Imaging of low back pain: comparative role of high intensity zone in diagnosing the discogenic low back pain with evidence-based radiology

Chen ZY, Ma L, Li T

CRD summary
This review concluded that presence of high intensity zones on magnetic imaging scans in patients with low back pain suggested a need for further discography and a negative scan could be used to exclude discogenic low back pain. These conclusions were based on a single study without justification and the authors’ conclusions are unlikely to be reliable.

Authors’ objectives
To evaluate the comparative roles of high intensity zones on T2 weighted magnetic resonance imaging (MRI) images in diagnosing discogenic low back pain.

Searching
PubMed, HighWire, TRIP, NICE, SIGN, ACP Journal Club, EBM Reviews, Clinical Evidence and UpToDate databases and Google Scholar were searched. Details on search terms were reported. It appeared that the search covered 1992 to September 2007. Two relevant journals were handsearched from January 1992 to December 2007.

Study selection
Studies that evaluated MRI sagittal T2 weighted scans against the reference standard of discography in patients with low back pain and that reported sufficient data to estimate sensitivity and specificity were eligible for inclusion.

The authors did not report how studies were selected for inclusion.

Assessment of study quality
Studies were assessed for methodological quality according to the criteria: independent blinded comparison with the reference standard; test evaluated in an appropriate patient spectrum; reference standard applied to all patients; and test validated in second independent patient group.

The authors did not state how many reviewers performed quality assessment.

Data extraction
Data were extracted to calculate sensitivity, specificity, positive and negative likelihood ratios and positive and negative predictive values together with 95% confidence intervals (CIs).

The authors did not state how many reviewers performed data extraction.

Methods of synthesis
A narrative synthesis was presented.

Results of the review
Ten studies were included (number of patients not reported). All studies included an independent blind comparison with the reference standard and applied the reference standard to all patients. All studies except one included an appropriate patient spectrum. None of the studies validated the test in a second independent patient group.

Estimates of sensitivity ranged from 11% to 98%. Estimates of specificity ranged from 70% to 100%.

Authors’ conclusions
For suspected discogenic low back pain, presence of high intensity zones suggested a need for further discography. If MRI was negative for high intensity zones, the disease could be excluded.

**CRD commentary**
The review addressed a clear objective and inclusion criteria were defined. The literature search included several relevant sources. No specific attempts were made to reduce language and publication bias and it was unclear whether any language or publication restrictions were applied. Details on the number of reviewers involved in each stage of the review process were lacking and so it was not possible to determine whether appropriate steps were taken to minimise bias and errors in the review process. Study quality was assessed with some relevant criteria and the results of the quality assessment were clearly reported. Details on individual studies included in the review were lacking and so it was difficult to determine the generalisability of results. Narrative synthesis appeared appropriate, but possible explanations for differences between studies were not investigated and the review focused on the findings of a single study without justification for why this study was selected. The authors’ conclusions were unlikely to be reliable.

**Implications of the review for practice and research**

**Practice:** The authors stated that MRI for high intensity zones was recommended as routine in patients with low back pain. This recommendation was not supported by the results of the review.

**Research:** The authors did not state any implications for practice.

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