Magnetic Resonance Imaging is Helpful in Surgical Decision Making Process of Medial Compartment Osteoarthritis of the Knee

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We have no financial conflicts to disclose.
Still debate on what is the most appropriate treatment
Introduction

◆ **HTO & UKA**
  ➢ Firstly considered for the middle-aged patients
  ➢ Role of buy time surgery until TKA is finally performed
  ➢ Careful selection of patients → Essential for Successful outcomes

◆ **MRI**
  ✓ Considerable weight in orthopedic field
  ➢ Raised concerns about overuse of MRI
  ➢ Try to choose a satisfactory treatment without MRI help
  ➢ Most effective tools for assessment of ligament, cartilage, meniscal structures
Purpose

➢ Still a lack of research
✓ Efficacy of MRI in determining the surgical procedure in Medial compartment OA

◆ To determine the usefulness of MRI in the decision making process of surgical plan for the patients with medial compartment OA of the knee
Materials and Methods

◆ September, 2011 ~ June, 2016 :
  ➢ 353 patients planned for UKA or HTO

◆ Inclusion criteria of HTO
  ➢ < 65 years of age with Isolated medial compartment OA
  ➢ No ligament instability

◆ Inclusion criteria of UKA
  ➢ Isolated medial compartment OA without lateral compartment problem
  ➢ Correctable varus deformity/ Intact ACL

◆ Exclusion criteria
  ➢ Inflammatory arthritis (RA), Hx of infection, FU period < 2 years
**Materials and Methods**

First decision based on Age, Severity of Deformity, Activity, OA grade

1. History, Physical exam, X-ray
   - Symptomatic PFJ OA
     - Yes: TKA
     - No: Medial Compartment OA
       - Failed Conservative Tx

2. Younger
   - More deformed
   - More active
   - Less severe OA
   - HTO

3. Older
   - Less deformed
   - Less active
   - More severe OA
   - UKA

4. MRI
   - Contraindication of HTO
     - Yes
   - Contraindication of UKA
     - Yes

5. HTO
   - No
   - UKA
   - No
Materials and Methods

◆ Causes of the change in surgical decision from UKA or HTO to TKA after MRI

◆ Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score

➢ Preoperative & postoperative 2 years

◆ SPSS ver. 21.0 program (SPSS Inc., Chicago, IL)
Results

◆ Change from UKA or HTO to TKA after MRI
  ➢ 29 of 353 cases (8.2%)

✓ 15 knees: Cartilage defect in the lateral compartment
✓ 4 knees: Cartilage defect in PF joint
✓ 6 knees: BMLs in the lateral compartment
✓ 3 knees: ACL deficiency
✓ 1 knee: Osteonecrosis in the lateral femoral condyle
## Results: Demography

<table>
<thead>
<tr>
<th></th>
<th>UKA (n=159)</th>
<th>HTO (n=164)</th>
<th>TKA (n=29)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Female : Male)</td>
<td>139 : 20</td>
<td>136 : 28</td>
<td>25 : 4</td>
<td>0.517</td>
</tr>
<tr>
<td>Age</td>
<td>61.0 ± 6.5</td>
<td>55.8 ± 7.9</td>
<td>60.2 ± 3.7</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>BMI</td>
<td>25.4 ± 2.8</td>
<td>25.7 ± 3.3</td>
<td>26.1 ± 3.7</td>
<td>0.403</td>
</tr>
<tr>
<td>Operation side (Right : Left)</td>
<td>73 : 86</td>
<td>75 : 89</td>
<td>11 : 18</td>
<td>0.715</td>
</tr>
</tbody>
</table>
## Results: WOMAC

<table>
<thead>
<tr>
<th></th>
<th>Preoperative</th>
<th>Postoperative 2 year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UKA</td>
<td>HTO</td>
</tr>
<tr>
<td><strong>Total WOMAC</strong></td>
<td>52.6 ± 9.7</td>
<td>48.3 ± 13.2</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>10.7 ± 3.3</td>
<td>9.5 ± 3.2</td>
</tr>
<tr>
<td><strong>Stiffness</strong></td>
<td>3.6 ± 1.9</td>
<td>3.5 ± 1.7</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>38.5 ± 7.9</td>
<td>35.4 ± 10.4</td>
</tr>
</tbody>
</table>
Conclusion

◆ The routine use of MRI

✓ Helpful in deciding surgical options in patients planning UKA, HTO, or TKA for the medial compartment OA of the knee


