

Specific Question:

In adults with inflammatory arthritis and persistent knee synovitis, does yttrium synovectomy improve pain and function?

Clinical bottom line

In adults with inflammatory arthritis and chronic knee synovitis there is no high quality evidence to suggest the use of yttrium is more beneficial than placebo or intra-articular triamcinolone for pain and function.

If there is continued clinical demand for this procedure, there would be a need for high quality trials investigating this with health economic outcomes.

Why is this important?

Patients with inflammatory arthritis and persistent knee synovitis (often as a monoarthritis) are occasionally locally referred for yttrium synovectomy to relieve pain.

The evidence base for this practice is unclear and its effectiveness difficult to establish as referral numbers are so small.

The procedure involves considerable resource (inpatient admission, theatre booking, training of staff, post procedure splinting). Therefore it would be helpful to understand the best available evidence around whether the yttrium synovectomy is more effective in reducing pain than usual care. Usual care may be considered medication, and glucocorticoid intraarticular injections. However, in practice, yttrium synovectomy is usually offered to patients who are perceived to have failed these options and in whom surgery may be the only other consideration.

Inclusion Criteria

	Description	Search terms
Population and Setting	Adults with inflammatory arthritis Excluded: Children	monoarthritis (monoarthritis*; rheumatoid arthritis*, psoriatic, spondyloarthropathy Seronegative arthritis*
Intervention or Exposure (ie what is being tested)	Intervention of yttrium radio-synovectomy	Yttrium radiosynoviorthesis Chemical/ radiation synovectomy
Comparison, if any	Usual care Placebo No treatment/ any other treatment	
Outcomes of interest	Pain, function	

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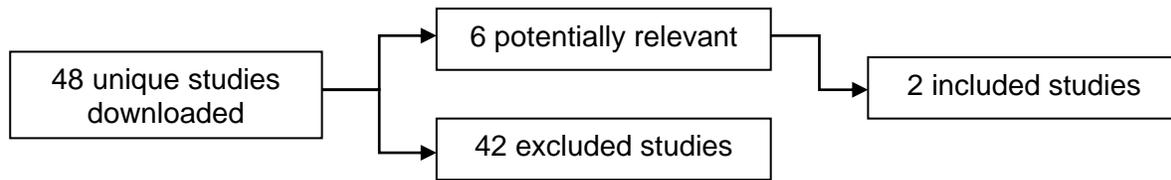
Types of studies	SR & RCTs only Observational studies if no RCTs	
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Database	Date/Issue searched	Searched from	Number of records downloaded
Cochrane Systematic Reviews	23/09/2016		0
Clinical Evidence			
DARE/HTA/NHSEED			19
Pubmed	27/09/2016		21
CINAHL			0
AMED			0
Embase	23/09/2016		26
Cochrane (CENTRAL)			
Web of Science			20
IBSS (BIDS)			
Other databases:			
PEDRO	23/09/2016		0
Rehabdata	"		0
NHS Evidence	"		
TRIP	"		1
Google scholar	27/09/2016		8

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Results



First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Van der Zant 2009 Systematic review	Patients with any sort of arthritis (inflammatory or osteo-)	treated with yttrium (knee), rhenium (Medium sized joints) or erbium (finger/toe joints) radio synovectomy (RSO)	<p>Meta-analyses showed pool odds ratio favouring yttrium RSO at 6 months 4(1.2-14) but not at 12 months 1.7 (0.69-4)</p> <p>Only 1 RCT was included (not a low quality RCT) This compared yttrium synovectomy with placebo in those considered to have failed conservative treatment and found no significant differences between either group</p>	<p>Outcome was not defined: % success rate reported only</p> <p>The majority (39/49) studies included evaluating yttrium were case series or poorly conducted cohort or case-controls (1/49 RCT; 9/49 cohort/ low quality RCT)</p> <p>Quality of papers not reported beyond classification as RCT/low quality RCT</p> <p>Confidence intervals from meta-analyses are wide</p> <p>Marked heterogeneity of included studies</p> <p>Meta-analyses may have been inappropriate as outcome not defined and different comparators</p>

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Dos Santos 2010 RCT	84 patients with rheumatoid arthritis and chronic knee synovitis	3 groups 1. RSO with yttrium 2. RSO with samarium hydroxyapatite plus triamcinolone 3. Intraarticular injection of triamcinolone (TH)	Pain reduced in all groups at 12 months, but significantly most in the yttrium group (NRS: 2.5 vs 4.4 (yttrium vs TH)	Small sample and no power calculation (28 in yttrium group) No intention to treat analysis Did not specify primary outcome Higher use of prednisolone in yttrium group No functional outcomes Randomisation by envelope

Summary

There is no high quality evidence to suggest the use of yttrium is more beneficial than placebo or intra-articular triamcinolone for pain and function.

The two studies identified were of poor quality. Only one RCT (within the Van der Zant systematic review) specifically included 'treatment failures', meaning the population studied was most similar to the population this procedure is offered to in clinical practice.

Conclusion

There is no good quality evidence to support the use of yttrium synovectomy. A well conducted randomised controlled trial comparing yttrium to placebo with health economic outcomes would be needed if there is continuing clinical demand for this procedure.

References

1. Van der Zant FM et al. Radiation synovectomy with Yttrium, Rhenium and Erbium: a systematic literature review with meta-analyses. 2009 Clin Exp Rheumatol 27: 130-9
2. Dos Santos MF et al. Effectiveness of radiation synovectomy with Yttrium-90 and Samarium-153 particulate hydroxyapatite in rheumatoid arthritis patients with chronic knee synovitis: a controlled, randomised, double blinded trial. Clin Rheumatol 2011 30: 77-85