Editorial Commentary: Patient Profiling: Identifying Risk Factors That Help Predict Outcomes of Hip Arthroscopy Candidates

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Abstract: Hip pain in the young athletic population is often caused by femoroacetabular impingement morphology. If a patient fails conservative management, hip arthroscopy becomes a potential treatment option. Our ability to maximize patient outcomes after hip arthroscopy is directly related to preoperative patient selection, intraoperative technical ability, and attention to detail in the postoperative period. When considering surgery as a therapeutic option, we want to first identify that the pain is truly stemming from the hip. Once the hip is identified as the culprit, then we proceed with the responsibility of discussing pros and cons and risks and benefits to each patient to critically evaluate whether surgical treatment is a viable option. With the explosion of literature in the field of hip preservation, we have recognized certain modifiable and nonmodifiable risk factors that aid us in identifying patients who may have difficulty in achieving their functional athletic expectations after surgery.

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Understanding indications and identifying potential risk factors before surgical management are essential steps to improving overall patient outcomes. Most hip arthroscopists would agree that the ideal surgical patient is the young, healthy athlete with isolated groin pain exacerbated by deep flexion activities, with studies demonstrating an obvious cam lesion/labral tear, intact cartilage, and normal acetabular coverage. However, the reality of clinical practice is that we see a variety of patients, each presenting with a unique history, examination, and study findings. We need to be able to identify both positive and negative predictive factors that help us to counsel our patients on the probability of achieving a positive surgical result. Fulfilling our patients' functional expectations and improving their lifestyle is the ultimate goal. The study by Stone, Beck, Malloy, Chahla, Nwachukwu, Neal, and Nho[1] titled "Preoperative Predictors of Achieving Clinically Significant Sport Function Status After Hip Arthroscopy for Femoroacetabular Impingement at 2-Year Follow-Up" provides further information to help us to counsel our patients on the expected outcomes of surgical management in athletes. This report adds to the literature by further identifying negative risk factors for returning patients to sports. In this manuscript, the minimally clinical important difference (MCID) and patient acceptable symptomatic state (PASS) are used to identify these adverse risk factors.

To summarize, let's go through what we have currently identified throughout the literature as modifiable and nonmodifiable risk factors, in no particular order of importance, that *may* identify patients less likely to improve after a hip arthroscopy (disclaimer: with a full understanding that not all studies would agree with this list and that my generated list is most likely not inclusive of all the findings in the literature).[2-8] Items 1 through 6 are negative predictive factors that have been identified in the current manuscript by Stone et al.[1]

1. Presence of femoral chondral damage
2. Increased alpha angle
3. Anxiety. Stress. Depression. Pain catastrophization. Noncoper.
4. Obesity
5. Longer duration of symptoms (>2 years)
6. Presence of a limp

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7. Presence of arthritis (joint space <2 mm or Tonnis 1-3)
8. More extensive chondral involvement on the acetabular side
9. Moderate to severe hip dysplasia
10. Increased age
11. Workers' Compensation or legal cases
12. Lower initial preoperative patient-reported outcome (PRO) scores
13. Chronic opioid use
14. Female patients

Any article that helps identify risk factors is helpful for clinicians when trying to decide whether to pursue surgical management. I find the current report to be helpful in that it adds to the literature by directly addressing clinical improvement in the athletic population.

Now, there are 2 issues specifically related to this report that I would like to address. First, I'd like to point out that the field of hip arthroscopy has seen a shift when looking at sex. In this report, the authors had 69.8% female patients in their cohort. Although femoroacetabular impingement (FAI) was initially thought of as a disease affecting primarily men, more practices are seeing a shift to include more female patients. As we have gotten better surgically, particularly with capsular closure, the number of female patients benefitting from hip arthroscopy has increased. Looking through my case load from 2018, just over 70% of my FAI cases were female. Now these percentages may not represent all surgical practices, as there may be biases related to referral patterns that affect these numbers. Regardless, what was once thought to be a primarily male disease is not necessarily the case in 2019.

Second, as with many clinical articles, I'd like to highlight the recent trend to publish the MCID and/or PASS. These 2 calculations are used to establish a cut-off point for clinical improvement and an acceptable clinical state for our PROs. As defined by Kvien et al.,[9] the MCID is defined "according to the patient's perception of what is an important improvement" and the PASS is defined as "the highest level of symptom beyond which patients consider themselves well." The numbers are supposed to help by incorporating an assessment of meaningful *clinical* significance that would help determine a change in practice. As a clinician, I am still struggling with how to use these numbers. I am obviously a neophyte to the concepts of the MCIS and PASS and, quite frankly, have avoided understanding the concepts because they just make my head hurt. To write this editorial, I had to force myself to read about the MCID and PASS and figure out how to interpret the numbers rather than just accept them as the truth. The specific details of how to compute an MCID and a PASS score are too complicated for an editorial commentary, and I urge you to read a recent review in the otolaryngology literature by Sedaghat[10] if you are interested in a well-written clinical summary of the MCID.

Although these numbers are helpful in providing another way to interpret clinical outcomes, we need to be careful with how we use them. Both the MCID value and the PASS value will vary according to the specific study population and should not be accepted as a universally applicable number (i.e., not the same value for weekend warriors compared with competitive athletes, because the 2 groups have different outcome expectations). In a recent discussion, one of our trainees quoted a previously published MCID value for rotator cuff repairs, relating it to the paper we were reviewing in journal club. Although we were all impressed that someone knew a published MCID value, this is not how MCID numbers should be used, particularly if the patient population is dissimilar. Using the MCID in this manner is oversimplifying the utility. Second, we need to understand that there are multiple different ways to calculate an MCID, including anchor and distribution methods. There is no universally agreed methodology as to which way is best and the value can vary according to the method chosen. Regardless of the flaws, it is important for the MCID and PASS to be published so we can continue to gain a better understanding of how to use them in our decision-making process.

We, as clinicians, need to take this list of risk factors and try to figure out which patients we believe are reasonable surgical candidates. This is where we all have different levels of comfort with patient selection. What do we do with the 40-year-old, nonarthritic, slightly overweight, anxious female patient with FAI and a history of > 2 years of hip pain and low initial PRO scores once she has failed conservative treatment? This is where the art of medicine becomes an important factor for each individual surgeon and patient in the complex decision-making algorithm.

References

1. Stone AV, Beck EC, Malloy P, et al. Preoperative predictors of achieving clinically significant sport function status after hip arthroscopy for femoroacetabular impingement at 2-year follow-up. *Arthroscopy* 2019;35:3049-3056.
2. Adler KL, Giordano BD. The utility of hip arthroscopy in the setting of acetabular dysplasia: A systematic review. *Arthroscopy* 2019;35:237-248.
3. Basques BA, Waterman BR, Ukwuani G, et al. Preoperative symptom duration is associated with outcomes after hip arthroscopy. *Am J Sports Med* 2019;47:131-137.
4. Nabavi A, Olwill CM, Harris IA. Preoperative predictors of outcome in the arthroscopic treatment of femoroacetabular impingement. *Hip Int* 2015;25:402-405.
5. Philippon MJ, Briggs KK, Carlisle JC, Patterson DC. Joint space predicts THA after hip arthroscopy in patients 50 years and older. *Clin Orthop Relat Res* 2013;471:2492-2496.
6. Sochacki KR, Brown L, Cenkus K, Di Stasi S, Harris JD, Ellis TJ. Preoperative depression is negatively associated with function and predicts poorer outcomes after hip arthroscopy

for femoroacetabular impingement. *Arthroscopy* 2018;34:2368-2374.
7. Stone AV, Malloy P, Beck EC, et al. Predictors of persistent postoperative pain at minimum 2 years after arthroscopic treatment of femoroacetabular impingement. *Am J Sports Med* 2019;47:552-559.
8. Westermann RW, Hu J, Hagen MS, Willey M, Lynch TS, Rosneck J. Epidemiology and detrimental impact of opioid use in patients undergoing arthroscopic treatment of femoroacetabular impingement syndrome. *Arthroscopy* 2018;34:2832-2836.
9. Kvien TK, Heiberg T, Hagen KB. Minimal clinically important improvement/difference (MCII/MCID) and patient acceptable symptom state (PASS): What do these concepts mean? *Ann Rheum Dis* 2007;66:iii40-iii41 (suppl 3).
10. Sedaghat AR. Understanding the minimal clinically important difference (mcid) of patient-reported outcome measures. *Otolaryngol Head Neck Surg* 2019:194599819852604.