Opioid Use and Hospitalizations for Endocarditis, Osteomyelitis, and Central Nervous System Abscesses Among Adults — New York City, 2001–2014

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142. Measuring Platelet Volume Is Associated with Embolic Events of Infectious Endocarditis
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Background. Increased mean platelet volume (MPV) is a marker of more active and virulent pathogens. There is limited evidence that increased MPV is associated with more embolic disease in infectious endocarditis (IE). This study seeks to validate this relationship and assess for effect modification by injection drug use.

Methods. Records of all patients aged ≥18 admitted to Wake Forest Baptist Medical Center (WFBMC) from January 1, 2004 to September 30, 2015 with an ICD-9 code for IE and without a simultaneous ICD-9 code indicating’ mechanical complication of cardiac device, implant and graft’ were reviewed. Inclusion criteria consisted of possible or definite IE by modified Duke criteria and labs drawn within 24 hours of presentation. Univariate analyses were assessed by Chi-square, Fisher’s exact test, Mann–Whitney U, and Student’s t-test. Multiple logistic regression assessed the association between MPV and embolic phenomena while controlling for potential confounders.

Results. A total of 237 cases (80 IDU-IE and 157 non-IDU IE) met criteria for analysis suffering 115 (48.5%) embolic events to the brain and/or organs (41.4% in non-IDU vs. 62.5% in IDU-IE, P = 0.002). MPV (P = 0.0001) and drug use (P = 0.002) were significantly associated with embolic disease. S aureus involvement (P = 0.0002), vegetation ≥1 cm (P = 0.009), atrial fibrillation (P = 0.05), hypertension (P = 0.008), presenting hospital location (P = 0.001), total platelets (P < 0.0001) and an unadjusted Charlson comorbidity score (P = 0.001) and left-sided valve vegetation (P = 0.006) were also significantly associated while gender, white blood cell count, creatinine and albumin were not. MPV remained significantly associated with embolic disease in the fully adjusted model with OR 1.4, 95% CI [1.1–1.7], vegetation ≥1 cm (OR 2.4, 95% CI [1.4–4.7]), left-sided valve vegetation (OR 4.0, 95% CI [2.0–8.0]) and direct presentation rather than transfer to WFBMC (OR 0.4, 95% CI [0.2–0.8]) also remained significant. There was no evidence of an interaction between MPV and drug use nor evidence of effect modification when the analysis was stratified by drug use status.

Conclusion. Increased MPV is significantly associated with higher time to optimal therapy, mainly based on necessary antibiotic escalation. This study provides further evidence that opioid use is associated with an increased risk of embolic disease in IE, osteomyelitis, and CNS abscesses.

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143. Opioid Use and Hospitalizations for Endocarditis, Osteomyelitis, and Central Nervous System Abscesses Among Adults — New York City, 2001–2014
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Background. Along with a growing opioid epidemic nationwide, opioid users often have an increased risk of severe infectious diseases including endocarditis, osteomyelitis, and central nervous system abscesses (CNS). There is an increasing number of opioid users, and New York City (NYC) may serve as a model study for opioid use and infectious diseases. We investigated the association between opioid use and hospitalizations for endocarditis, osteomyelitis, and CNS abscess in NYC.

Methods. Data for NYC residents aged ≥21 years discharged from New York State hospitals during 2001–2014 were analyzed using a hospital discharge database. We defined a hospitalization for endocarditis, osteomyelitis, and CNS abscess as one with a principal or secondary diagnosis of these conditions within the discharge record. We identified opioid users by examining principal or secondary diagnoses for opioid use within the discharge record at the time of hospitalization for endocarditis, osteomyelitis, and CNS abscess. Log-binomial model was applied among all hospitalized patients using endocarditis, osteomyelitis, and CNS abscess as the outcome, adjusting for age, race, and borough.

Results. During 2001–2014, there were 139,392 hospitalizations in total for endocarditis, osteomyelitis, or CNS abscess, of which 8,823 (6.3%) were among opioid users. There was an increased risk of hospitalization for endocarditis [RR: 2.6 (95% CI: 2.5–2.7)], osteomyelitis [RR: 1.1 (95% CI: 1.1–1.1)], and CNS abscesses [RR: 1.9 (95% CI: 1.8–2.1)] among hospital opioid users compared with hospital nonopioid users, adjusted by age, sex, race, and borough. Hospitalized opioid users had four times the risk for endocarditis hospitalization compared with hospitalized nonopioid users in the 18–44 year age group (RR: 4.2 [95% CI: 3.9–4.5]) (Table 1).

Conclusion. These results provide further evidence that opioid use is associated with an increased risk of endocarditis, osteomyelitis, and CNS abscesses. Efforts to combat the opioid epidemic might lower the overall incidence of endocarditis, osteomyelitis, and CNS abscesses.

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145. Liver Steatosis as a Risk Factor for Invasive Group B Streptococcus Infection in Non-Pregnant Adults
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Background. Nonalcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease associated with metabolic syndrome and systemic chronic inflammation response. However, the impact of NAFLD on bacterial infections is unknown. Group B Streptococcus (GBS) infection is a significant cause of invasive disease among adult non-pregnant patients with high mortality rates, associated with diabetes mellitus and obesity as the most common underlying conditions. The aim of this study was to analyze the association of liver steatosis with invasive GBS disease outcomes.

Methods. A retrospective, cohort study of all non-pregnant adult patients diagnosed with invasive GBS infection (GBS isolated from the normally sterile site) was conducted at the University Hospital for Infectious Diseases Zagreb during a 14-year period.

Results. Of the 217 patients with invasive GBS, 90 had complete data and were included in the study. Disease primarily presented as bacteremia without focus (34; 37.8%), cellulitis/erysipelas (27; 30.0%), pneumonia (11; 12.2%) and endocarditis (8; 8.9%). The most common co-morbidities were diabetes (36; 40.9%), dyslipidemia (35; 38.9%), cardiovascular (32; 35.6%), peripheral vascular disease (18; 20.0%) and malignancy (16; 17.8%). Based upon the results of abdominal US the patients were divided into two groups: with steatosis (39; 43.3%) and without steatosis (51; 56.6%). The patients with liver steatosis were younger (63 ± 13 vs. 71 ± 14 years, P = 0.01), had higher AST (45.6; IQR 30–71 vs. 28.5; IQR 20–71, P = 0.047) and ALT (38.25; 25.5–55.5 vs. 21.5; 14–40, P = 0.009). There were no differences in clinical presentation and comorbidities between groups. The in-hospital mortality was 43.5% in patients with steatosis (17/39) and 17.6% (9/51) in control group (P = 0.09). Logistic regression analysis showed that endocarditis (OR 200.8; 95% CI 11.5–3512.5), primary bacteremia (3.1; 1.0–9.5), and liver steatosis (8.4; 2.0–35.1) were associated with in-hospital mortality.

Conclusion. Our findings showed that invasive GBS disease has significant mortality, which is independently associated with liver steatosis.

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146. Infective Endocarditis in South Korea: a 12-year Single-Center Experience of 419 Patients
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Background. Infective endocarditis (IE) is a potentially lethal disease that has undergone constant changes in epidemiology and treatment. Treatment of IE has become more complex with today’s myriad healthcare-associated factors as well as regional differences in causative organisms. Therefore, it is necessary to investigate the overall trends, microbiological features, clinical characteristics and outcomes of IE in South Korea.

Methods. A retrospective, cohort study of all non-pregnant adult patients with IE was conducted at the University Hospital for Infectious Diseases Zagreb during a 14-year period. The median age of the patients was 56 years. The annual incidence rate of IE of our institution was significantly increased. (RR 1.05; 95% CI, 1.02–1.08; P = 0.006) The mortality rate showed trends toward down, but not statistically significant (P = 0.875). IE was related to a prosthetic valve in 15.0% and 21.7% patients developed IE during hospitalization. The mitral valve was the most commonly affected valve (61.3%). Causative microorganisms were identified in 309 patients (73.7%) and included streptococci (34.6%), followed by Staphylococcus aureus (15.8%) and enterococci (7.9%). The in-hospital mortality rate was 14.6%. Logistic regression analysis found aortic valve endocarditis (OR 3.18; P = 0.001), IE caused by staphylococcus aureus (OR 2.32; P = 0.026), a presence of central nervous system embolic complication (OR 1.98; P = 0.031), a high SOFA score (OR 1.22; P = 0.023) and a high Charlson’s comorbidity index (OR 1.11; P = 0.019) as predictors of in-hospital mortality. On the other hand, surgical intervention for IE was found to be a protective factor against mortality. (OR 0.25; P < 0.001).

Conclusion. Although IE has been increasing, the mortality rate has not yet reduced significantly. Studies on causative organisms of IE and risk factors for mortality are warranted in improving prognosis.