

# Abstract

J Pediatr Gastroenterol Nutr. 2011 Jan;52(1):17-20.

## First salivary screening of celiac disease by detection of anti-transglutaminase autoantibody radioimmunoassay in 5000 Italian primary schoolchildren.

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**OBJECTIVE:** The high prevalence of celiac disease (CD) prompted us to evaluate a new, noninvasive disease screening strategy. The aim was to identify CD in 6- to 8-year-old children for a timely diagnosis, start gluten-free diet (GFD) in compliant subjects, achieve the growth target, and prevent CD complications.

**METHODS:** Five thousand subjects were invited to participate in the study. Four thousand forty-eight saliva samples were tested for anti-tissue transglutaminase (tTG) immunoglobulin (Ig)A using a fluid-phase radioimmunoprecipitation method. Positive children were tested for serum radioimmunoassay tTG IgA, enzyme-linked immunosorbent assay tTG IgA, and anti-endomysium IgA. Children confirmed as positive by serum assays underwent endoscopy with duodenal biopsies and, at the diagnosis of CD, were suggested to start GFD.

**RESULTS:** Consent was obtained from 4242 parents (84.8%) for the screening to be performed, and adequate saliva samples were collected from 4048 children (95.4%). Thirty-two children were found to be salivary tTG IgA positive and 9 with borderline autoantibody levels. Thirty-one of the 32 and 3 of the 9 subjects were also serum positive. Twenty-eight children showed villous atrophy when undergoing intestinal biopsy, whereas 1 had Marsh 1 lesions; 3 children were suggested to start GFD without performing endoscopy. CD prevalence in the population investigated (including 19 CD known cases) was 1.16%. The ratio between screening-detected patients and those diagnosed before the screening was 3:2. The ratio between symptomatic and asymptomatic patients was 1:1.6.

**CONCLUSIONS:** We demonstrated that it is possible to perform a powerful, simple, well-accepted, and sensitive CD screening using saliva. Until now, the compliance with GFD in children with CD has been optimal.

PMID: 21057330