Abstract:
Orientation of the native acetabular plane as defined by the transverse acetabular ligament (TAL) and the posterior labrum was measured intra-operatively using computer-assisted navigation in 39 hips. In order to assess the influence of alignment on impingement, the range of movement was calculated for that defined by the TAL and the posterior labrum and compared with a standard acetabular component position (abduction 45°/anteversion 15°). With respect to the registration of the plane defined by the TAL and the posterior labrum, there was moderate interobserver agreement ($r = 0.64, p< 0.001$) and intra-observer reproducibility ($r = 0.73, p< 0.001$). The mean acetabular component orientation achieved was abduction of 41° (32° to 51°) and anteversion of 18° (-1° to 36°). With respect to the Lewinnek safe zone (abduction 40° ±10°, anteversion 15° ±10°), 35 of the 39 acetabular components were within this zone. However, there was no improvement in the range of movement ($p = 0.94$) and no significant difference in impingement ($p = 0.085$). Alignment of the acetabular component with the TAL and the posterior labrum might reduce the variability of acetabular component placement in total hip replacement. However, there is only a moderate interobserver agreement and
intra-observer reliability in the alignment of the acetabular component using the TAL and the posterior labrum. No reduction in impingement was found when the acetabular component was aligned with the TAL and the posterior labrum, compared with a standard acetabular component position.