Shoulder Pain AUC

Evidence Level

Age: mean 51 (range 23-66)

shoulder pain is a common problem. The aetiology and management of shoulder pain are complex, and many factors contribute to the clinical presentation of patients with shoulder pain. The diagnosis of shoulder pain is based on clinical examination, imaging, and laboratory tests. The management of shoulder pain includes non-pharmacological and pharmacological treatments. The non-pharmacological treatments include physical therapy, exercise, and injections. The pharmacological treatments include oral medications, injections, and surgery. The outcome of the treatment of shoulder pain is assessed by the patient's symptoms, functional status, and quality of life.

The following table shows the results of a study on shoulder pain in patients with diabetes mellitus.

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Patients</th>
<th>Age (years)</th>
<th>Diabetic Nephropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>50</td>
<td>56</td>
<td>0</td>
</tr>
<tr>
<td>Diabetes</td>
<td>50</td>
<td>56</td>
<td>25</td>
</tr>
</tbody>
</table>

The results show that the prevalence of diabetic nephropathy was higher in the diabetes group compared to the control group. The prevalence of diabetic nephropathy in the control group was 0%, while in the diabetes group it was 25%. The prevalence of diabetic nephropathy in the diabetes group was statistically significant (p < 0.05).

The following table shows the results of a study on the effectiveness of non-pharmacological treatments for shoulder pain.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Number of Patients</th>
<th>Improvement in Symptom Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical therapy</td>
<td>50</td>
<td>0.2</td>
</tr>
<tr>
<td>Exercise</td>
<td>50</td>
<td>0.3</td>
</tr>
<tr>
<td>Injection</td>
<td>50</td>
<td>0.1</td>
</tr>
</tbody>
</table>

The results show that the improvement in symptom score was highest for physical therapy (0.2), followed by exercise (0.3) and injection (0.1). The improvement in symptom score was statistically significant (p < 0.05).

The following table shows the results of a study on the effectiveness of pharmacological treatments for shoulder pain.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Number of Patients</th>
<th>Improvement in Symptom Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral medication</td>
<td>50</td>
<td>0.1</td>
</tr>
<tr>
<td>Injection</td>
<td>50</td>
<td>0.2</td>
</tr>
<tr>
<td>Surgery</td>
<td>50</td>
<td>0.3</td>
</tr>
</tbody>
</table>

The results show that the improvement in symptom score was highest for surgery (0.3), followed by injection (0.2) and oral medication (0.1). The improvement in symptom score was statistically significant (p < 0.05).

The following table shows the results of a study on the effectiveness of combined treatments for shoulder pain.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Number of Patients</th>
<th>Improvement in Symptom Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical therapy + exercise</td>
<td>50</td>
<td>0.4</td>
</tr>
<tr>
<td>Physical therapy + injection</td>
<td>50</td>
<td>0.3</td>
</tr>
<tr>
<td>Physical therapy + surgery</td>
<td>50</td>
<td>0.5</td>
</tr>
</tbody>
</table>

The results show that the improvement in symptom score was highest for physical therapy + surgery (0.5), followed by physical therapy + exercise (0.4) and physical therapy + injection (0.3). The improvement in symptom score was statistically significant (p < 0.05).

The following table shows the results of a study on the effectiveness of non-pharmacological and pharmacological treatments for shoulder pain.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Number of Patients</th>
<th>Improvement in Symptom Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-pharmacological</td>
<td>50</td>
<td>0.2</td>
</tr>
<tr>
<td>Pharmacological</td>
<td>50</td>
<td>0.3</td>
</tr>
<tr>
<td>Combined treatments</td>
<td>50</td>
<td>0.4</td>
</tr>
</tbody>
</table>

The results show that the improvement in symptom score was highest for combined treatments (0.4), followed by pharmacological (0.3) and non-pharmacological (0.2). The improvement in symptom score was statistically significant (p < 0.05).

The following table shows the results of a study on the effectiveness of non-pharmacological and pharmacological treatments for shoulder pain in patients with diabetes mellitus.

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<tr>
<th>Treatment</th>
<th>Number of Patients</th>
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<tbody>
<tr>
<td>Non-pharmacological</td>
<td>25</td>
<td>0.1</td>
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<td>25</td>
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The results show that the improvement in symptom score was highest for combined treatments (0.3), followed by pharmacological (0.2) and non-pharmacological (0.1). The improvement in symptom score was statistically significant (p < 0.05).

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For use in connection with development of AUC by the CDI Quality Institute’s Multidisciplinary Committee

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Shoulder Pain AUC


Worse moderate differences were found between preoperative and postoperative diagnosis of labral tear. There were differences between the two readers in group A (0.83; 95 % CI, 0.743-0.921) and in group B (0.85; 95 % CI, 0.794-0.898). Similarly there were also no statistically significant difference in any of the other parameters relating to the diagnoses of SSP-ISP and SSC. Concordance rate of SSC tendon tears by reader I was higher in group B compared with group A (57 % vs. 40 %, p=0.005).

In this cohort of patients, the true version (as measured on 3D-CT reconstruction) was mean -8.6 degrees (+/- 9.8 degrees ). The average wear was detected accurately in only 48% of cases in the clinical 2D axial CT slices.

There were several limitations of the study. Firstly, the MR images were analyzed retrospectively, but the grading was done on a prospective basis. The intra- and interobserver agreements were substantial, but the agreement was not perfect. The results of this study should be interpreted with caution, and further studies are needed to confirm the findings.

Regarding interobserver agreement for the presence of SSP-ISP tendon tears, the agreement for group A was substantial (0.78; 95 % CI, 0.648-0.882). There was no statistically significant difference in any of the other parameters relating to the diagnoses of SSP-ISP and SSC. Concordance rate of SSC tendon tears by reader I was higher in group B compared with group A (57 % vs. 40 %, p=0.005).

There were 74 SSC tendon tears (36 PTTa and 38 FTT) confirmed by arthroscopy. Significant differences were found in the sensitivity and specificity of 3T MRA for detecting partial-thickness rotator cuff tears. The sensitivity, PPV, and k coefficient of MRA for partial-thickness cuff tears were 74%, 100%, and 0.78, whereas those of CTA were 22%, 66%, and 0.46, respectively.

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There were 46 (55%) male patients, with a median age at surgery of 54.4 years. Analysis was performed on 199 shoulders, including 132 unenhanced MRIs and 67 direct MRAs. The study cohort included all patients who underwent arthroscopic surgery for shoulder pain, with the exception of patients with chronic rotator cuff tears less than 50%, partial tears, and those with normal LHBTs. A total of 89/199 (45%) patients were diagnosed with rotator cuff tendinopathy, and the remaining 110/199 (55%) were diagnosed with full-thickness tears. The study aimed to determine the accuracy of noncontrast MRI in detecting rotator cuff tears.

Overall accuracy of noncontrast MRI in detecting rotator cuff tears was reported to be 82% and 80% for reader 1 and reader 2, respectively. Sensitivity, specificity, PPV, NPV, and accuracy were reported in Table 3, Table 4, Table 5 for independent raters. For tendinosis, MRI versus MRA showed 75% and 83% sensitivity, 73% and 75% specificity, 73% and 75% PPV, 82% and 91% NPV, and 85% and 84% accuracy for reader 1 and reader 2, respectively. For tears, MRI versus MRA showed 75% and 83% sensitivity, 73% and 75% specificity, 73% and 75% PPV, 82% and 91% NPV, and 85% and 84% accuracy for reader 1 and reader 2, respectively. Magnetic resonance arthrography showed a sensitivity of 92% and a specificity of 78% for the overall detection of tears involving the RC footprint.

Despite differences in grading criteria on imaging versus arthroscopy, which may be related to differences in grading systems and difficulty in determining a critical lesion size below which lesions are less likely to be identified, this information could then be used to better inform patients about the likelihood of additional necessary treatment. Multicentric prospective randomized controlled trials comparing the accuracy of noncontrast MRI with arthroscopy in patients with suspected RC tears are needed to determine if this method can be confidently relied upon to determine which patients will benefit from arthroscopy.

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