Coeliac disease and oats: a systematic review

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CRD summary
This review concluded that most patients with coeliac disease can tolerate oats, but that the long-term safety of taking oats is unknown. The included studies appear to have methodological limitations and this, in combination with poor reporting of review methods, means that these conclusions, although cautious, may not be reliable.

Authors' objectives
To evaluate the safety of adding oats to the gluten-free diet (GFD) for patients with coeliac disease.

Searching
MEDLINE, EMBASE, SIGLE, National Research Register, Research Findings Electronic Register, the Cochrane CENTRAL Register, metaRegister of Controlled Trials and the Science Citation Index were searched up to 2005; the search terms were not reported. In addition, reference lists were screened.

Study selection
Study designs of evaluations included in the review
Experimental controlled studies were eligible for inclusion. Case series and case reports were excluded. The duration of follow-up in the included studies ranged from 6 months to 5 years.

Specific interventions included in the review
Studies that compared a GFD containing oats with a strict GFD were eligible for inclusion. In the included studies, patients consumed between 25 and 70 g of oats per day.

Participants included in the review
Studies of patients with coeliac disease confirmed by gastroduodenal biopsy were eligible for inclusion. Studies were excluded if patients were non-compliant regarding their GFD, or if they were already on an oat-containing GFD. The included studies were in adults and children with newly diagnosed coeliac disease, adults with coeliac disease in remission and adults with dermatitis herpetiformis. One study used patients with dyspepsia who did not have gluten intolerance as the control.

Outcomes assessed in the review
Studies in which gastroduodenal biopsy was performed before and after the intervention diet were eligible for inclusion. The review assessed changes in small bowel histology (reported as villous atrophy, ratio of villous height to crypt depth, Marsh classification and intraepithelial lymphocytes), serology (levels of various specified antibodies), the Gastrointestinal Symptom Rating Scale (GSRS) and cutaneous findings.

How were decisions on the relevance of primary studies made?
Three reviewers independently selected the studies. Any disagreements were resolved by consensus. A fourth reviewer examined a random selection of identified studies.

Assessment of study quality
Validity was assessed using the Sindhu Quality Assessment tool. This assesses randomisation, blinding, withdrawals and drop-outs, appropriateness of statistical analysis, adherence and outcome measures. The authors did not state how the validity assessment was performed.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Outcome data were reported as significant (with p-value) or not significant in the tables, with numerical values being reported in the text.
Methods of synthesis
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

Results of the review
Five studies (reported in six papers) were included (n=362). One of the studies was a randomised controlled trial (n=92); the design of the other studies was not clear.

Study quality was reported for the six reports of the five included studies. The studies scored from 0 to 7.5 out of 10 for randomisation; one report scored maximum points for blinding; scores for withdrawals and drop-outs ranged from 4 to 14 out of 24; three reports scored maximum points for compliance; and five reports scored maximum points for outcome measures.

None of the four reports that measured the ratio of villous height to crypt depth reported any significant difference between patients on GRD taking oats and patients not taking oats.

Four of the six reports that measured intraepithelial lymphocytes reported no significant difference between patients on GRD taking oats and patients not taking oats. The other two studies reported significantly higher intraepithelial lymphocyte counts in patients taking oats than in control patients (p<0.001 and p=0.039, respectively).

None of the five studies that measured serology reported any significant difference in various measures of serology between patients on GRD taking oats and patients not taking oats.

Two of the three studies that used the GSRS reported no significant difference between patients on GRD taking oats and patients not taking oats. The third study reported significantly more diarrhoea in patients taking oats than in control patients (p=0.01).

None of the studies reported any significant difference in withdrawals between patients on GRD taking oats and patients not taking oats. The most common reason for withdrawal in patients taking oats was abdominal symptoms.

Authors’ conclusions
Most patients with coeliac disease can tolerate oats, but the long-term safety of taking oats is unknown.

CRD commentary
The review addressed a clear question that was defined in terms of the participants, intervention and outcomes; inclusion criteria for the study design were broad, which seemed appropriate given the limited number of studies identified. Several relevant sources were searched and attempts were made to minimise publication bias, but it was unclear whether any language restrictions had been applied. Methods were used to minimise reviewer errors and bias in the selection of studies, but it was unclear whether similar steps were taken in the assessment of validity and extraction of data. Validity was assessed using specified criteria; the results were reported as aggregated scores and were difficult to interpret in terms of relevant aspects of study design. One study appeared to use an inappropriate control group.

In view of the differences between the studies, the narrative synthesis was appropriate. However, study quality was not taken into account when summarising the studies. The included studies appear to have methodological limitations and this, in combination with incomplete reporting of review methods, means that these conclusions, although cautious, may not be reliable.

Implications of the review for practice and research
Practice: The authors stated that patients who wish to add oats to their GFD should receive regular follow-up, including small bowel biopsy at a specialist clinic, for life.

Research: The authors did not state any implications for further research.

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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.