

## **More Than Just Obesity: Metabolic Syndrome as an Independent Risk Factor for Periprosthetic Joint Infection**

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### **INTRODUCTION:**

Metabolic syndrome (MetS), often understudied, presents a significant impact on outcomes in TKA & THA. Despite its prevalence, it remains unknown whether MetS increases the risk for PJI. This study aims to identify the risk factors for chronic PJI, emphasizing on MetS as an independent risk factor.

### **METHODS:**

A retrospective study on 12,332 adults who underwent primary TKA and THA between 2018-2024 was conducted. Patients were classified based on the presence of MetS, defined as the existence of type 2 diabetes and two of the following: hyperlipidemia, hypertension, or a BMI over 30 kg/m<sup>2</sup> within one year of surgery. Of the procedures, 5,692 were performed on patients with MetS, with 62% of these being TKAs. Demographics and the Charleston comorbidity index were recorded to run a multivariate regression model to evaluate the association between MetS and PJI.

**RESULTS:** In patients with MetS, the incidence of PJI was 4.64%, compared to 1.4% in patients without MetS, yielding an odds ratio of 3.46(95%CI:2.89-5.05). Despite the increased risk of PJI among patients with MetS, no significant differences were observed in the organism profile regarding gram-positive (P=.60), gram-negative (P=.054), and drug-resistant organisms (P=.11). MetS ranked as the third most significant preoperative risk factor for PJI, following only AIDS (OR: 5.6,P<.0001) and liver disease (OR:4.3,P<.0002), and exceeding the risk associated with diabetes alone (OR:3.1,P<.0002). Other risk factors included rheumatologic diseases (OR:1.6,P=.005), and alcohol abuse (OR:1.5,P=.044).

### **DISCUSSION AND CONCLUSION:**

Based on the results of this study, MetS significantly increases the risk of PJI. These findings underscore the critical need for enhanced screening of MetS as a major modifiable risk factor for PJI. Addressing broader factors contributing to MetS could further reduce these risks, pointing to a broader scope of preventive strategies.