CrD summary
The authors concluded that tissue transglutaminase antibody test outperformed deamidated gliadin peptides antibody test for detection of coeliac disease and remained the preferred serological test for diagnosis of coeliac disease. These conclusions were supported by the results of the review, but should be interpreted with some caution due to the possibility of publication bias and limitations in the quality assessment.

Authors' objectives
To compare the performance of the deamidated gliadin peptide antibody test with the tissue transglutaminase antibody test as screening tests for coeliac disease.

searching
MEDLINE, EMBASE, Web of Science, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL) and AMED were searched from June 1998 to 2008. Search terms were reported. Reference lists of retrieved articles were screened. No language restrictions were applied. The review was restricted to studies published as abstracts or full text.

study selection
Studies that evaluated both the deamidated gliadin peptide antibody test (IgA-DGP) and tissue transglutaminase antibody test (IgA-tTG) in untreated coeliac patients and controls were eligible for inclusion.

All studies used histology as the reference standard with histological criteria for diagnosis of coeliac disease that ranged from partial to total villous atrophy, where reported. All studies used the same threshold of to define a positive test result. IgA-DGP and IgA-tTG were identified using in-house, Quanta Lite, Celikey, Biofile, Eu-tTG and Bindazyme tests. Studies included adults, children or both.

Two reviewers independently assessed studies for inclusion.

Assessment of study quality
Two reviewers independently assessed study quality according to the criteria: reporting of histology grade for coeliac patients and disease status for controls; possibility of ascertainment bias; biopsy of serology positive controls; role of serology in selection; and selection based on serology results.

Data extraction
Two reviewers independently extracted data as 2x2 tables of test performance and on reported sensitivity and specificity. Sensitivity, specificity, positive and negative likelihood ratios (LR) and diagnostic odds ratios (DOR) were calculated for each study. Disagreements were resolved through consensus. Authors were contacted for additional data where necessary.

Methods of synthesis
The DerSimonian and Laird random-effects model was used to estimate summary sensitivity and specificity. A summary receiver operating characteristic (SROC) curve was constructed for each test evaluated and the area under the curve (AUC) was estimated. Heterogeneity was assessed using the Q statistic. The presence of a threshold effect was assessed using Spearman’s correlation coefficient. Subgroup analyses and meta-regression based on the summary DOR were used to investigate heterogeneity.

Results of the review
Eleven studies were included in the review (n=2,265). Only two studies avoided ascertainment bias; they did not select controls on the basis of negative serology.
Sensitivity of IgA-DGP ranged from 74% to 100% and specificity ranged from 90% to 99%. Summary sensitivity was 88% (95% CI 86% to 90%), summary specificity was 94% (95% CI 93% to 96%). Sensitivity of IgA-tTG ranged from 78% to 100% and specificity ranged from 90% to 100%. Summary sensitivity was 93% (95% CI 91% to 95%), summary specificity was 97% (95% CI 95% to 98%). Sensitivity was significantly lower for IgA-DGP (p<0.001) than for IgA-tTG, there was no significant difference in specificity. There was significant heterogeneity between studies (p<0.0001).

Meta-regression showed that test performance was better in studies where ascertainment bias was likely to be present and in studies where there was an excess of coeliacs with subtotal or total villous atrophy changes.

**Authors’ conclusions**

Although both tests performed well, the tissue transglutaminase antibody test outperformed the deamidated gliadin peptide antibody test and remained the preferred serological test for diagnosis and/or exclusion of coeliac disease.

**CRD commentary**

The review addressed a clear question with inclusion criteria defined in terms of index test and, to some extent, participants. The literature search was adequate for published studies. Exclusion of unpublished studies meant that there was a possibility of publication bias. Appropriate steps were taken to minimise bias and errors at all stages of the review process. Study quality was formally assessed, but criteria used were not clearly defined and some important features of diagnostic accuracy studies were not assessed. Methods to pool data were adequate and attempts were made to investigate differences between studies. The authors’ conclusions were supported by the results of the review, but should be interpreted with some caution due to the possibility of publication bias and limitations in the quality assessment.

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

**Practice:** The authors stated that IgA-tTG should be used to exclude coeliac disease in individuals in whom the pre-test probability of having coeliac disease was low. If serology was positive or coeliac disease was strongly suspected, small bowel biopsies should be taken.

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

**Funding**

Coeliac UK Research Training Fellowship.

**Bibliographic details**

Lewis NR, Scott BB. Meta-analysis: deamidated gliadin peptide antibody and tissue transglutaminase antibody compared as screening tests for coeliac disease. Alimentary Pharmacology and Therapeutics 2010; 31(1): 73-81

**PubMedID**

19664074

**DOI**

10.1111/j.1365-2036.2009.04110.x

**Original Paper URL**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Antibodies /blood; Celiac Disease /blood /immunology; Gliadin /blood /immunology; Humans; Immunoglobulin A /blood /immunology; Immunologic Tests /methods; Sensitivity and Specificity; Transglutaminases /blood /immunology
AccessionNumber
12010000170

Date bibliographic record published
10/03/2010

Date abstract record published
25/08/2010

Record Status
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.