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Large diameter femoral heads in primary Total Hip Arthroplasty (THA) - how big is big enough: A systematic review

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Biography

Gaurav Neupane is currently pursuing her Doctoral studies at ICAR-NIANP, Bangalore, India. She has completed her masters in Biotechnology. Her area of research interest is related to nutraceuticals and its effect on gut health. Her research work is focused to establish an effective and acceptable enzymatic process of D-tagatose production keeping in view the expected demands of D-tagatose in near future and to evaluate its prebiotic and anti-diabetic propertiesthrough in- vitro and in-vivo experimental models. She has experience in research and teaching. Her interest lies in conducting a long-term scientific research in the field of nutraceuticals and their role in modulating the gut microbial composition impacting the health and well-being of both animal and human.

Abstract

Introduction: The available literature around use of large diameter heads (LDH) in Total Hip Arthroplasty (THA) is abundantly available but paucity in its use in primary uncomplicated THA exists. This study addressed available data around primary THA involving LDH and analyze the complications of dislocation, volumetric wear, implant survivorship and functional score along with reported effects on range of motion (ROM), patient reported outcomes and impingement rate/groin pain.

Methods: A PRISMA compliant systematic review was undertaken in Medline and PubMed database review along with offline search for published English literature between 2008 and 2018. The articles providing data on the use of large diameter heads (LDH) (36mm or larger) on various bearing surfaces were collected. This included robust national joint registries of different countries. A narrative approach to data synthesis was used.

Results: We included a total of twenty-three papers in our review including six national joint registries. Among these, twenty papers were examined for dislocation rates, five for wear rate, six for revision rate & seven for implant survivorship as primary outcomes. The secondary outcome was evaluated in eleven papers for Harris Hip Score, seven for post op ROM, five for patient reported outcome measures (PROMs) and nine for miscellaneous outcomes. It was observed that LDH had significantly low dislocation rates, excellent implant survival rate as per Kaplan Meier survivorship (>90% at five years). Majority used posterior or posterolateral approaches with significantly low dislocation rates. Revisions were done mostly for causes like ARMD, aseptic loosening or periprosthetic fractures.

Conclusions: LDH of 32-36mm are now commonly used in primary THA and is accepted as a popular size. The beneficial effects of a large head size are negated beyond 38mm. The most ideal size for LDH THA, therefore is, 36mm contrary to older literature favoring 28mm.

Publication

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