Non-surgical management of piriformis syndrome: a systematic review

CRD summary
This review evaluated conservative non-surgical management of Piriformis Syndrome. The authors' conclusions appeared to be that Botox injections may be an effective treatment for Piriformis Syndrome and that further research is recommended. This was a poorly reported review, with methodological weaknesses identified within a very limited evidence base. The extent to which the authors' conclusions are reliable is unclear.

Authors' objectives
To evaluate conservative non-surgical management of Piriformis Syndrome.

Searching
The following databases were searched (terms reported): The Cochrane Library, SPORTDiscuss, AMED (1985 to Feb 2006), CINAHL (1982 to Feb 2006), EMBASE and Medline (1966 to Feb 2006). Two journals were handsearched (Sports Exercise and Injury, Physiotherapy in Sport) and reference lists were checked for relevant studies. Only English language studies published between 1996 and the end of February 2006 were considered for inclusion.

Study selection
Eligible studies were required to be randomised controlled trials (RCTs) of non-surgical management for Piriformis Syndrome in adults. Studies without clear ethical approval were excluded. The included studies were RCTs (parallel and crossover) evaluating the effects of botulinum toxin type A (Botox) injections on Piriformis Syndrome symptoms. The control arms received saline or lidocaine steroid injections. In one study all participants also received physiotherapy. The inclusion criteria for each primary study differed in level of detail. Mean participant age was between 42.1 and 57.4 years. Most patients were female. Pain duration, where reported, ranged from 16 to 84 months. Visual analogue scales were used as the primary outcome measure, with some data reported on H-reflex and motion analysis. Follow-up periods ranged from 12 weeks to 20 weeks.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
Included papers were assessed for validity using the Physiotherapy Evidence Database (PEDro) scale, which evaluates randomisation, blinding and analysis methods (including intention to treat) used to produce an overall numeric score out of 10.

Five reviewers independently assessed the quality of included papers, then discussed the overall results to resolve any disagreements.

Data extraction
The authors stated neither how the data were extracted for this review nor how many reviewers performed the data extraction.

Methods of synthesis
A narrative synthesis was carried out.

Results of the review
Two RCTs were included in this review (total n = 76). Both studies were double-blind trials. One RCT used a crossover design (n=9) to compare Botox injections with saline injections. The second RCT (n=67) compared Botox versus saline versus lidocaine (steroid), with all participants also receiving a concurrent standardised physiotherapy programme twice
Both included trials reported a significant benefit for Botox over saline injections on visual analogue scales. One trial reported significantly reduced pain levels. The second study reported significant reductions in the "interference with activities" outcome.

**Authors' conclusions**
The authors' conclusion appeared to be that Botox injections may be an effective treatment for Piriformis Syndrome, but that further research was required to substantiate this.

**CRD commentary**
This review presented a clear question and searched a range of databases to locate the relevant evidence. The inclusion criteria were not fully specified and were quite broad, which may have reduced the clarity of the review overall. Restrictions were placed on the potentially relevant studies, for example, date, publication status and language, all of which limited the pool of available evidence and may have resulted in the omission of important data and introduced language/publication bias into the review. No information on the study selection and data extraction processes were reported, which made it difficult to rule out errors and biases in the review process. A narrative synthesis was carried out, which was likely to be have been appropriate given the varying visual analogue scales and follow-up periods used in each study, but the analysis could have been more explicit. Quality assessment was carried out and discussed along with other limitations of the review. Given the identified weaknesses in this limited evidence base (two small studies), together with poor reporting of the review process, the reliability of the authors' conclusions was unclear.

**Implications of the review for practice and research**
Practice: The authors did not state any implications for practice.

Research: The authors stated that further RCTs were required to establish optimal Botox type and dose, and length of treatment course to be used in treatment for Piriformis Syndrome. Research was recommended to explore the effectiveness of physiotherapeutic modalities. Finally, the authors suggested further work be carried out to establish effective and sensitive diagnostic tests and outcome measures.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.