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### [O94] INPATIENT SYSTEMIC SEPSIS ALERT SYSTEMS DO NOT DEMONSTRATE UTILITY AFTER JOINT ARTHROPLASTY

Antonia Chen<sup>1</sup>, Gregory Kazarian<sup>1</sup>, Tae Kim<sup>1</sup>, Douglas Hollern<sup>1</sup>, Carl Deirmengian<sup>1</sup>

<sup>1</sup>Rothman Institute, Philadelphia, United States

**Aim:** Hospital systems have recently instituted early systemic sepsis recognition systems, where vital signs and laboratory findings are monitored and automatically alert providers to potential sepsis. Although there are very few reports evaluating the use of sepsis alert systems outside of the emergency room or intensive care unit, many hospital systems have made the decision to apply the sepsis alarm protocols to all inpatients. The purpose of this study was to evaluate if an alarm system using systemic inflammatory response syndrome (SIRS) criteria is a valuable tool to predict systemic sepsis in the immediate postoperative period (POD#0-4) after total joint arthroplasty (TJA).

**Method:** 10,791 primary and revision TJA patients at one institution, from 2010-2014, were retrospectively reviewed for positive SIRS criteria on each hospital day from the date of surgery to postoperative day four (POD#4). SIRS criteria included temperature > 38°C or < 36°C, heart rate > 90 beats per minute, respiratory rate > 20 breaths per minute, and white blood cell (WBC) > 12,000/mm<sup>3</sup> or < 4,000/mm<sup>3</sup>. Additionally, hospital coding data was cross-referenced to identify patients who were diagnosed with systemic sepsis within 10 days after having a TJA.

**Results:** Of the 10,791 patients undergoing a primary or revision TJA, only 1 patient was diagnosed with sepsis within 10 days of TJA, yielding a prevalence of 0.00009. During POD#0-4, 1798 patients would have triggered at least a 2 criteria SIRS alarm, yielding a false positive rate of 16.7% and a positive predictive value for systemic sepsis of 0.06% (95%CI: 0 to 0.31%). 416 patients would have triggered at least 3 criteria SIRS alarm, yielding a false positive rate of 3.9% and positive predictive value of 0.24% (95%CI:0.01 to 1.33%). The SIRS criteria in the one septic patient in this study did become positive, but did so only after the clinical team had already initiated sepsis care.

**Conclusions:** A SIRS based alarm system for sepsis does not appear to have any utility in the postoperative period after TJA. We are concerned that the high false positive rate of these alarms may result in unnecessary sepsis work-ups, extended hospital stays, and potentially degrade the perceived importance of the sepsis alarms in other cohorts of hospital patients. Further research is necessary to determine if TJA patients with a length of stay greater than normal may benefit from an automatic sepsis alarm system.