

Keele Critically Appraised Topic Group

Getting Evidence into Clinical Practice: Musculoskeletal Research Facilitation Group
(South Staffordshire MSK services CAT Group)

Date: 27.6.22

Specific Question:

In patients with Osteoarthritis (OA) of the knee does the use of more than two corticosteroid injections in 2 years affect pain and function compared to usual care; and does this accelerate the osteoarthritis within the knee?



Clinical bottom line

There is high quality evidence that cortico steroid injections (CSI) provides good short term clinical benefits, but that repeated CSI every 3 months over a 2 year period does appear to reduce cartilage volume.

There is also reasonable quality evidence from a United States study that repeated CSI may increase the probability of arthroplasty.

However, it was agreed that receiving a CSI every 3 months as a stand alone treatment for OA knee is not standard practice in the UK.

This does suggest that when offering service users CSI as part of their management plan, a shared decision should be made allowing the patient to make an informed choice for their care with the findings from above.

Why is this important?

Currently Advanced Practice Physiotherapists use corticosteroid injections (CSI) within Musculoskeletal (MSK) services to aid in the management of patients with Osteoarthritis (OA) of the knee who are struggling with severe pain and limited function. This is performed alongside physiotherapy interventions which mainly consists of exercise programmes alongside education sessions over a period of 8 contacts.

Recent posts on social media, research papers and clinical discussions among colleagues highlighted a potential negative clinical affect with using CSI for knee OA.

In order to address this concern and give clear guidelines in our pathways, as well as help us to educate non-MSK services injectors; it was agreed to critically appraise the new research around this topic to help give us a robust clinical bottom line with two goals in mind:

1. Improve understanding of the affects of multiple CIS's for knee OA to help give the clinician and patient a more informed choice around risk when choosing this intervention.
2. To enable us to embed and share good practice with injectors not working within our service.

Search timeframe 2011 -2021

Inclusion Criteria

	Description	Search terms
Population and Setting		Adults. knee osteoarthritis. OA of the knee. Meniscal degeneration. Degenerative arthropathy. Tibial femoral OA. Patella femoral OA.
Intervention or Exposure		Knee Intra-articular Injection. Steroid Injection. Corticosteroid injection. CSI. IA knee injection. Multiple steroid injections. Repeat injection.
Comparison, if any		Conservative treatment. Usual care. Physiotherapy. Saline injection. Sham injection. Exercise therapy. Education. No intervention.
Outcomes of interest		Progression of Osteoarthritis. Deteriorating pain / function. Acceleration of OA. Total knee replacement.
Types of studies		RCT's, Systematic reviews, Cohort Studies

Routine Databases Searched

Clinical Knowledge Summaries, PEDro, BMJ Updates, Clinical Evidence, TRIP, Database, NICE, HTA, Bandolier, The Cochrane Library, Medline, Cinahl, Embase, PsycInfo, Professional websites. Joanna Briggs Institute, Web of science, Sports discus and Pub med

Date of search- 29.01.21 & 08.02.2021

Results of the search

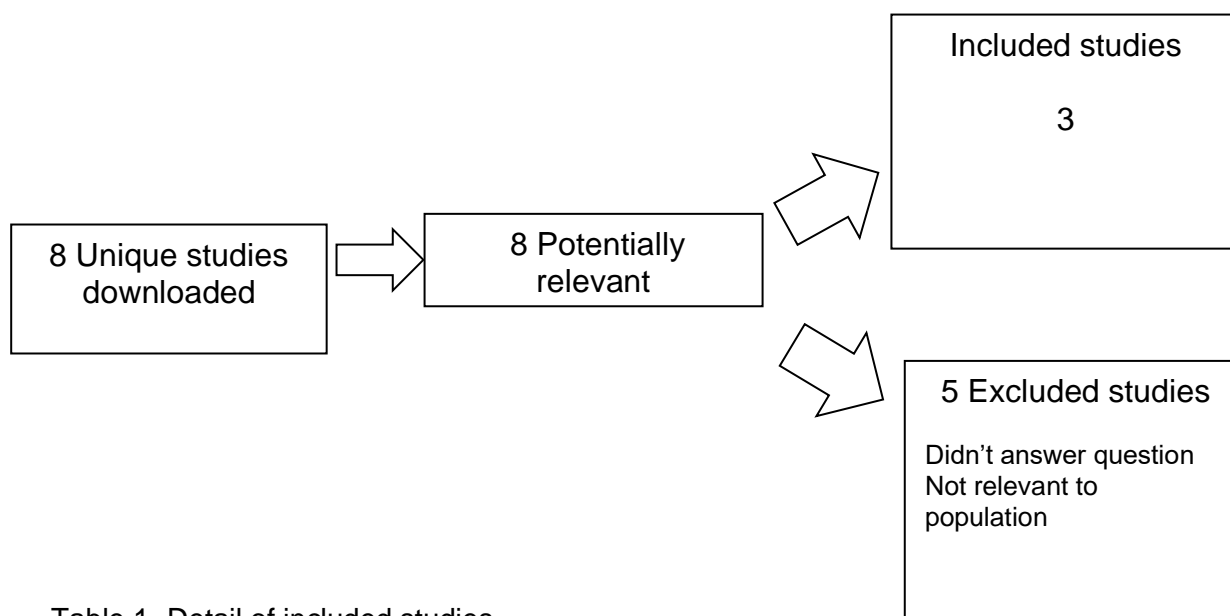


Table 1- Detail of included studies

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Raynauld JP 2003 RCT	Age 40 to 80 years Fulfilled the ACR criteria for knee OA Symptomatic knee OA requiring treatment Not responded adequately to treatment with acetaminophen or a traditional nonsteroidal anti-inflammatory drug (NSAID) Radiologic evidence of OA of the affected knee on a radiograph obtained within 6 months of the	1 RCT comparing CSI vs Saline, every 3/12 for 2 years (N=66)	No difference between groups in terms of joint space at 1 and 2 years Long term safety of CSI for patients with symptomatic OA Long-term treatment of knee OA with repeated steroid injections appears to be clinically effective for the relief of symptoms of the disease.	Low quality study Small numbers Evidence of possible performance bias No control group with no intervention No indication of physical activity levels of participants during trial

	start of the study Outpatient Clinic, Canada			
McAlindon TE 2017 RCT	Age 45 years or over & presence of knee OA USA – stand alone medical centre over 4 years	1 study comparing CSI vs Saline (n=145)	Results supported use of CSI for short term clinical benefits Repeat CSI every 3/12 does appear to reduce cartilage volume	High quality study with low bias CSI every 3/12 for 2 years as stand alone treatment does not match our local practice
Wijn et al 2020 multicentre longitudinal observational study	Age 45-79 years Patients at risk of developing, or with OA of the knee USA	Longitudinal Cohort Study of data from over a 9 year period Progress cohort & Incidence cohort	CSI seem to be associated with an increased risk of arthroplasty for each cumulative injection given. A conservative approach to CSI's for knee OA is recommended.	Moderate quality evidence from a US population

Summary

There is consistency in the reviews and trials identified within this CAT. All suggest there is short term benefits to pain and function for patients with OA who receive a CSI.

One high quality trial stated that continued CSI every 3/12 for two years did appear to reduce cartilage volume and accelerate the need for knee arthroplasty; however, this does not match our current clinical practice. Within our clinical service, consensus agreed that two injections over a six month period would be acceptable practice.

There was no clear indication that more than two injections in two years worsened pain and function; but risks of reduced cartilage volume with repeated injections should be shared with the service user when deciding whether they receive further CSI to help manage the Osteoarthritis in their knee.

Implications for Practice/research

It has been agreed that there will be no change in current clinical practice when utilising CSI as a treatment for Osteoarthritis of the knee within our service.

It should however be made clear to the service user the possible negative clinical affects that could occur from repeated corticosteroid injections over a longer period; and a shared decision at this point should be made on whether this management option is best for them.

What would you tweet? (140 characters)




There is high quality evidence that CSI provides good short term clinical benefits, but that repeated CSI every 3 months over a 2 year period does appear to reduce cartilage volume and can increase the risk of arthroplasty.

References

McAlindon TE, LaValley MP, Harvey WF, Price LL, Driban JB, Zhang M, Ward RJ. Effect of Intra-articular Triamcinolone vs Saline on Knee Cartilage Volume and Pain in Patients With Knee Osteoarthritis: A Randomized Clinical Trial. JAMA. 2017 May 16;317(19):1967-1975. doi: 10.1001/jama.2017.5283. PMID: 28510679; PMCID: PMC5815012.

Raynauld JP, Buckland-Wright C, Ward R, Choquette D, Haraoui B, Martel-Pelletier J, , Imad U, Visithan K JL, Bertrand C, Pelletier JP **Safety and efficacy of long-term intraarticular steroid injections in osteoarthritis of the knee: a randomized, double-blind, placebo-controlled trial** Arthritis Rheum . 2003 Feb;48(2):370-7. doi: 10.1002/art.10777. PMID: 12571845 DOI: 10.1002/art.10777
Free article <https://onlinelibrary.wiley.com/doi/abs/10.1002/art.10777>

Wijn S.R.W.; Rovers M.M.; Van Tienen T.G.; Hannink G **Intra-articular corticosteroid injections increase the risk of requiring knee arthroplasty a multicentre longitudinal observational study using data from the osteoarthritis initiative Source:** Bone and Joint Journal; May 2020 (no. 5); p. 586-592

	Good quality evidence to support use....	<input checked="" type="checkbox"/>
	Insufficient or poor quality evidence OR substantial harms suggest intervention used with caution after discussion with patient...	<input type="checkbox"/>
	No good quality evidence, do not use until further research is conducted OR Good quality evidence to indicate that harms outweigh the benefits....	<input type="checkbox"/>