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CORR Insights®: Revisions of Monoblock Metal-on-metal THAs Have High Early Complication Rates

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Where Are We Now?

Attempts to address the limitations of early metal-on-polyethylene (MoP) bearings, well outlined in the introduction of this paper, have historically followed two different approaches. The first approach concentrated on improving the materials and design of MoP articulations, with reductions in wear and resultant osteolysis. The second approach abandons polyethylene altogether, and seeks alternative bearing materials such as the metal-on-

metal (MoM) bearings described in this study.

In retrospect, it was somewhat simplistic to presume that the improved wear characteristics of MoM bearings would occur without some disadvantages. Early failure rates are well documented [1], complicated by an incompletely understood potential for aggressive bone and soft tissue reaction [2, 3] rarely seen with MoP.

The clinical importance of metal ion concentrations is another concern [1], which was beyond the scope of this study. Rather, the current manuscript provided important insight into the

frequency of early complications and factors contributing to failure.

Where Do We Need To Go?

It is clear that understanding the factors and mechanisms involved in these early failures is critical. Patient, design, and material factors contributing to failure (and success) can be identified from retrospectively collected data. The minimum 2-year followup guideline for publication of clinical results should be waived (as in this series) when issues and failures arise.

The timing of when to introduce new technology into patient care always a difficult and complex decision, but in the future, consideration for longer-term preclinical trials may be an option. Stryker and colleagues stressed the challenges associated with revision of the failed hips in this case series, which should be a major factor surgeons should consider when selecting THA bearings. As with all bearing couples, a complete understanding of the in vivo response, and its clinical impact to the

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patient, must be considered. This an area of intense study at many centers and answers will surely be forthcoming.

How Do We Get There?

There is no substitute for quality data obtained from long-term followup studies. Only with such information can failures be identified, understood, and avoided in the future. The unfortunate situation documented in this series is that the failures resulting in revision occurred early. This is the

most worrisome scenario for arthroplasty surgeons.

Registry data are essential for many reasons, but information from registries about the pathogenesis of failure is by its nature limited. When dealing with a potentially serious biologic response as in MoM bearings, detailed case series will be required, which should provide detailed radiographic review, likely MR evaluation, tissue sampling, metal ion levels, and any other analyses that can help surgeons and scientists understand – and we hope, prevent – future problems.

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