

Critical appraisal of published systematic reviews of therapeutic lumbar facet joint injections

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Background

Pain of lumbar facet joint origin is a common cause of low back pain (LBP) in adults, and may lead to chronic pain and disability.

Intra-articular lumbar facet-joint injections (FJIs) with steroid may reduce pain intensity and aid rehabilitation.

Due to the lack of high-quality clinical evidence to support their use, the UK National Institute for Health and Care Excellence (NICE) guideline *NG59 Low back pain and sciatica in over 16s: assessment and management* (2016) does not recommend spinal injections for managing LBP.

However, intra-articular FJIs remain in common use in the UK.

Objective

To identify existing systematic reviews and meta-analyses of randomised controlled trials (RCTs) of intra-articular lumbar FJIs for chronic LBP, in order to assess their methodological quality.

Methods

A protocol with the inclusion criteria was developed prior to the literature search, with reference to the Preferred Reporting Items for Systematic Review and Meta-analysis Protocols (PRISMA-P) guidelines [1].

Only systematic review papers of RCTs and meta-analyses with adult participants with chronic LBP, undergoing intra-articular lumbar FJIs with a therapeutic substance as their main intervention, were included.

Medline, Embase and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched. Additional studies were identified from citation tracking and reviewing references.

Articles published between 1966 and February 2017 were included, without language restrictions.

The "assessment of multiple reviews" (AMSTAR) checklist [2] was used by two reviewers (SS and FMD) to independently assess each systematic review.

	A priori design	Duplicate data extraction	Comprehensive literature search	Grey literature	List of studies	Study characteristics	Scientific quality assessed	Use of evidence for conclusions	Appropriate methods	Publication bias assessed	Conflict of interest	AMSTAR score /11
Slipman et al. 2003	CA	CA	N	N	Y	Y	Y	Y	CA	N	CA	4
Boswell et al. 2007	CA	CA	Y	CA	Y	Y	Y	Y	CA	N	CA	5
Staal et al. 2008	Y	Y	Y	N	Y	Y	Y	Y	Y	N	CA	8
Datta et al. 2009	CA	CA	Y	CA	Y	NA	NA	NA	NA	N	CA	2
Chou et al. 2009	CA	Y	Y	Y	Y	N	Y	Y	Y	N	CA	6
Henschke et al. 2010	CA	CA	N	N	Y	Y	Y	Y	Y	Y	N	6
Falco et al. 2012	CA	Y	Y	CA	Y	Y	Y	Y	Y	N	CA	7
Manchikanti et al. Surg Neurol Int 2015	CA	Y	Y	CA	Y	Y	Y	Y	Y	N	N	7
Manchikanti et al. Pain Phys 2015	CA	Y	Y	CA	N	Y	Y	Y	Y	N	CA	6
Vekaria et al. 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	CA	10
Manchikanti et al. World J Orthop 2016	CA	Y	Y	CA	N	Y	Y	Y	N	N	CA	5

Table 1. AMSTAR checklist scores for each systematic review. Yes (Y) = green, No (N) = red, Can't answer (CA) = yellow, Not applicable (NA) = blue.

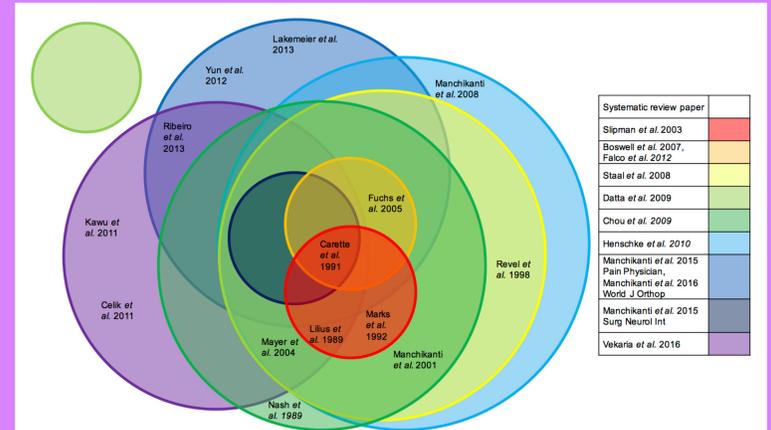
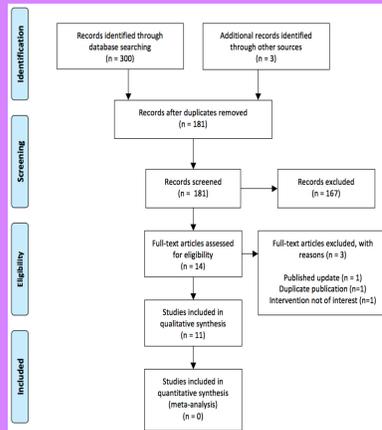


Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow chart of articles identified by literature search.

Figure 2. Venn diagram to illustrate the RCTs included in each systematic review.

Systematic review paper	Number of RCTs included in evidence synthesis	Summary of evidence
Slipman et al. 2003	3	Level III (moderate) to IV (limited) evidence that therapeutic lumbar facet joint injections are not effective
Boswell et al. 2007	2	Moderate evidence for intra-articular lumbar facet joint injections with local anaesthetic and steroid for short- and long-term improvement in low back pain
Staal et al. 2008	7	No strong evidence to support injection therapy for low back pain
Datta et al. 2009	0	Level III or limited evidence for therapeutic facet joint interventions
Chou et al. 2009	7	Fair evidence that intra-articular facet joint steroid injections are not effective
Henschke et al. 2010	8	Low to very low quality evidence to support the use of injection therapy for chronic low back pain
Falco et al. 2012	2	Limited evidence for intra-articular injections
Manchikanti et al. 2015 Surg Neurol Int	2	Level 1 evidence (obtained from high-quality randomised controlled trials of lumbar and cervical facet joint injections) for lack of effectiveness of intra-articular injections
Manchikanti et al. 2015 Pain Physician	5	Level 3 (moderate) evidence for lumbar intra-articular injections of steroids
Vekaria et al. 2016	6	Insufficient high-quality evidence to support the use of facet joint injections over placebo/sham-controlled procedures or conservative therapy for low back pain
Manchikanti et al. World J Orthop 2016	5	Level 3 evidence for short-term improvement of 6 months or less for intra-articular lumbar facet joint injections

Table 2. The evidence for intra-articular lumbar FJIs for chronic LBP.

Results

Eleven systematic review papers were identified from the search [3-13]. No meta-analyses of therapeutic lumbar FJIs were identified.

The papers identified differed widely in scope (study population, condition being addressed, interventions, comparator, study endpoint, and the types of study design included).

Most reviewed multiple interventions at multiple spinal levels.

The AMSTAR scores can be seen in table 1.

The eleven systematic review papers identified a total of fourteen randomised controlled trials between them. Their inclusion in each review is depicted in figure 2, and the best evidence synthesis is summarised in table 2.

Conclusions

All systematic reviews to date do not include sufficient quality RCTs to carry out a meta-analysis or meaningful data pooling. A new systematic review would address this very current research question.

References

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