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The Challenges of the Ubiquitous Application of the Data Presented in “Total Hip Arthroplasty Versus Hemiarthroplasty for Displaced Femoral Neck Fracture: A Systematic Review and Meta-Analysis of Randomized Controlled Trials”

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We read with great interest the article “Total Hip Arthroplasty Versus Hemiarthroplasty for Displaced Femoral Neck Fracture: A Systematic Review and Meta-Analysis of Randomized Controlled Trials” (JBJS 2020; 102:1638-45) (1). The authors did an excellent job reviewing the available literature on this topic, and included the largest trial to date in their data analysis (2). Their methods were sound and they utilized several methods to eliminate bias, which is always challenging when performing a meta-analysis. However, some important factors when interpreting this data were either not addressed, or addressed in limited fashion. Word count may have limited a more in-depth discussion on their results.

As stated in the article, total hip arthroplasty for femoral neck fractures has increased in recent years. Previous meta-analyses on the topic, however, seem to contradict this article and discuss the advantages of total hip arthroplasty over hemiarthroplasty, especially after 5 years (3,4). A look at study inclusion between previous analyses, and the current one, reveals high cross-over. One major difference, however, is the inclusion of the HEALTH trial. Given that the HEALTH trial had almost as many patients as all the other studies combined, the weighted effects of this trial should not be overlooked. Advances in total hip arthroplasty over the past decade have also improved dislocation rates, and should be considered when interpreting older data. This letter is simply to provide an avenue for discussion on the results of some of these trials.

Three issues with the current paper, and the literature in general, examining the two modalities are: follow up, age, and patient factors. The follow up for this meta-analysis regarding revision rates was only five

years. This is an issue with most of the existing literature examining the two. The problem with that timeframe is, according to previously published literature, the revision rate of hemiarthroplasty to total hip arthroplasty likely occurs after 5 years, and that younger patients are at a higher risk. A recent registry study placed the risk of conversion at 24.6% at 10 years (5). Studies extending beyond 5 years can be difficult secondary to patient survivability, and the results are mixed. However, trends in patient satisfaction, conversion rates, and symptomatic joints seem to favor total hip arthroplasty. Considering the follow-up period looking at conversion rates was only 5 years in the present study, a large cohort of revision patients may be missed.

The other issue that befalls published literature on this topic is age. The average patient age for this analysis was 77, which is much older than the 65-year-old patient that was traditionally thought of as the ideal total hip candidate for fracture. Younger, more active patients remain at a higher risk for conversion of their hemiarthroplasty, which makes extrapolation of this data to all patients difficult.

The third topic of discussion is concerning patient factors. Activity level, overall health, ambulatory status, etc. should always be considered when determining which implant a patient should receive (6). Several randomized controlled trials exist that demonstrate the effectiveness of total hip arthroplasty for femoral neck fractures, especially in active and healthy patients regardless of age (7,8).

The authors did an excellent job of reviewing the data, and their conclusions are likely correct. At 5 years, there may be no difference between the two patient populations. However, readers should be cautioned about extrapolating this data to all patients, as it can be easy to look at these results and apply its conclusion in general. The topics addressed here were minimally discussed in the paper, but having a conversation on this difficult topic is important.

All patient factors should also be considered, such as activity level, overall health, mental status, etc. when deciding which implant a patient should receive. A 77-year-old with a hip fracture may not live long enough, or be active enough later in life, to warrant a total hip arthroplasty. If the risk at 10 years is higher for conversion, will a now 87-year-old be active enough to require it? Perhaps not. However, someone who was 62 when they sustained their injury, and is now an active 72-year-old with a symptomatic hemiarthroplasty, presents a much more challenging problem. However, the risk would be much different if the 62-year-old had baseline dementia. As always, literature guides our decision making, but care should be taken when extrapolating that data to our patients.

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Conflict of Interest: None Declared