196. Clinical Characteristics and Outcomes of Healthcare-associated Hematogenous Vertebral Osteomyelitis

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Background. The incidence of hematogenous vertebral osteomyelitis (HVO) has increased over recent years, likely due to longer life expectancies, higher prevalence of chronic disease, and more effective diagnostic techniques. Recently, healthcare-associated infections, such as catheter-related and procedure-related bloodstream infections, also increase the risk of HVO. The aim of our study was to evaluate the clinical characteristics and outcomes of healthcare-associated HVO (HCA-HVO).

Methods. We conducted a retrospective chart review of adult patients with microbiologically diagnosed HVO from five tertiary-care hospitals over 8-year period. HCA-HVO was defined as onset of symptoms after 1 month of hospitalization or within 6 months after hospital discharge, or ambulatory manipulations in the 6 months before the diagnosis [Pigra et al. Medicine (Baltimore) 2015; 94:e365]. We compared the clinical characteristics and outcomes of HCA-HVO with community-acquired HVO (CA-HVO) cases.

Results. In total, 358 patients with microbiologically diagnosed HVO were included in final analysis. Of these 358 cases, 256 (63.1%) were CA-HVO and 132 (36.9%) were HCA-HVO according to the predefined criteria. The main causative pathogens identified included methicillin-susceptible Staphylococcus aureus (36%) followed by methicillin-resistant S. aureus (MRSA) (26%), aerobic gram-negative bacteria (24%), and Streptococcus species (11%). Compared with CA-HVO cases, patients with HCA-HVO had more neoplasms (13.6% vs. 5.8%, P = 0.01) and end-stage renal disease (8.3% vs. 2.2%, P = 0.007). MRSA was more frequent pathogens in HCA-HVO cases than in CA-HVO (37.1% vs. 17.7%, P = 0.01). Patients with HCA-HVO were more likely to be have the higher rates of persistent bacteremia for ≥7 days (24.2% vs. 15.5%, P = 0.04), 1-year mortality (18.2% vs. 11.5%, P = 0.08) and 1-year relapse (12.1% vs. 6.3%, P = 0.051).

Conclusion. In this study, more than one-third of HVO is health care associated. Patients with HCA-HVO were more likely to have underlying illness, and their causative pathogens were more frequently MRSA. Outcomes of HCA-HVO were poorer, which require prevention measures and early diagnosis.

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197. The Spectrum of Pediatric Osteoarticular Infections: A Comparative Study

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Background. The incidence of osteoarticular infections has increased over recent years, likely due to longer life expectancies, higher prevalence of chronic disease, and more effective diagnostic techniques. Recently, healthcare-associated infections, such as catheter-related and procedure-related bloodstream infections, also increase the risk of HVO. The aim of our study was to evaluate the clinical characteristics and outcomes of healthcare-associated osteoarticular infections.

Methods. We conducted a retrospective chart review of adult patients with microbiologically diagnosed HVO from five tertiary-care hospitals over 8-year period. HCA-HVO was defined as onset of symptoms after 1 month of hospitalization or within 6 months after hospital discharge, or ambulatory manipulations in the 6 months before the diagnosis [Pigra et al. Medicine (Baltimore) 2015; 94:e365]. We compared the clinical characteristics and outcomes of HCA-HVO with community-acquired HVO (CA-HVO) cases.

Results. In total, 358 patients with microbiologically diagnosed HVO were included in final analysis. Of these 358 cases, 256 (63.1%) were CA-HVO and 132 (36.9%) were HCA-HVO according to the predefined criteria. The main causative pathogens identified included methicillin-susceptible Staphylococcus aureus (36%) followed by methicillin-resistant S. aureus (MRSA) (26%), aerobic gram-negative bacteria (24%), and Streptococcus species (11%). Compared with CA-HVO cases, patients with HCA-HVO had more neoplasms (13.6% vs. 5.8%, P = 0.01) and end-stage renal disease (8.3% vs. 2.2%, P = 0.007). MRSA was more frequent pathogens in HCA-HVO cases than in CA-HVO (37.1% vs. 17.7%, P = 0.01). Patients with HCA-HVO were more likely to be have the higher rates of persistent bacteremia for ≥7 days (24.2% vs. 15.5%, P = 0.04), 1-year mortality (18.2% vs. 11.5%, P = 0.08) and 1-year relapse (12.1% vs. 6.3%, P = 0.051).

Conclusion. In this study, more than one-third of HVO is health care associated. Patients with HCA-HVO were more likely to have underlying illness, and their causative pathogens were more frequently MRSA. Outcomes of HCA-HVO were poorer, which require prevention measures and early diagnosis.

Disclosures. All authors: No reported disclosures.

198. Utility of Diagnostic Bone Biopsies in the Management of Osteomyelitis Through Retrospective Analysis: How Golden Is This Gold Standard?

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Background. Bone biopsy is considered the gold standard for diagnosis and treatment of osteomyelitis (OM), but few studies have investigated the extent to which it influences antimicrobial therapy in non-vertebral beds. The purpose of this study was to evaluate clinician-initiated changes to empiric antimicrobial therapy after obtaining bone biopsy results. A secondary aim was to identify predictors of a positive bone culture.

Methods. We retrospectively reviewed all cases of non-vertebral OM in patients who underwent image-guided bone biopsies between 2009 and 2016. Data on pathogenic and microbiologic yield were collected and logistic regression was used to determine potential factors affecting the microbiologic yield. Post-biopsy empiric antibiotics and final antibiotics were compared to determine if there was a change in antibiotic treatment after biopsy results were reported.

Results. We evaluated 203 bone biopsies in 185 patients. Samples from 115 (57%) cases were sent to pathology, of which 33 (29%) confirmed OM. All samples were sent to microbiology and 57 (28%) yielded a positive result, Diabetes (OR=2.39, P = 0.021) and white blood cell count (OR=1.13, P = 0.006) were significantly associated with positive bone cultures in multivariate analyses. There was no association between positive cultures and number of samples cultured, needle size, prior antibiotic use, or antibiotic days. Post-biopsy empiric antibiotics were given in 136 (66.8%) cases. Therapy was narrowed to target specific pathogens in 70 cases (49.0%) and changed due to inadequate empiric treatment in three cases. Targeted therapy was initiated in 4/65 cases, in which empiric antibiotics had been initially withheld. While final antibiotics were withheld in 39/146 with negative bone cultures, empiric antibiotics were discontinued in only eight cases.

Conclusion. In patients with non-vertebral OM, bone biopsy cultures rarely yielded results that necessitated changes in antibiotic management. Identified bone organisms were treated by empiric therapy in most patients. While bone biopsy remains the gold standard for OM, future work is needed to identify patients whose management may be impacted by this procedure.

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199. Comparative Analysis of Initial Antibiotic Dosing Among Healthy Weight, Overweight, and Obese Children with Osteomyelitis

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Background. Acute hematogenous osteomyelitis (AHO) is a common infection of childhood. Inadequately treated AHO can lead to significant morbidity. Small studies have demonstrated alterations in the pharmacokinetics of antibiotics among obese children. Consequently, there is no consensus regarding appropriate dosing of antibiotics among obese children. Future work is needed to identify patients whose management may be impacted by this procedure.

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