AB151. The varus cemented femoral stem in total hip arthroplasty: predictors and the femoral access ratio

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Background: Recent evidence exists to support the contribution of greater trochanteric lateroversion towards varus stem malalignment (VSM) in total hip arthroplasty (THA). The role of greater trochanteric height (GTH) in this process is unknown. We describe a novel morphological ratio, the 'femoral access ratio' (FAR), in the preoperative femur (GTH/metaphyseal width at the level of the lesser trochanter) to investigate its role in VSM.

Methods: A series of 80 cemented femoral stems were reviewed. Preoperative patient data and radiographic morphological features of each femur were measured and the preoperative FAR score calculated. Immediate postoperative stem alignment was measured and the predictors of VSM assessed. Logistic regression analysis was performed control for confounding variables.

Results: In total, 77 patients were analysed. Cemented stems had higher rates of VSM compared to uncemented stems (53% v 38%) (P=0.015). The two predictors of VSM were body-mass-index (BMI) and FAR score. Higher BMI was associated with higher rates of femoral VSM (<25: 45% varus, 25–29.9: 57% varus, ≥30: 77% varus. P=0.048). A FAR score of less than 1 lead to 68.4% of femoral stems in varus *vs.* 36.6% with a FAR score greater than 1 (P=0.009). The GTH component of the FAR score contributed most to the prediction of VSM (P=0.013).

Conclusions: The FAR score is a useful, simple preoperative radiographic measurement that can predict the likelihood of femoral VSM in cemented femoral stems. We recommend awareness when cementing femoral stems in femurs with a 'FAR' score of less than 1 and in patients with high BMIs.

Keywords: Cemented stems; femur; greater trochanteric height; total hip arthroplasty; varus malalignment

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