3 months follow-up there is no further incidence of *Bcc* bacteremia, though longer follow-up is needed.

Conclusion. *Bcc* bacteremia is found to be an important nosocomial pathogen, commonly associated with intravascular catheters with 22.7% mortality in this study. Cotrimoxazole was 100% sensitive. Good infection control practices, including early removal of unnecessary catheters are important to prevent *Bcc* CLABSI. Ultra sound gels can harbour *Bcc* and poses a serious risk of infection.

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2104. Impact of a Supervision and Education Directed Bundle in Ventilator-Associated Pneumonia (VAP) on a Pediatric Critical Care Unit of a Teaching Hospital

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Background. Proven measures to prevent VAP include 35–45; inclination of the head, prompt extubation, hand hygiene prior to intubation, oral hygiene with chlorhexidine, minimize secretion pooling above the endotracheal tube cuff. Adherence to these methods remains an angular point in preventing VAPs. Increasing rates of VAP in the pediatric critical care unit (PICU) of a reference teaching hospital in Guatemala, led the Hospital Infection Prevention and Control (HIPC) team to implement a bundle to control VAPs.

Methods. A daily active surveillance to identify cases of VAP according to the Center for Disease Control (CDC) definition was done for 10 months before the HIPC intervention. The HAI implemented a bundle defined as: (1) head elevation (35; degree inclination), (2) hand hygiene, (3) oral hygiene with chlorhexidine, (4) minimize secretion pooling, (5) daily evaluation of extubation, (6) daily surveillance, (7) continuous education of personnel, (8) adequate supplies distribution analysis. After the intervention rates and trends of VAP were analyzed for 30 months.

Results. In the pre-intervention observational period the rates of VAP increased from 18 (September 2014) to 28 cases per 1,000 ventilator-days (June 2015). The first month after the bundle implementation (July 2015) a 50% VAP rate decreased was evidenced. A constant decrease in VAP rates was reported in the 24 months after the implementation of the bundle, reaching the lowest rate in August 2017 (five cases per 1,000 ventilator-days). For administrative reasons adherence to oral hygiene with chlorhexidine was sub-optimal due to a lack of supplies from August 2017 to December 2017 which coincided with an increase in VAP rates from five to 14 per cases 1,000 ventilator-days.

Conclusion. A notable and constant reduction of VAP rates in the PICU was achieved after the implementation of the bundle. Even though many of the measures included in the bundle were already protocolized in the PICU, a probable lack of adherence could explain the high rates observed pre-intervention. By adding the continuous education and supervision of the personnel by a member of the HIPC team, to previously proven methods, the VAP rates decreased in almost 80%. This makes a strong

case for the idea that protocols without continuous enforcement might not be enough to control infections.

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2105. Electronic Records of Daily Subglottic Suctioning Predict Infectious and Non-infectious Adverse Ventilator-Associated Events During Critical Care

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Saturday, October 6, 2018: 12:30 PM

Background. Mechanical ventilation is a life-sustaining therapy for critically ill patients, but is associated with increased hospital costs and risk for significant complications with poor outcomes. Adverse ventilator-associated events (VAEs) can be broadly divided into infectious (infectious ventilator-associated complication (IVAC) or ventilator-associated pneumonia (VAP)) and non-infectious (ventilator-associated complication (VAC)) types. We sought to identify factors that predict both types, and factors that discriminate risk for infectious vs. non-infectious VAE, using electronic medical record (EMR) data available prior to index event.

Methods. We evaluated 90 consecutive adverse VAEs in the medical intensive care unit of an academic medical center (January 1, 2013–June 30, 2016) to determine prior patient and care factors that discriminate risk for incident VAE. VAE were defined by surveillance criteria from the CDC. Patient and care data were extracted via the EMR.

Results. A generalized linear mixed effects model found an increase of 1.1 (95% CI 0.53–1.7) subglottic suction events per day (SS/day) on the day before VAE diagnosis, relative to the 4 prior days. Of the 90 VAE included in the study, 41 were infectious (IVAC or VAP), and 49 were labeled ventilator-associated condition (VAC). In the IVAC/VAP group, mean SS/day was 8.0 on the day of VAE diagnosis, 7.5 one day prior, and 6.2 two days prior, compared with 6.6, 6.4, and 5.5 SS/day in the VAC group. Change in antibiotic prescription (87.8% (36) of patients in the IVAC/VAP group vs. 46.9% (23) in the VAC group) ($P = 0.023$) and acute liver injury (mean AST and ALT 52.9 and 43.6 3 days before IVAC/VAP vs. 1,035.4 and 523.9 before VAC) also differed between the groups ($P = 0.0095$ and 0.0025).

Conclusion. Increased daily subglottic suctioning predicts both non-infectious and infectious VAE, but the observed increase is greater prior to IVAC/VAP. Change in antibiotic prescription and acute liver injury also discriminated IVAC/VAP from non-infectious VAE in this small cohort.

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2106. What Metrics Should We Use to Evaluate CAUTI Performance for Inpatient Rehabilitation Units? An Evaluation of a Large, National Healthcare System

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Background. The National Healthcare Safety Network (NHSN)'s Targeted Assessment for Prevention (TAP) Strategy is a framework for quality improvement that offers a focused approach to infection prevention. The cumulative attributable difference (CAD) is used as a prioritization metric to identify areas with the highest burden of excess infections. The standardized utilization ratio (SUR) provides risk-adjusted urinary catheter metric beyond traditional device utilization ratios (DUR). We reviewed a TAP Report and SURs for all Inpatient Rehabilitation Facilities (IRF) within a large, national healthcare system.

Methods. Using the NHSN database, we generated a catheter-associated urinary tract infection (CAUTI) TAP Report for all IRFs across the system for calendar year 2017. The standardized infection ratio (SIR) goal was set at 0.75. CAD [observed events – (predicted events multiplied by SIR goal)] was calculated. A 12-month cumulative urinary catheter SUR was also computed in NHSN.

Results. Data from 26 IRFs were reviewed. Total CAUTIs ranged from 0 to 5 (median = 0, mean = 0.88). DURs ranged from 3 to 17%; CAD, –0.70 to 4.10; 12-month cumulative SURs, 0.35–2.14. Statistically significant SIRs were only calculated for two IRFs. Several IRFs with 0 infections had SURs > 1, and two IRFs with multiple CAUTIs had an SUR of ≤1 (table).

Conclusion. CAD is an actionable prioritization metric for infection prevention in health systems and individual facilities. In populations where events are rare,