Defining the Learning Curve for Hip Arthroscopy

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Video Abstract

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Abstract

Hip arthroscopy is an increasingly popular option for the repair of intra-articular conditions such as hip impingement and labral tears. But the procedure is technically demanding, and the learning curve for achieving competency isn't well understood. To shed light on this issue, researchers have reviewed the records from 8041 hip arthroscopies performed by 251 surgeons to determine what career volume is most likely to prevent the need for revision surgery within 5 years. Career volume was defined as the number of hip arthroscopies performed per surgeon from their first documented case up to the index procedure. The index cohort included data from patients treated in New York state between 2003 and 2012 – compiled from the New York Department of Health's SPARCS database. Using these data, the researchers defined four strata for surgeon volume. They then compared the patient demographics and need for reoperation among these four groups. The results revealed a steeper learning curve than has been formerly appreciated. While the overall frequency of subsequent hip surgery was 12.3%, this rate did not appreciably drop until a surgeon had performed at least 389 arthroscopic operations – a number that is much higher than previously suggested cutoffs for competency. One factor likely contributing to this learning curve is diagnostic acumen. For example, only the highest-volume surgeons produced a significantly decreased risk for subsequent total hip arthroplasty or resurfacing. The proportion of patients with hip osteoarthritis was also lowest in this group, suggesting that these surgeons have gained a level of mastery over appropriate patient selection. But improved technical skill also had a role in preventing the need for additional surgery. The surgeons with the highest level of experience also had the fewest revision surgeries in patients under 40 years of age – a population traditionally considered high-risk for reoperation. These findings underscore the need for better technical training as well as more focused instruction on the diagnostic aspects of the surgery. By defining clear indications and contraindications for hip arthroscopy in addition to enhancing procedure-specific training, it may be possible to ease the learning curve for this complex operation.