A Comparison of Revision Rates for Cementless Versus Cemented Fixation for a Single Prosthesis Posterior-Stabilised Total Knee Arthroplasty; Medium-Term Follow-Up of 18,824 Cases from the UK National Joint Registry

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INTRODUCTION:
Cementless total knee arthroplasty (TKA) offers a number of conceptual benefits over cemented TKA, and evidence of equivalence exists for certain implant designs. Whilst posterior-stabilised (PS)-TKA is favoured by some surgeons as it aids surgical exposure and gap balancing, there are concerns that the cam-post interaction may transmit excessive stress to the tibial component-bone interface, preventing osseointegration. This study aims to assess the survivorship of cementless and cemented options of a single prosthesis PS-TKA.
METHODS:
We obtained data from the United Kingdom (UK) National Joint Registry (NJR), on patients undergoing primary PS-TKA for osteoarthritis using a single TKA system between 1st January 2010 and 31st December 2019. We excluded patients with an implausible body mass index (BMI, <10 or >60 kg/m^2), or where there was use of bone graft, revision implants or a hybrid approach to cementation.
RESULTS:
There were 18,824 relevant PS-TKA, 1,068 (5.7%) cementless and 17,756 (94.3%) cemented. Those in the cementless cohort were more likely to be male (48.7% vs 41.9%, p<0.01), of lower median age (70 vs 71 years, p=0.01), higher median BMI (31 vs 30 kg/m^2, p<0.01), and shorter median duration of exposure to risk of revision (5.5 vs 6.9 years, p<0.01). Rates of revision did not differ between the cementless and cemented groups, both all-cause (2.4% vs 2.8%, p=0.49), and for aseptic loosening (0.4% vs 0.6%, p=0.29). Adjusted cox regression analysis demonstrated that patient demographics independently associated with greater likelihood of all-cause revision were younger age (18-49), BMI 35-39 kg/m^2 and ASA grade III or IV.
DISCUSSION AND CONCLUSION:
The present study demonstrates equivalent rates of revision at medium-term after cementless and cemented fixation of PS-TKA from the now most commonly used TKA system in the UK, a comparison not available in the NJR report. Follow-up of longer duration will be of interest to determine the effects on implant survival, particularly for patients that are younger, or with a higher BMI.