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Disclosure statement: Nothing to disclose.

Background

Growth monitoring aims at early detection of disorders affecting growth. However, the diagnostic performance of the screening for celiac disease (CD) by using growth in height and weight is not well known.

Objective

To evaluate growth patterns in children with CD, and diagnostic performance of six growth parameters.

Subjects and methods

Growth of 177 CD children was assessed. The following six growth parameters were evaluated against the reference population of 51,322 healthy children:

- 1) Height SDS
- 2) BMI SDS
- 3) Height distance from target height
- 4) Change in height SDS
- 5) Change in BMI SDS
- 6) Combination of these five

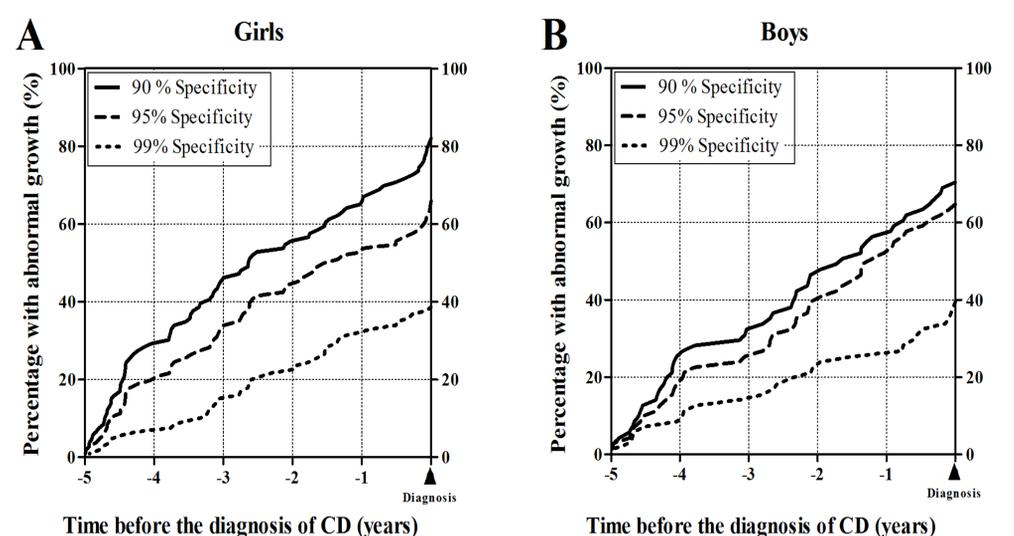
Results

At the time of CD diagnosis, mean (SD) height and BMI z-scores were -0.45 (1.08) and -0.25 (1.23) for girls and -0.58 (1.17) and -0.44 (1.08) for boys, respectively.

CD was detected in good accuracy [Receiver Operating Characteristics AUC (95% CI)] = 0.88 (0.84–0.93) for girls and 0.84 (0.77–0.91) for boys, respectively) when screening was performed in the combination rule.

Growth was abnormal in 56.6% of the CD girls and 47.9% of the CD boys two years before the diagnosis, when the specificity was set at 90% (**Figure 1**). Detection rates at 95% and 99% specificities were 45.3% and 22.6% for the girls and 40.1% and 23.9% for the boys, respectively.

Figure 1. Cumulative detection rate of abnormal growth using the combination rule at specificities of 90%, 95%, and 99% in 106 girls (A) and 71 boys (B) with CD. Percentages are shown up to five years before the diagnosis of CD.



Conclusions

CD could be detected with good accuracy when several screening rules for abnormal growth were used at the same time. Some children with CD grew abnormally long before the diagnosis of CD was made and they could have been detected several years earlier by utilizing population-based growth monitoring program.