Primary care referrals for shoulder ultrasound in the elderly; an audit of pre-ultrasound plain radiographs

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Background

Although rotator cuff abnormalities are common in elderly patients with chronic shoulder pain, other causes (e.g. adhesive capsulitis and glenohumeral acromioclavicular osteoarthritis (OA)) ought to be considered. While adhesive capsulitis remains a clinical diagnosis, OA can be accurately assessed on plain radiograph (XR). XR can also reliably demonstrate advanced tendinopathy and massive tears (Fig: 1). We propose that use of plain radiography can help avoid needless ultrasound studies.

Fig: 1 Radiographic assessment of rotator cuff tendinopathy/massive tears.

Method

We performed a retrospective audit to evaluate all primary care ultrasound shoulder referrals in elderly patients (>80yrs) within the East and North Hertfordshire trust.

*CIRIS* data of all primary care (GP) shoulder ultrasounds for 1 year (2017) period obtained and analysed. In patients with prior plain radiographs, x-ray were assessed (by MSK clinical fellow) for the degree osteoarthritis (Fig:2) +/- massive cuff tear.

Fig: 2 Grading glenohumeral joint OA (Samilson-Prieto classification).

Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Previous %</th>
<th>New %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massive Rotator Cuff Tear</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>No OA / Mild OA</td>
<td>75%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Summary

- 55% of elderly (>80yrs) patients had no prior radiographs. Of the 45% with prior radiographs, 57% of patients had moderate or severe OA and 47% subacromial space narrowing (chronic tendinopathy (diagnosed on radiograph)).
- We hence propose that plain radiograph and not ultrasound be first line investigation in elderly patients with chronic shoulder pain referred from Primary care.
- In presence of moderate to severe osteoarthritis or significant narrowing of sub-acromial space (massive rotator cuff tear), the GP should treat the patient conservatively or refer to a shoulder specialist clinic for further investigations/treatment.

Action plan

- In conjunction with local CCG, refine imaging pathway for shoulder pain in elderly patients.
- Standardise radiology reports for GP shoulder radiographs ensuring accurate grading of osteoarthritis (Fig 2) and assessment of sub-acromial space (Fig 1).
- Re-audit with intention to reduce the age of the cohort.

Standard

NICE guidance (revised 2017) for investigation of shoulder pain:

X-rays should be considered if there is a history of trauma, little improvement with conservative treatments and if there is severe pain and restriction of movement.

NICE guidelines do not recommend ultrasound as the first line of imaging.

Indicator: Elderly primary care patients with chronic shoulder pain should have shoulder x-rays prior to ultrasound.

Target: 100% of primary care elderly patients (>80years) with chronic shoulder pain should have plain radiograph prior to ultrasound.

References:

- NICE guidance (revised 2017) for investigation of shoulder pain: X-rays should be considered if there is a history of trauma, little improvement with conservative treatments and if there is severe pain and restriction of movement.
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- Indicator: Elderly primary care patients with chronic shoulder pain should have shoulder x-rays prior to ultrasound.
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