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Abstract Number : **A606**
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1 Abstract Title

Increased Revision Risk with Rotating Platform Bearings in Total Knee Arthroplasty

2 Abstract Description

Introduction:

Rotating Platform (RP) bearings in total knee arthroplasty (TKA) have the potential to reduce polyethylene wear and improve patellar tracking due to axial freedom. However, concerns for increased risk of revision have been described due to the associated tibial component design, added complexity with balance, and risk of bearing dislocation. We examine the risk of revision with use of RP compared to fixed bearing (FB) designs in TKA.

Methods:

An analysis of primary TKA cases in patients age >65 years was performed with American Joint Replacement Registry data linked to Centers for Medicare and Medicaid Services data from 2012-2019. Patient demographics, and cause for revision were recorded. Analysis compared RP to FB designs using Cox proportional regression modeling for all-cause and revision for infection, adjusting for gender, age, and the competing risk of mortality. Event-free survival curves evaluated time to revision for all-cause and revision for infection.

Results:

We identified 485,024 TKAs, with 452,199 (93.2%) FB and 32,825 (6.8%) RP bearings. Compared to FB the RP were at increased risk for all-cause revision HR 1.36 ([95% CI 1.24, 1.49], $p < 0.0001$). There was no difference in revision for infection, HR 1.06 ([95% CI 0.90, 1.25], $p = 0.516$). Event-free survival curves demonstrated increased risk for all-cause revision for RP bearings across all time points, with a greater magnitude of risk as time elapsed out to 8 years.

Conclusion:

Similar to other national registry investigations, RP designs in this study demonstrated increased risk for all-cause revision. Given no difference in risk of revision for infection, additional investigation is needed to determine if the increased failure rates could be related to unaccounted for patient selection factors, surgical technique, bearing issues, or potentially implant related issues including tibial baseplate fixation.

3 Does this study include the use of large administrative databases (e.g., Medicare database, Nationwide Inpatient Sample, NSQIP, Humana database, Statewide or country database or registry, or any other BIG DATA source)?

Yes

4 If the presenter of this paper is a trainee, will the senior author be able to attend the meeting and answer audience questions?

Yes

5 Has this work been :

Not Applicable

6 **FDA Status: Policy provides that "off-label" uses of a device or pharmaceutical may be described in the CME activities as long as the "off-label" status of the device or pharmaceutical is also specifically disclosed (i.e. that the FDA has not approved labeling the device for the described purpose). Any device or pharmaceutical is being used "off-label" if the described use is not set forth on the product's approved label.**

Documentation of FDA status for uses described in my work for this educational program.

The FDA has cleared all pharmaceuticals and/or medical devices for the use described in this presentation

7 Clinical category that best describes the content of your proposal

Primary Knee

8 Does this study simultaneously describe both hip and knee arthroplasty patients? (e.g., includes both THA and TKA patients)?

No

9 How would you rate this abstract's level of evidence?

Level 3: Retrospective cohort study or Case Control Study

Description / Examples

Rotating platform bearing demonstrate increased risk for all-cause revision compared to fixed bearing designs in total knee arthroplasty, an analysis from the American Joint Replacement Registry.

10 Have you and your co-authors disclosed all potential conflicts of interest through the AAOS disclosure process, http://www.aaos.org/disclosure?

Yes

11 Are ANY of the conflicts of interest of ANY of the authors related to this study?

No

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