EARLY DIAGNOSIS AND MONITORING OF CELIAC DISEASE IN THE YOUTH AND PAEDIATRIC POPULATION

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INTRODUCTION

Celiac Disease (CD) is a chronic immune-mediated enteropathy that occurs in genetically predisposed patients due to gluten consumption and other similar proteins which are present in wheat, barley, rye and some types of oats. There is an interference in the absorption of nutrients and the variety of symptoms may lead to other complications within untreated patients[1,2]. Therefore, the studies Celisin (CE) and GlutenDetect (GD) will address the major milestones of CD: to perform an early diagnosis of the disease through a mass screening within the youth population and to monitor the Gluten-Free Diet (GFD), respectively.

METHODOLOGY

Patients who fulfilled inclusion criteria were given the questionnaires Celiac Symptoms Index (CSI), Celiac Disease Adherence Test (CDAT), Dietary Questionnaire and/or Celiac Disease Quality of Life (CDDUX) depending on the study. Hence, blood samples were analyzed to detect tissue transglutaminase IgA (tTG-IgA) antibodies with the immunochromatographic rapid test CeliacDetect (Biomedal S.L.). Urine and stool samples were analyzed in order to detect Gluten Immunogenic Peptides (GIP) due to gluten consumption with the commercialized kits iVYCHECK GIP Urine or iVYLISA GIP Stool (Biomedal S.L.). The observational CE study was composed of a single arm with no intervention applied in subjects, where the CSI score classified patients as asymptomatic (< 38) or symptomatic (≥ 38). The unblinded GD study was comprised of both control and intervention groups and differences in gluten exposure in between groups at the post-randomization stage was measured in urine and stool samples with detectable GIP. The data obtained were collected and analyzed through the IBM SPSS Statistics V25.0 program from IBM (Armonk, NY, USA).

RESULTS

At the moment of the statistical analysis, 39 volunteers (10 males, 29 females) were recruited for CE (expected recruitment 1000 patients) and 38 (14 males, 24 females) for GD (expected recruitment 66). Within the participants of CE, the majority (86,5%) were asymptomatic (8 males, 24 females) and only 5 participants (13,5%) appeared as symptomatic (1 male, 4 females) according to the CSI questionnaire (Figure 1). However, just a female (2,6%) obtained a positive result in blood testing. Nevertheless, participants from the GD study were assigned to either an intervention or control group. The frequency of gluten exposure was higher within volunteers from the intervention group (50%) than those from the control group (30%) due to the detection of GIP in urine and stool samples. Moreover, the majority of samples from the control group tested negative as GIP was not detectable (Figure 2).

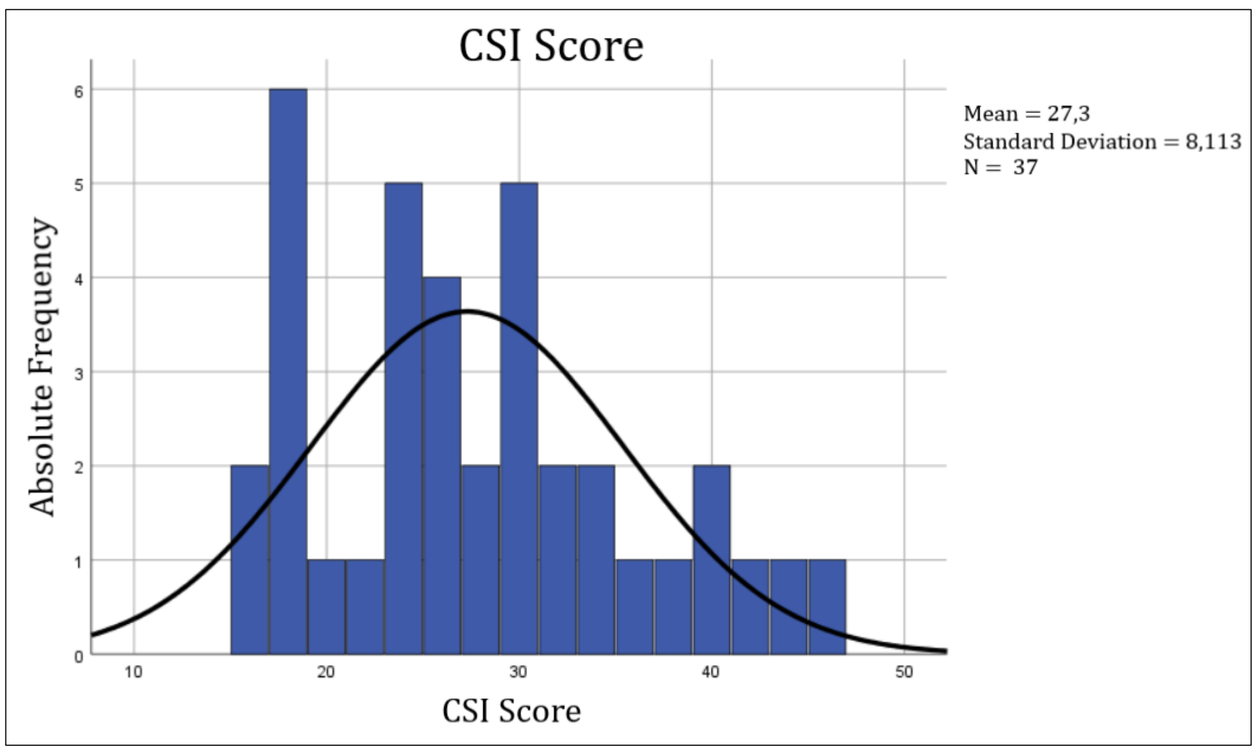

Figure 1. Celisin. Score obtained through CSI questionnaire. Asymptomatic < 38 (N =32, 86,5%). Symptomatic ≥ 38 (N = 5, 13,5%).

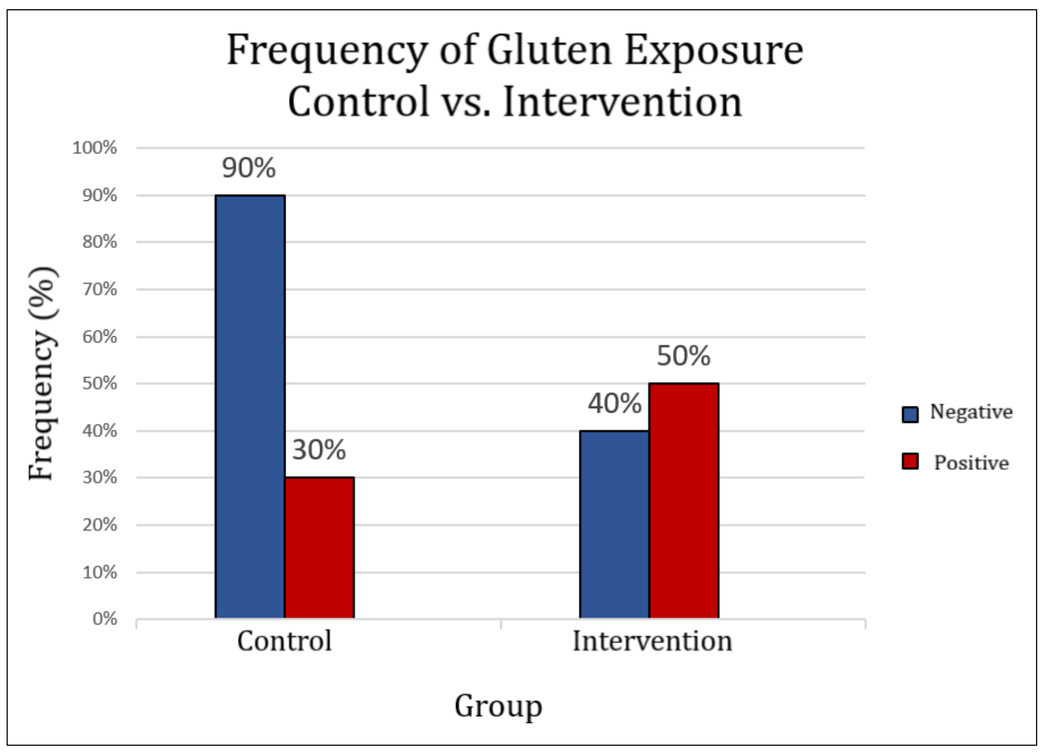

Figure 2. GlutenDetect. Frequency of Gluten Exposure in control vs. intervention group according to the detection of GIP in urine and stool samples.

CONCLUSIONS

The early detection of celiac patients will improve their diagnosis and quality of life. It is challenging due to the wide spectrum of symptoms that might disguise CD from other disorders as shown in the scores obtained with the CSI questionnaire. The only treatment available is to adhere to a lifelong GFD, which is an arduous labor because gluten appear as a frequent ingredient. Hence, the frequency of gluten exposure might be decreased through periodic testing of GIP in urine or stool samples. In consequence, severe conditions resulting from a late detection of the disease[3] may be avoided.

REFERENCES

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