Diagnostic accuracy, risk assessment, and cost-effectiveness of component-resolved diagnostics for food allergy: A systematic review.

1. Prevalence of food allergy has been estimated to be between 3% and 6% for children and between 4% and 7% for adults in economically developed countries.

2. Gal d1 had higher sensitivity and lower specificity than SPT and sIgE.

3. Twelve other studies were found to have an unclear ROB, mainly because they did not explicitly indicate their sampling methodology and/or did not avoid inappropriate exclusions.

4. The studies included in our review that analysed peanut components also found that sIgE levels to the components Ara h1, 3, 8, and 9 showed varying results, most with underperforming diagnostic values.

5. Two studies reported data on CRD for shrimp allergy. One study tested the component Pen a1, and the other study investigated the components Lit v1 and Lit v4.

6. Two studies evaluated the diagnostic accuracy of CRD for hazelnut allergy and the following components were assessed: Cor a1, Cor a8, Cor a9 and Cor a14.

7. Diagnosis of food allergy is dependent on a thorough clinical history as well as an objective marker of allergic sensitisation and, in some cases, oral food challenge tests.

8. The reported sensitivity-specificity for Cor a1 was 7.7% and 79.3% (at >0.35 kUa/L).

9. For peanut allergy, Ara h6 showed higher DTA measures than SPT and sIgE.

10. None of the studies meeting our inclusion criteria evaluated the cost-effectiveness of CRD or made mention of any economic considerations.

11. Three studies evaluated CRD for hens’ egg allergy and the following components were assessed: Gal d1, Gal d2, Gal d5, and Gal d7.

12. For heated egg allergy, the reported sensitivity-specificity for these components were as follows: for Gal d1, 84.2% and 89.8% (at >4.4 kUa/L).

13. Selected CRD components have the potential to diagnose food allergies with a higher specificity and sensitivity than current first line tests.

14. A quantitative synthesis of CRD diagnostic accuracy data is not possible because of the paucity of studies for each of the components that have been studied.

15. Two studies assessing CRD for hens’ egg allergy found that sIgE levels for all components tested were higher in patients with more severe allergies.

16. The component with the highest diagnostic accuracy, along with the sensitivity-specificity pairs, was Cor a14 for hazelnut allergy (100% and 93.8%).

17. There is a need to standardise all CRD assays to ensure that results are comparable between different tests.

18. The component with the highest diagnostic accuracy for cows’ milk allergy, along with the sensitivity-specificity pairs, was Bos d4 (82.0% and 67.5%).

19. It is likely that the prevalence of allergies in the study populations is considerably higher than in more population-based settings, rendering the tests’ PPVs higher and NPVs lower than they would be in populations with lower allergy prevalence.

20. This study found that all severe allergic patients were sensitised to Ara h2 or Ara h6, and none of them were sensitised to Ara h1, 3, or 9 without Ara h2.


1. E. mustkovskii and E. histolytica are distinguishable microscopically.

2. Results showed that patients were more likely to be infected with Blastocystis sp. and E. dispar than controls.

3. Dietary non-starch polysaccharides appear to be important factors in controlling prevalence of H. pylori and parasitic infection.

4. Of the patients with known symptoms of diarrhoea, 37 were found to have E. dispar.

5. E. histolytica and E. dispar require PCR using specific primers for differentiation.

6. Abdominal discomfort is not associated with Entamoeba histolytica infection.

7. Results showed the prevalence of E. histolytica exceeded that of E. dispar.

8. The study revealed that patients were more likely to be co-infected with Blastocystis sp. and E. histolytica.

9. Amoebiasis is a faecal-oral route transmitted infection with the amoebas of the Entamoeba group.

10. Over 15% of giardiasis cases may be asymptomatic.

11. Of the 33 patients infected with H. pylori, 27 were found to have at least one parasite.

12. The authors hypothesise that H. pylori may influence the virulence of parasitic protozoan infections.

13. Mucosal dendritic cells are not involved in creating an overall tolerant state towards intestinal antigens.

14. The results obtained led to the hypothesis that there may be a mechanical link to the co-infection seen.

15. Nineteen Blastocystis subtypes have been identified using small subunit ribosomal RNA differences.

16. Results showed an association with H. pylori and E. dispar.

17. In the study, the exclusion criteria for participants included those aged >60 years.

18. Blastocystis sp. transmission occurs through water but not faecal-oral contamination.

19. Patients and controls were not age matched in the study.

20. Helicobacter pylori infection is associated with lymphoma.