**Risk of Surgical Site Infections after Primary Total Knee Arthroplasty is Increased with a Longer Operative Duration**

Bryon JX Teo1, William Yeo2, Hwei-Chi Chong2, Andrew HC Tan1

1. Department of Orthopaedic Surgery, Singapore General Hospital, Singapore
2. Department of Physiotherapy, Singapore General Hospital, Singapore

Purpose and Objectives: Surgical site infection (SSI) is a serious and feared complication following total knee arthroplasty (TKA), leading to considerable morbidity and repeated surgical procedures. The incidence of SSI is reported to be up to 2% in the literature. Purported risk factors continue to be an area of intense debate. Amongst others, obesity, prolonged operative duration and the presence of diabetes mellitus are reported to be significant risk factors for SSI.

Our study aims to report the incidence of SSI in our patients undergoing TKA. We also aim to identify possible associated risk factors.

Materials and Methods: Prospectively collected registry data for 905 patients who underwent elective unilateral TKA by a single surgeon from February 2004 to July 2014 were reviewed. Patient demographics including body mass index, age and presence of relevant co-morbidities such as diabetes, heart disease, stroke and renal impairment were analysed. The presence of superficial wound infections, periprosthetic joint infections (PJI) as defined by the Musculoskeletal Infection Society (MSIS) criteria, or both, was included for purposes of this study.

Results: The overall infection rate was 1.10% (10 patients of 905). Six patients (0.66%) were diagnosed with superficial wound infection and four patients were diagnosed with PJI (0.44%). The mean operative duration for TKA with SSI was significantly longer at 90.5 ± 28.2 mins, compared to 72.2 ± 20.3 mins in TKA without SSI (p = 0.03). Risk of infection in TKA was significantly increased by four-fold if the surgery took longer than 75 mins (p = 0.04). All superficial infections occurred within the first month post-surgery and were self-limiting with oral antibiotics. The four patients with PJI required repeated procedures following TKA, namely repeated debridement and washout, removal of implant with spacer insertion and/or staged revision knee arthroplasty. None of the ten patients had a history of diabetes. There were no significant differences in age, gender, obesity, side of surgery and presence of co-morbidities between those who developed infection after TKA and those who did not.

Conclusion: An overwhelming majority of our patients had good outcomes with only four deep infections resulting in the need for revision surgery. We report that the risk of infection in TKA was increased significantly if the surgery took longer than 75 minutes. In our study, age, gender, side of surgery, obesity and a history of diabetes did not predispose the patient to increased risk of infection. Our findings allow us to better counsel our patients preoperatively on the risk of surgical site infections accordingly.