Tight junctions protein genes expression in gluten sensitive patients

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Background: Recent evidences suggest that early changes in intestinal permeability (IP) may play a role in the pathogenesis of CD. No data are currently available on the role of IP in the pathogenesis of gluten sensitivity (GS).

Aims: To investigate the changes in IP and tight junction protein genes expression in GS.

Methods: Intestinal biopsies were obtained from 8 GS patients, 13 CD patients, 3 CD patients in remission, and 10 healthy controls. Quantitative gene expression of Claudin (CL) 1-4 and ZO-1 was measured by Real-time PCR. IP was evaluated by means of the lactulose/mannitol test.

Results: Expression of CL4 was increased three-folds in GS subjects compared to both CD patients and healthy controls and did not influence IP (GS=0.014±0.015 vs controls=0.019±0.018). Conversely, in CD patients an over-expression of both CL1 and CL2 (but not CL4) was observed and was associated to IP increase (0.052±0.048). In CD patients in remission both IP (0.014±0.004) and CL1 and CL2 expression returned to normal levels.

Conclusions: Compared to CD patients, GS subjects showed normal IP and CL1 and CL2 expression. These results suggest that the pathogenesis of GS is different from that of CD and does not involve impairment of intestinal barrier function.