

Stability of cementless hole and non-hole hip prosthesis

Abstract :

Lacking of stability known to be as one of the principal factors contributes to loosening of hip prosthesis. Initial stability of the hip prosthesis related with the magnitude of relative displacement at the femoral bone-prosthesis interface. The present study aimed to investigate the effect hole as additional features on the initial stability. 3D finite element model of femur and prosthesis developed based on CT dataset of a Malaysian patient. Simulations of normal walking condition performed on the models to investigate the relative displacement between the bone and prosthesis interface. The simulations results report that additional hole as a feature on the proximal region of prosthesis, produce highest relative displacement at the proximal region on the medial side.