

## **The Role of Intra-articular Corticosteroid in the treatment of OA Knee: Case Report.**

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### **Introduction:**

Mr X, a 58 year old engineer by profession, who presented with a 5 year history of intermittent right knee pain and stiffness. The pain started gradually and got worse over a period of 1 year with poor mobility. Mr X had anti-inflammatory medications from his GP and was referred to a Rheumatology consultant. A corticosteroid injection was administered to his right knee joint 1 year ago, which helped him for 3 months. Mr X not very keen on surgery, and wants conservative management to improve his quality of life.<sup>33, 34</sup>

A full subjective and objective assessment is completed in accordance with current clinical guidelines.<sup>32,37,39</sup> Differential diagnosis was clinically ruled out and the diagnosis of OA knee was based on American College of Rheumatology Classification criteria for OA Knee as shown in Table B in the appendix. Diagnosis was further confirmed by X-Ray.<sup>3,35,36,38</sup>

### **Management:**

There have been various treatment options for pain relief and improve functions in OA Knee. General advice, patient's education, weight reduction, acupuncture<sup>10</sup>, self-management and emphasis on

adherence to exercise programme can improve the ROM and pain relief.

Mr X was given a choice of treatment options based on best practice with regards to his personal need and all options were discussed to make a decision about his treatment.<sup>39,16</sup> Various treatment options like hydrotherapy, electrotherapy, exercise, acupuncture, IA corticosteroid injection with lidocaine were offered to patient. Mr X was eager for immediate pain relief so opted for a corticosteroid injection followed by physiotherapy management. Corticosteroid injections can provide short term pain relief but are best for patient to get over pain flare ups.<sup>28</sup>

### **Outcome Measures:**

There were various outcome measures used to indicate the progress of Mr. X. He was asked to complete SF 36 to know the quality of life<sup>39</sup>, which has been found to be valid and reliable for various clinical conditions to produce a reliable data. VAS was assessed during 10 meter walk test, sit to stand in 1 minute, SCT prior to injection and at 8 weeks of post injection.

### **Procedure adopted for Intra articular corticosteroid Injection:**

Mr X was informed about the procedure to be carried out verbally and written information provided. All side effects were verbally explained and documented. A dose of (80mg) 2ml Depomedrone (Methyl Prednisolone acetate) and 4ml of 1% Lidocaine<sup>39</sup> was administered into patients right knee with a medial approach under comfortable, safe and aseptic technique<sup>26,27,29,30</sup>.

Mr X was advised absolute rest 24hours and further rest for 1 week. Mr X was given self management home exercise programme with pain management advice post injection

### **Outcome Assessment:**

Mr X was reviewed at week 1, week 3 and at 8 weeks which showed dramatic improvement in the pain from 7/10 on VAS pre-injection to 0/10 post injection. There was improvement in the Functional activity without pain.

ROM increased from 120 degrees to 130 degrees of flexion in the right knee joint with full extension with no pain overpressure.<sup>32</sup> Adherence to physiotherapy regime and home based exercise programme led to improvement in muscle strength of right quadriceps, hamstrings and right hip extensors and abductors at 8 week review.<sup>47</sup> General improvement was indicated by SF 36.

### **Discussion:**

It can be seen from the outcome measures after administering IA methyl prednisolone acetate into Mr X'S right knee, there was overall improvement in pain at rest, mobility, muscle strength, functions and general well being assessed

by SF36. However there are various discrepancies about the efficacy and safe use of intra articular corticosteroid.<sup>17,18,19,20</sup>

Bellamy *et al*<sup>7</sup> in their study states that corticosteroid injections are useful in short term pain reduction than placebo. This study does not support enough evidence for functional efficacy though supported reduction in pain within 2-3 weeks post injection. Similar results reported by studies done by Gaffney, Ledingham & Perry.<sup>24</sup> This study also showed that a joint should also be aspirated before injecting it to have better results.

There are different variety of corticosteroids being used in different studies to show the efficacy of one on other for pain management and functions. A Study done by Bellamy *et al*<sup>5</sup> showed that Triamcilone Hexacetonamide is better than Betamethasone in terms of pain reduction for up to 4 weeks post injection. However another double blind RCT study, by Pyne *et al*<sup>32</sup> showed that Methyl prednisolone is more effective than Triamcilone hexactonide in terms of pain reduction at week 8 measured on VAS and slight improvement in functional activities measured by LEQ tests.

Mr X had progressive improvement over the period of 8 weeks post injection as evidence suggest short term pain relief after corticosteroid injection<sup>7,12,20,32</sup> where as long term pain relief can be achieved if higher dose of corticosteroid is used.<sup>4</sup> The short term pain relief could act as a window of opportunity to introduce other modalities like exercise<sup>38</sup>, change in life style, reduction in weight, use of TENS machine for long term management.

### **Conclusion:**

The evidence in relation to effectively and benefit of IA steroid injections is still meagre and there is a need for further research as some of the studies are poorly designed, have small sample sizes. There has to be standardisations in use of outcome measures.

The efficacies of IA steroid injections have been evident through some of researches for short term.<sup>24,25</sup> Mr X had progressive improvement during the review after 8

weeks post injection in relation to pain, improved functions, muscle strength, SLR, ROM and patient was discharge with home advice and exercise programme. Emphasis was laid on self management. NICE<sup>28</sup> states that IA steroid injections should be used as an adjunct for the treatment of OA knee. The author feels that ability to provide IA injections have shortened the patient journeys and given more confidence to practice evidence based injection therapy.

### Appendix 1:

Using History and Clinical Examination	Using history, physical examination and radiographic findings:	Using history, physical examination and laboratory findings:
<p><b>Pain in knee and add 3 or more of the following:</b></p> <ul style="list-style-type: none"> <li>• <b>More than 50 years of age</b></li> <li>• <b>Stiffness lasting less than 30 minutes</b></li> <li>• <b>Crepitus present on active movement</b></li> <li>• <b>Bony enlargement</b></li> <li>• <b>Bony tenderness</b></li> <li>• <b>No temperature change over knee</b></li> </ul>	<p>Pain in the knee joint and add 1 of the following:</p> <ul style="list-style-type: none"> <li>• More than 50 years of age</li> <li>• Stiffness lasting for less than 30 minutes</li> <li>• Osteophytes</li> <li>• Crepitus</li> </ul>	<p>Pain in knee joint and add 5 of the following:</p> <ul style="list-style-type: none"> <li>• Over 50 years of age</li> <li>• Stiffness lasting less than 30 minutes</li> <li>• Crepitus present on active movement</li> <li>• Bony tenderness</li> <li>• Bony enlargement</li> <li>• No raised temperature of the synovial</li> <li>• ESR &lt;40MM/HOUR</li> <li>• RF &lt;1:40</li> <li>SF</li> </ul>
<p><b>Shows 95% sensitivity and 69 % specificity</b></p>	<p>Shows 91% of sensitivity and 86% of specificity</p>	<p>Shows 92 % of sensitivity and 75% of specificity</p>

Table 1: ACR Clinical Classification Criteria for Osteoarthritis of the knee

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