Does surgical approach impact outcomes in primary total hip arthroplasty?

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Recommendation: Based on data spanning over several years, it appears that all surgical approaches for total hip arthroplasty (THA) are safe and demonstrate excellent results. No surgical approach appears to be superior to another. In addition to accounting for individual patient characteristics, surgeons should also consider their proficiency with the technique when selecting surgical approach in patients undergoing primary THA.

Strength of Recommendation: Moderate

Rationale:

Over the years, a number of surgical approaches for primary THA have been described within the orthopaedic literature [1]. Although the optimal surgical approach in this setting is determined by individual surgeon training and proficiency, it is important to note that different approaches have been shown to offer unique advantages [2,3]. For instance, several studies in the literature have demonstrated that the posterior approach (PA) has the lowest complication rates in patients that require large femoral heads or advanced soft tissue repair [4]. On the other hand, the direct lateral (DL) approach has been suggested to have the lowest rate of dislocations after surgery [5]. Most recently, the direct anterior (DA) approach has gained traction in this setting

following reports that it results in the shortest recovery time after surgery [6]. Notwithstanding, the optimal approach in patients undergoing primary THA remains a contentious issue.

In a recent metanalysis of 63 randomized controlled trials that included 4,859 patients, the authors found no difference in outcomes between primary THA patients that received PA, DA, or DL surgical approaches [7]. However, the DL approach was associated with lower improvement in the hip score and greater intraoperative blood loss. In another study by Ang et al., although patients undergoing THA via the DA approach had a greater improvement in early patient reported outcome scores, they were also more likely to experience longer operative times [8]. Of note, there was no difference in risk of dislocations, periprosthetic fractures, or venous thromboembolic events between the different approaches. Similarly, Shohat et al. found that there was no difference in PJI rates between patients that received the DA approach (0.9%), when compared to those that received the DL approach (0.9% vs. 1.3%, p=0.068) [9]. In another study, Marratt et al. reported on a propensity score matched cohort of 2,147 patients and found that while there was no difference in dislocation rates between the DA (0.84%) and PA (0.79%) approaches, patients in the DA group had a higher risk of periprosthetic fracture and hematoma formation [10]. Notwithstanding, several studies in the literature have now demonstrated that the DA approach can be associated with an increase in the risk of periprosthetic femur fracture, especially when the surgeon is first adopting the technique [11–13]. In a study by Fleischman et al., the DA approach was associated with the highest risk of developing mechanical complications at 2-years (hazard ratio [HR], 2.4; 95% CI, 1.4 to 2.7) when compared to the PA and DL approaches [14]. It is also important to recognize that there are certain scenarios that they may necessitate the use of a specific approach. For instance, there is data to suggest that the DA approach may not be suitable in patients with a large pannus as it can increase the risk of wound

complications and infection [15]. In addition to this, Huebschmann et al. found that the PA approach increased the risk of dislocation in patients with a prior lumbar spinal fusion, when compared to the DA and DL approaches [16].

Instability, dislocation, and periprosthetic fracture remain major causes of morbidity and mortality following primary THA, regardless of the surgical approach that is utilized. Although the DA approach was initially believed to have superior outcomes when compared to the more conventional PA and DL approaches, it is now well-established that all three surgical approaches are safe and have excellent results in this patient population. Currently, the choice of surgical approach should depend on both individual patient characteristics and surgeon proficiency.

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