

Is there a role for serologically screening adult Type 1 Diabetic Patients for Coeliac Disease?

Katerina E Ingham^{1,2}, Suneil A Raju^{1,2}, Mohamed Shiha^{1,2}, Nicoletta Nandi^{1,2}, Calvin M Johnson^{1,2}, Jackie Elliott³, David S Sanders^{1,2}

1 Academic Unit of Gastroenterology, Sheffield Teaching Hospitals, Sheffield, UK

2 Division of Clinical Medicine, School of Medicine and Population Health, The University of Sheffield, Sheffield, UK

3 Academic Unit of Diabetes, Endocrinology and Metabolism, University of Sheffield, Sheffield, UK

Introduction: Data supports coeliac disease (CD) serological testing in paediatric patients with type 1 diabetes mellitus (T1DM), but no consensus on screening adults. We present the largest data on biopsy confirmed CD and T1DM to assess the clinical utility of these tests in adults.

Methods: A database of all patients with biopsy confirmed CD from 2009 to 2023 in Sheffield was examined to identify individuals with concurrent T1DM. Patients were then compared to an age and sex matched control group of patients with CD alone and all patients with T1DM undergoing annual review.

Results: In total 3.8% of T1DM patients (n=2505) had concurrent CD, of whom 92.6% had CD diagnosed after T1DM (median time between diagnosis 14.3 years, IQR 4.1-27.6). Patients with both T1DM and CD were similar in age to those with T1DM alone (median age 18 years (IQR 8-28 years) vs 20 years (IQR 11-32 years), p=0.068). Women were more likely than men to have both T1DM and CD than T1DM alone (OR: 1.5, 95% CI:1.0-2.3).

Patients with concurrent T1DM and CD more often presented with dyspepsia than CD controls (8.4% vs 0.0%, p=0.005). Conversely, the CD controls more often presented with IBS type symptoms (18.5% vs 7.1%, p=0.026) and folate deficiency (14.1% vs 0.0%, p<0.01) than patients with T1DM and CD. More patients with T1DM and CD were asymptomatic than CD controls, though not significant (23.3% vs 19.6%, p=0.536). At diagnosis there was no difference in serological tests between the groups (median tissue transglutaminase titre (IgA-tTG) upper limit normal (ULN) 3.1 (IQR 0.7-17.0) in T1DM and CD vs 12.3 ULN (IQR 3.9-18.3) in CD controls (p=0.088)). The sensitivity, specificity, PPV and NPV of serological testing for CD were 93.2%, 6.7%, 85.4%, and 14.3%, respectively. One year after diagnosis on a gluten free diet (GFD), patients with T1DM and CD had significantly lower IgA-tTG titres (median 3.1 ULN (IQR 0.7-17.0) to 0.7 ULN (IQR 0.3-2.6), p=0.004). In symptomatic patients with T1DM and CD, 56.0% reported improvements. Of patients with T1DM and CD who were purportedly asymptomatic (n=21), 65% followed a GFD, of which 30.8% reported subsequently feeling better. 19.0% of asymptomatic patients also had IDA.

Conclusions: We present the largest data of serological testing in adult T1DM patients for CD. This data suggests there is no benefit in screening this group of patients but supports the role of careful questioning for symptoms and case-finding accordingly.