



National Trends in Bearing Surface Usage of Primary Total Hip Arthroplasty in Extremely Young Patients From 2009-2012

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Introduction: The ideal bearing surface for primary total hip arthroplasty (THA) in young patients remains a debate. Data on recent national trends is lacking. A 2006-2009 study found that hard-on-hard bearing surfaces (metal-on-metal (MoM)), (ceramic-on-ceramic (CoC)) were used more frequently in younger patients than hard-on-soft surfaces (metal-on-polyethylene (MoP)), (ceramic-on-polyethylene (CoP)). Despite the potential for superior longevity, hard-on-hard surfaces are associated with notable complications. The purpose of this study was to present the national epidemiology of bearing surface usage between 2009-2012 for THA performed in patients 30 and younger.

Methods: Using the Healthcare-Cost-and-Utilization-Project Nationwide Inpatient Sample for 2009-2012, 9,265 primary THA discharges (4,210 coded by bearing surface) were identified in patients 30 and younger. The prevalence of each surface type was analyzed along with patient and hospital demographic data. Statistical analysis was performed using SAS (SAS version 9.1.; SAS, Inc., Cary, NC) Significance was set for $p < 0.05$.

Results: CoP was most commonly used, representing 35.6% of cases, followed by MoP (28.0%), MoM (19.3%) and CoC (17.0%). Hard-on-hard (MoM and CoC) represented only 36.4% of cases, a significant decrease from previous findings where hard-on-hard was the majority (62.2%) ($p < 0.05$). Hard-on-hard decreased from 2009 to 2012, (MoM: 29.7% to 10.2%; CoC: 20.0% to 14.7%) while hard-on-soft (MoP and CoP) increased, especially CoP which saw the most significant increase from 25.7% in 2009 to 48.2% in 2012. A cost analysis revealed that CoP discharges were associated with higher hospital charges compared to other surface type discharges, with an average charge of \$66,457 ($p < 0.05$).

Conclusions: Bearing surface preference for young patients is changing rapidly. Use of hard-on-hard surfaces has decreased significantly in this population while CoP and MoP have become increasingly common. Decreased use of hard-on-hard surfaces likely represents the influx of reported complications including adverse local tissue reactions, acoustic changes and concerns for fracture. Determining the optimal bearing surface for young patients continues to be a challenge for orthopaedic surgeons as they weigh the risks and benefits of each.