Introduction

Paediatric ESPGHAN guidelines support a diagnosis of coeliac disease (CD) when immunoglobulin-A anti-tissue transglutaminase (IgA tTG) antibody titres are >10 times the upper limit of normal (ULN) and combined with supportive criteria. This study examines whether serological testing alone could be sufficient for diagnosis in adult patients, thus avoiding the need for duodenal biopsies.

Method

We performed a prospective analysis of CD patients diagnosed in a University hospital. Symptoms of CD, villous atrophy (VA) on biopsy, IgA-endomysial (IgA-EMA) antibodies, tTG and Human Leukocyte Antigen (HLA) genotype were used for analysis. We then compared the TTG antibody level against small bowel histology.

Results

443 CD patients (66.8% female, median age 41 years, range 15-84 years) were diagnosed between 2008 and 2016. 56.9% (n=252, 95% CI= 52.12-61.53) had a tTG value of greater than 10 times the ULN, and 100% of these patients had VA on biopsy. 292 fulfilled ESPGHAN guidelines for features of malabsorption (diarrhoea=157, weight loss=45 and anaemia=190). Of these symptomatic patients, 70.4% (n=179, 95% CI= 64.86-76.08) had a tTG value 10 x ULN. The proportion reaching the 10 x tTG threshold was 55.4% (n=87, 95% CI=47.64-63.19) for diarrhoea, 60.0% (n=27, 95% CI=45.69-74.31) for weight loss, and 74.2% (n=141, 95% CI=67.99-80.43) for anaemia. Of the 151 patients who did not experience malabsorptive features, 49.0% met the 10 x ULN tTG level (n=74, 95%CI= 41.03-56.98). The sensitivity of tTG antibodies and EMA antibodies for predicting VA was 93.2% (95% CI=90.89-95.57) and 90.7% respectively (95% CI=88.05-93.44). Combined tTG and EMA was 98.6% (95% CI=97.67-99.72). All patients had compatible HLA typing, thereby failing to add any further diagnostic value.

Discussion

An IgA tTG level of greater than 10 times the ULN had a PPV of 100% for detecting VA. Using this threshold, 56.9% of patients would have been correctly diagnosed with CD and avoided duodenal biopsy. Symptoms and HLA typing did not add any supportive information. This study provides evidence that a biopsy avoidance strategy may be implemented into adult gastroenterological practice.