DETECTION AND QUANTIFICATION OF GLUTEN IMMUNOGENIC PEPTIDES IN FAECES OF INFANTS AND THEIR RELATIONSHIP WITH THE DIET

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Declare non Conflict of Interest

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Objective

To establish cut-off values of gluten immunogenic peptides (GIP) in faeces through two novel analysis methods, which are promising tools to detect dietary transgressions in CD patients on a gluten free diet.

Method

Faecal samples (1/infant) were obtained from healthy infants:

- ✓ **Group1: 32 infants, aged 0 to 6 months, which had never ingested gluten.**
  - **15 were exclusively breastfed (mothers with regular gluten consumption)**
  - **8 had mixed feeding.**
  - **9 received infant formula.**
- ✓ **Group2: 16 infants, aged 6 to 24 months, who consumed unrestricted gluten containing cereals.**

48 fecal samples were analyzed by using:

- ➢ **a rapid immunochromatographic test: iVYCheck GIP Stool® (limit of detection 0.3 µgGIP/g faeces).**
- ➢ **an enzyme-linked immunosorbent assay (ELISA): iVYLISA GIP-S® (measuring range: 0.156-5 µgGIP/g faeces).**

Both based on the antigliadin 33-mer monoclonal antibody. *(Biomedal)*

Results

In group 1, by ELISA all infants presented values <0.156µgGIP/g, and by immunochromatographic test the results were also negative, i.e. 100% specificity for both methods.

In group 2, the daily gluten intake calculated from a dietary questionnaire ranged from 0.5g to 10.5g/day. By ELISA all infants had values >0.156µgGIP/g faeces, mean being 11.15 µgGIP/g (range=0.56-46.79). The immunochromatographic test was negative in 4/16, thus sensitivity being 75%. Additionally in group 2 we found a significant correlation (p=0.03) between the mean daily gluten intake and the concentration of GIP in faeces.

The Kappa Fleiss concordance index (Kappa=0.79) indicates a moderate concordance between both methods.

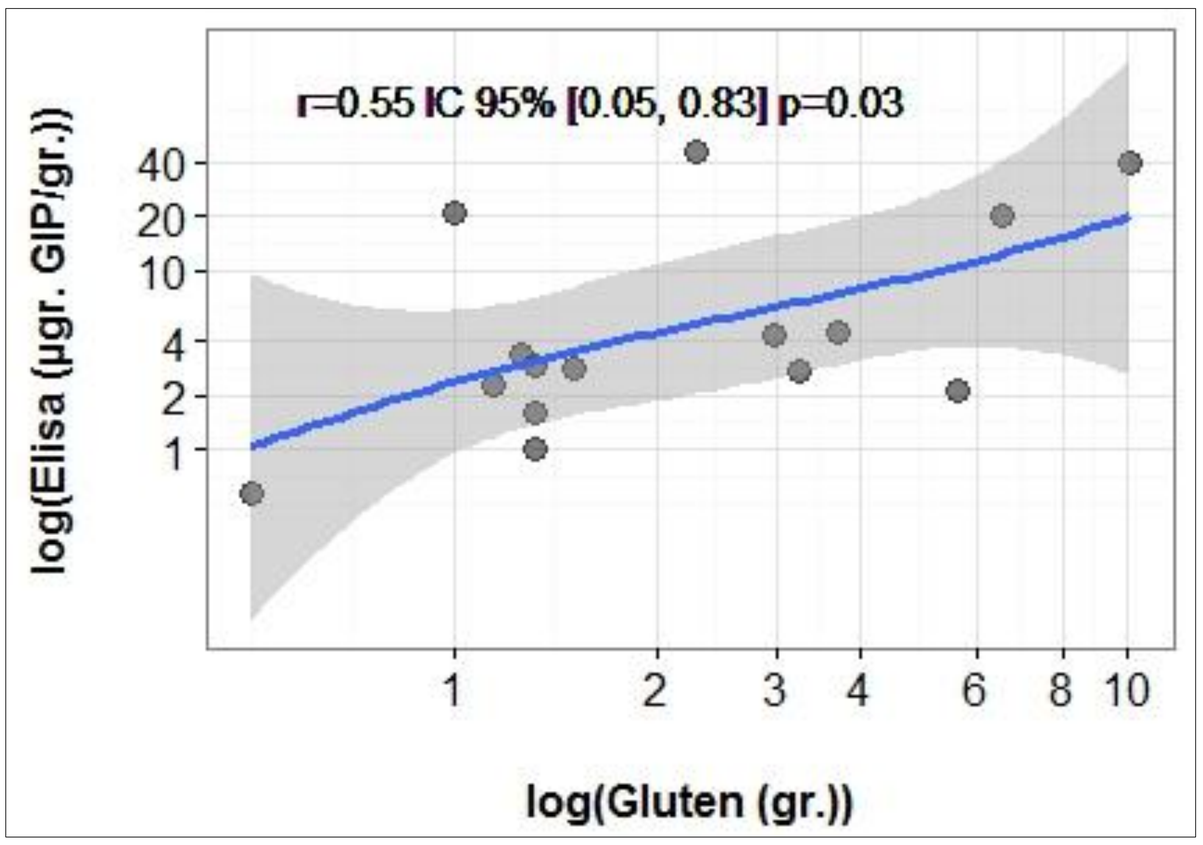

Fig.1: Significant correlation (p=0.03) between grams of gluten consumed and µgGIP/g in faeces.

Conclusion

According to our results both methods are highly specific, however the ELISA test displays a higher sensitivity.

Although we found a significant correlation between the amount of gluten consumed and GIP in faeces, more studies are needed specifically in individuals following a gluten free diet before generalizing the use of these methods for routine control in celiac patients.