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Can we ignore the utility of deamidated gliadin peptide in the diagnosis of celiac disease in children?

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In the January 2019 issue of the *Journal of Pediatric Gastroenterology and Nutrition*, Gould et al described the use of deamidated gliadin peptide (DGP) IgG serology in the diagnosis of celiac disease¹. They argued that in the setting of normal tissue transglutaminase (TTG) IgA, isolated positive DGP IgG does not have a high enough positive predictive value to justify inclusion in the initial screening for celiac disease in children. Though they report on a total of 83 patients with elevated DGP IgG and normal TTG IgA from 3 different sites, only 40 were biopsied, as the remaining 43 chose to defer the endoscopy. Of the 40 patients who were biopsied, only 1 patient (known to be IgA deficient) had findings of a Marsh 3B histology, confirming the diagnosis of celiac disease. The positive predictive value (PPV) for DGP IgG was calculated to be 2.5% (95% confidence interval 0.1–15%) in IgA deficient patients and 0% in IgA sufficient patients, so the authors concluded that DGP IgG testing should not be part of the initial screening for celiac disease (CD) in the pediatric population as it does not effectively differentiate between individuals with and without the disease.

We also conducted a multi-center database review of children with biopsy-proven CD (defined as Marsh 3 or “consistent with CD” with no Marsh score given by the reviewing pathologist) to further elucidate the frequency of isolated positive DGP IgG in CD diagnosis. Combined databases including a total of 1680 pediatric (age <18 years) celiac patients were included. We identified 165 children who had serum TTG IgA and DGP IgG levels to review. Nineteen (12%) of these children (median age 7.1 years, range 1–18 years) had an elevated DGP IgG in the setting of normal TTG IgA. Most were IgA sufficient with only 5 children known to be IgA deficient. Unfortunately, the database only includes confirmed celiac patients, so calculation of a PPV for DGP IgG was not possible.

Limitations of Gould's study include the small sample size (which is compounded by not obtaining an intestinal biopsy in most of the patients of interest) and exclusion of patients with Marsh 1 and 2 findings on endoscopy, as this automatically eliminates children with “potential” celiac disease who may go on to develop CD in the future². Our combined databases afforded us the opportunity to evaluate an even larger sample of children with biopsy confirmed CD and documented TTG IgA and DGP IgG levels. In our population, the prevalence of DGP IgG positive, TTG IgA negative celiac disease in children was 12%, which is certainly not an insignificant value. In addition, the median age of the children in our population with DGP IgG positive, TTG IgA negative celiac disease was 7.1 years

(range 1–18 years), which challenges the assertion that DGP IgG should not be performed in children >2 years old. As we were able to evaluate a patient size twice that of Gould's and focus upon cases that were biopsy confirmed, our findings may be more reliable and generalizable to the true pediatric celiac population.

For these reasons, we kindly reject Gould's conclusion that DGP IgG should not be included as part of the initial screening for CD in the pediatric population. We maintain that DGP IgG is a useful and necessary tool in the initial workup for both IgA sufficient and IgA deficient patients. Therefore, we conclude that the addition of DGP IgG to TTG IgA and total IgA in the initial screening for CD should not be abandoned to ensure that we properly screen all children for CD, allowing for timely and correct diagnoses.

References

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