Introduction of oats in the diet of individuals with celiac disease: a systematic review

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CRD summary
The authors concluded that moderate amounts of pure oats added to a gluten-free diet are well tolerated by most people with coeliac disease or dermatitis herpetiformis. In view of the weakness of the evidence base, this conclusion may be overstated. The authors’ recommendation that oats should be introduced with caution seems appropriate.

Authors' objectives
To assess whether people with coeliac disease can safely consume oats.

Searching
The authors searched FSTA, MEDLINE, EMBASE, CINAHL, Global Health and Current Contents from 1995 to November 2008. Search terms were reported. Reference lists of publications identified by the search were screened. It appeared that the search was restricted to English-language publications.

Study selection
Studies in which adults or children with coeliac disease or dermatitis herpetiformis were challenged by introduction of oats into a gluten-free diet were eligible for the review. In vivo studies in which response to oats was assessed by a small bowel or skin biopsy with or without additional serological tests were classified as pivotal studies. Studies that used serological or in vitro methods without a biopsy were classified as non-pivotal. It appeared that studies could be of any design.

Duration of the included pivotal studies ranged from 12 weeks to five years in adults and six months to seven years in children. Participants were either newly diagnosed or in remission. Oat consumption ranged from 30 to 93g/day in adults and 15 to 45g/day in children. Most studies reported that they used pure oats; many did not state how this was determined.

Two reviewers independently selected studies for the review.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how data were extracted for the review.

Methods of synthesis
Studies were synthesised in a narrative with study details presented in tables. For the pivotal studies, results in adults and children were considered separately. Some differences between studies were discussed in the text.

Results of the review
Pivotal studies: Eleven studies in adults (n=170) and three in children (n=89) were included. Of the 14 studies, five were randomised trials, five were uncontrolled observational studies, three were cohort studies and one used a number of different designs. Some of the studies reported later follow-up results in separate publications. Maximum follow-up was five years for adults and seven years for children.

In the adult studies, one participant showed histological evidence of intestinal mucosal injury following oat exposure. Forty-one out of 170 participants withdrew from the studies and 11 of these reported adverse effects associated with oat consumption.

None of the children studied showed histological evidence of intestinal mucosal injury. Seventeen of 89 participants withdrew, eight of whom reported adverse effects.
Non-pivotal studies: Eight studies that used in vitro techniques or serology without a biopsy were included. Some of the participants were the same as those in the pivotal studies. Overall, the results were consistent with the view that oats were well tolerated by most patients with coeliac disease. One study reported an in vitro immunogenic response to avenin (oat protein), but two others did not.

Authors' conclusions
Moderate amounts of pure oats (50 to 70g/day for adults and 20 to 25g/day for children) were well tolerated by most people with coeliac disease or dermatitis herpetiformis who were either newly diagnosed or in remission.

CRD commentary
The review addressed a clear question. Inclusion criteria were reasonably clear. Criteria for study design were not stated explicitly, but it appeared that all types of study were eligible. The authors searched a range of relevant sources. The search was limited to English-language publications and unpublished studies were not sought, so the review may have been at risk of language and publication biases. Two reviewers selected studies for inclusion. Methods used for data extraction were not reported, so risks of reviewer error and bias were uncertain. The authors did not assess the validity of the included studies, although they did give more prominence to studies that used more rigorous methods to evaluate the intestinal response to oats. In the absence of validity assessment, the reliability of the included studies was uncertain, particularly for adverse effects other than intestinal response. Full details of included studies were presented in the text, tables and an appendix. The results were synthesised in a narrative, which seemed appropriate in view of the heterogeneity of the included study designs.

In view of the small size and uncertain quality of the included studies, the conclusion that oats should be well tolerated by most people with coeliac disease may be overstated. The authors’ cautious recommendation for practice seems appropriate.

Implications of the review for practice and research
Practice: The authors stated that oats should be introduced into a gluten-free diet with caution and only when the diet was well established; they recommended initial and long-term assessments by a health professional.

Research: The authors stated that the potential effect of long-term (up to lifetime) exposure to oats required further investigation.

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