Outcomes of Hip Arthroscopy Based on Gender and Age: a Comparative Matched-Group Analysis

Rachel M. Frank MD; Simon Lee MD, MPH; Charles A. Bush-Joseph MD; Michael J. Salata MD; Chad Mather III MD; and Shane J. Nho MD MS

Department of Orthopaedic Surgery, Rush University Medical Center, Chicago, IL

Introduction

Indications for the arthroscopic management of femoroacetabular impingement (FAI), as well as risk factors for failure, are evolving. Factors such as age and sex are postulated to play a role in outcomes following arthroscopy for FAI, however, no data currently delineates outcomes based on these factors. The purpose of this study was to compare clinical outcomes of patients undergoing hip arthroscopy for FAI based on sex and age. The authors hypothesized improved outcomes in younger, male patients compared to older, female patients.

Methods

150 patients undergoing hip arthroscopy for FAI by a single fellowship-trained surgeon were prospectively analyzed, with 25 patients in each of the following groups:

- Males ≤ 30
- Females ≤ 30
- Males 31-45
- Females 31-45
- Males ≥ 45
- Females ≥ 45

Primary outcomes included the Hip Outcome Score Activity of Daily Living (HOS-ADL) and Sport-Specific Subscales (HOS-SS), the modified Harris Hip Score (mHHS), and clinical improvement at a minimum 2-year follow-up.

Radiographic analysis was performed pre- and post-operatively, assessing for alpha angle, lateral center edge angle (LCEA), and joint space width (JSW).

Results

At a minimum 2-year follow-up, all groups demonstrated significant improvements in HOS-ADL, HOS-SS, and mHHS scores (P<0.0001, Figure 1). Females >45 scored significantly worse on the HOS-ADL, HOS-SS, and mHHS compared to females ≤30 (P<0.0001 for all) and females 30-45 (P<0.0001, P<0.0001, P=0.016, respectively). Males >45 scored significantly worse on the HOS-ADL, HOS-SS, and mHHS compared to males ≤30 (P<0.01 for all) and males 30-45 (P<0.015 for all). Incorporating both sexes (Figure 2), patients >45 scored significantly worse on the HOS-ADL, HOS-SS, and mHHS compared to patients ≤30 (P<0.01 for all) and patients 30-45 (P=0.012 for all). Females <45 had significantly reduced radiographic preoperative joint space width compared to all other groups (P<0.05 for all).

Discussion

While all patients had significant improvements in all outcomes, patients >45 performed worse than younger patients, with females >45 demonstrating the lowest outcome scores. In addition, females <45 performed as well as males <45 in terms of hip clinical outcome scores. Therefore, females <45 with normal joint space can expect a predictable pain relief and hip function. Overall, care must be individualized to optimize outcomes following hip arthroscopy for FAI.

Table 1: Demographics

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Number of Patients</td>
<td>75</td>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>Age (years)</td>
<td>37.3±12.7</td>
<td>36.5±12.3</td>
<td>36.9±12.5</td>
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<tr>
<td>Side of Surgery (Right, Left)</td>
<td>28 R, 47 L</td>
<td>41 R, 34 L</td>
<td>69 R, 81 L</td>
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<tr>
<td>Preop Alpha Angle (°)</td>
<td>59.3±5</td>
<td>57.3±12.2</td>
<td>58.4±10.9</td>
</tr>
<tr>
<td>Preop Center Edge Angle (°)</td>
<td>32.4±5.3</td>
<td>31.0±6.7</td>
<td>31.5±5.4</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>25.9±4.0</td>
<td>24.2±3.8</td>
<td>24.9±3.9</td>
</tr>
<tr>
<td>Follow-up (months)</td>
<td>27.1±8.4</td>
<td>26.4±10.3</td>
<td>26.9±9.6</td>
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</table>

Figure 1: While all groups demonstrated improvements in all outcomes, females >45 years scored significantly worse on all outcomes compared to females ≤30 and females 30-45 years.

Figure 2: Scores for patients ≤30 years old were not significantly different compared to patients 30-45 years old. However, patients >45 years old scored significantly worse as compared to the other two age groups.