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CORR Insights®: Is There a Difference in TKA Risk of Revision in Highly Crosslinked versus Conventional Polyethylene?

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Where Are We Now?

Previously published large, population-based studies [1, 6] examining the differences between highly crosslinked polyethylene versus conventional polyethylene have yielded inconsistent results in

TKA. Inacio et al. [6] did not find a difference in cobalt-chromium highly crosslinked polyethylene versus conventional polyethylene for TKA bearings in a large US sample. However, a 2013 report from the Australian registry [1] found that highly crosslinked polyethylene tibial inserts in TKAs lowered the risk of revision versus conventional polyethylene.

The current study by Paxton and colleagues is important because researchers used a large, US registry [8] to examine the effect of highly crosslinked polyethylene versus conventional polyethylene on revision risk in TKA. Paxton and colleagues did not find differences in revision risk for highly crosslinked polyethylene compared to conventional polyethylene at 5 years, but the authors did find that highly crosslinked polyethylene added cost to the surgical procedure. These

results bring into question the value of this change in clinical practice for this specific patient population employing these specific implants. This work supports previously published data from a community registry and basic science publications [3–5].

Where Do We Need To Go?

In some respects, the findings by Paxton and colleagues differ from those of the Australian Joint Replacement Registry which utilized multiple manufacturers and processes [1]. The Australian registry indicated better specific manufacturers' results in terms of revision 5 years post-operatively. Paxton and colleagues did not address the issue for all implants, but they did individually evaluate two of the most popular implants utilized by these surgeons and demonstrated no differences in revision rates.

How Do We Get There?

Future studies will need to evaluate all implants not only with respect to

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revision rates, but also including patient-reported outcomes, pain, function, return to work, and duration of followup. The best way to improve our outcomes will be to require the use of registry databases throughout the world. We must scrutinize the differences that are inevitably found.

An international effort called the International Society of Arthroplasty Registers [7] is currently underway to establish similar databases and end points. Their stated purpose is to improve outcomes for individuals receiving joint replacement surgery worldwide. The focus of the society is to further enhance the capacity of individual registries to meet their own aims and objectives. The society is involved in the development of frameworks to encourage collaborative activities and provides a support network for established and developing

registries. The addition of the American Joint Replacement Registry and the California Joint Replacement Registry [2] are vital to this effort.

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