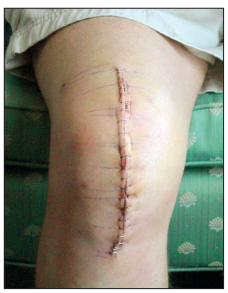
Still fighting prosthetic joint infection after knee replacement



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We congratulate Erik Lenguerrand and colleagues on the publication of their paper in *The Lancet Infectious Diseases*[1] and respect that it is a well-conducted study. In their large-scale observational study, the authors collected data from the UK National Joint Registry including a total of 679 010 primary knee arthroplasty cases and evaluated associations between patient, surgical, and healthcare system factors and the risk of revision for prosthetic joint infection. To the best of our knowledge, this is the largest cohort study to date analysing the risk factors for periprosthetic joint infection following primary total knee replacement.

Lenguerrand and colleagues present various patient-related risk factors for prosthetic joint infection following primary knee arthroplasty, although some important information such as surgical time or germ spectrum was not included in their statistical analyses. Furthermore, body-mass index (BMI) was classified into three groups (<25 kg/m², 25–29·9 kg/m², and ≥30 kg/m²), whereas previous studies have shown that BMI higher than 40 kg/m² dramatically increases the risk of postoperative complications.[2,3]

Regarding procedural or implant-related risk factors, we believe that two findings should be considered with caution. First, the authors concluded that high-volume hospitals have a higher risk for prosthetic joint infection than low-volume hospitals, although several investigations have already shown, depending on the metric of interest, that volume is related to quality. For example, in 2006, Judge and colleagues reported on the Hospital Episode Statistics for England including 211 099 knee replacements and found the opposite—ie, that rates of complications were higher in low-volume hospitals than in high-volume hospitals.[4] More recently, in 2017, Jeschke and colleagues reported a clear association of increased risk for revision surgery when undergoing a total knee replacement in a hospital that did less than 145 of these operations per year.[5] Laucis and colleagues recently offered new definitions of high-volume and very high-volume centres.[6] In their series, very high-volume centers (those doing ≥1000 procedures annually) had the lowest complication rate.

Second, Lenguerrand and colleagues reported that uncemented total knee replacement cases had a lower risk of revision for prosthetic joint infection than cemented total knee replacement cases. However, the International Consensus Meeting on Periprosthetic Joint Infection was held in 2013 and 2018 in Philadelphia (PA, USA), and the latest consensus statement differs from the results reported by Lenguerrand and colleagues. After a review of several randomised clinical trials, no significant difference in the incidence of periprosthetic joint infection depending on the method of fixation could be shown.[7]

In summary, we appreciate the excellent work of Lenguerrand and colleagues. However, we believe that in addition to patient selection and optimisation of modifiable risk factors, the surgeon and hospital annual caseloads are essential factors that need to be optimised to reduce postoperative complication rates following primary total knee replacement. Further studies are warranted to elucidate the optimal preoperative protocol to avoid complications following total knee replacement.

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1 Lenguerrand E, Whitehouse MR, Beswick AD, et al. Risk factors associated with revision for prosthetic joint infection following knee replacement: an observational cohort study from England and Wales. *Lancet Infect Dis* 2019; published online April 17. http://dx.doi.org/10.1016/S1473-3099(18)30755.

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