

Summary of research proposal LROI



Title:

Does ceramic-on-ceramic bearing jeopardize primary cup stability and influence early revision rates in press-fit total hip arthroplasty? An analysis from the Dutch National Registry.

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Abstract:

In press-fit total hip arthroplasty (THA) the initial primary stability of the uncemented acetabular cup during implantation is the most important factor for survival of the implant. Sufficient primary stability is needed to avoid micromotion, which jeopardizes osseointegration and therefore definitive secondary stability. This can cause aseptic loosening of the implant, which is the main reason for early revision of THA. Hard-on-hard bearings like ceramic-on-ceramic (CoC) seem to overcome the problem of late revisions, which are mainly caused by wear induced osteolysis, as seen in ceramic-on-(highly-cross-linked-)polyethylene (Co(HXL)PE) bearings. Although CoC seems like the ideal articulation according to its advantages, this low friction articulation is decreasing in popularity. Several factors might be the declaration of this decrease, including higher early cup revision rates due to aseptic loosening, as seen in literature. We raised the hypothesis that higher early aseptic loosening rate might be due to the stiffness of the bearing which can jeopardize primary stability and transition to definitive stability by osseointegration. The goal of this study is to investigate this hypothesis. Hereby we want to achieve better insights in the search for the perfect implant in THA by overcoming this most important factor of early revision.

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