The most common adverse event was diarrhea (n=39; 21%). No serious adverse events occurred. **Conclusions:** Linaclotide relieves intestinal, non-intestinal, and extra-digestive symptoms in patients with clinically relevant IBS-C. Baseline characteristics were not predictive of response at Week 12, but response at Week 4 was independently associated with a sustained response at Week 12.

Table. Digestive non-intestinal and extra-digestive symptom scores (ITT population)

| Mean score (± SD)	Baseline (Week 0)	Week 4	Week 12
Digestive non-intestinal symptoms[a]	8.65 (3.95)	7.76 (3.55)*	6.81 (3.60)**
Extra-digestive symptoms[b]	3.38 (2.47)	2.78 (2.23)*	2.16 (1.97)**

[a]Includes reflux and dyspepsia; [b]Includes back pain, headaches, chest pain, dizziness, fainting spells, feeling heart pound or race, shortness of breath, pain or problems during sexual intercourse, pain in arms, legs, or joints, feeling tired or having low energy, menstrual cramps or other problems with periods (women only), and trouble sleeping *p=0.001 vs. baseline; **p<0.001 vs. baseline SD, standard deviation

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MAGNETIC RESONANCE ELASTOGRAPHY VS TRANSIENT ELASTOGRAPHY IN DETECTION OF FIBROSIS AND NONINVASIVE MEASUREMENT OF STEATOSIS IN PATIENTS WITH BIOPSY-PROVEN NONALCOHOLIC FATTY LIVER DISEASE

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Background and Aims: Magnetic-resonance-imaging (MRI) techniques and ultrasound-based transient elastography (TE) can be used in noninvasive diagnosis of fibrosis and steatosis in patients with nonalcoholic fatty liver disease (NAFLD). We performed a prospective study to compare the performance of magnetic resonance elastography (MRE) vs TE for the diagnosis of fibrosis, and MRI-based proton density fat fraction (MRI-PDFF) analysis vs TE-based controlled attenuation parameter (CAP) for the diagnosis of steatosis in patients undergoing biopsy to assess NAFLD. **Methods:** We performed a cross-sectional study of 104 consecutive adults (56.7% female) who underwent MRE, MRI-PDFF, TE, CAP, and liver biopsy assessment (using the Nonalcoholic Steatohepatitis Clinical Research Network Histologic Scoring System) from October 2011 through May 2016 at a tertiary medical center. The primary outcomes were fibrosis and steatosis. Secondary outcomes included dichotomized stages of fibrosis and NASH vs no NASH. Receiver operating characteristic (ROC) curve analyses were used to compare performances of MRE vs TE in diagnosis of fibrosis (stages 1-4 vs 0) and MRI-PDFF vs CAP for diagnosis of steatosis (grades 1-3 vs 0) with respect to findings from liver biopsy assessment. **Results:** MRE detected any fibrosis (stage 1 or more) with an area under the ROC (AUROC) of 0.82 (95% CI, 0.74-0.91), which was significantly higher than that of TE (AUROC, 0.67; 95% CI, 0.56-0.78). MRI-PDFF detected any steatosis with an AUROC of 0.99 (95% CI, 0.98-1.00), which was significantly higher than that of CAP (AUROC, 0.85; 95% CI, 0.75-0.96). MRE detected fibrosis of stages 2, 3, or 4 with AUROC values of 0.89 (95% CI, 0.83-0.96), 0.87 (95% CI, 0.78-0.96), and 0.87 (95% CI, 0.71-1.00); TE detected fibrosis of stages 2, 3, or 4 with AUROC values of 0.86 (95% CI, 0.77-0.95), 0.80 (95% CI, 0.67-0.93), and 0.69 (95% CI, 0.45-0.94). MRI-PDFF identified steatosis grades 2 or 3 with AUROC values of 0.90 (95% CI, 0.82-0.97) and 0.92 (95% CI, 0.84-0.99); CAP identified steatosis grades 2 or 3 with AUROC values of 0.70 (95% CI, 0.58-0.82) and 0.73 (95% CI, 0.58-0.89). **Conclusions:** In a prospective, cross-sectional study of more than 100 patients, we found MRE to be more accurate than TE in identification of liver fibrosis (stage 1 or more), using biopsy assessment as the standard. MRI-PDFF is more accurate than CAP in detecting all grades of steatosis in patients with NAFLD.
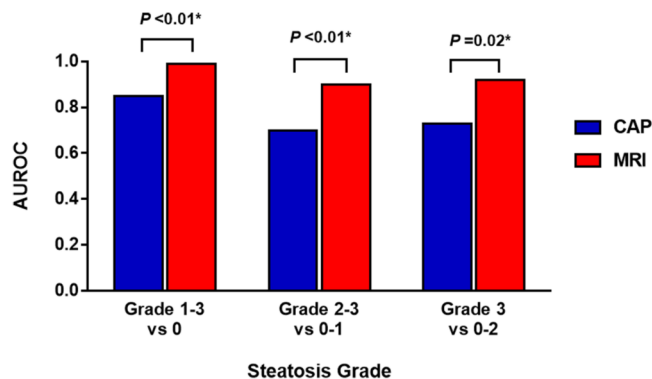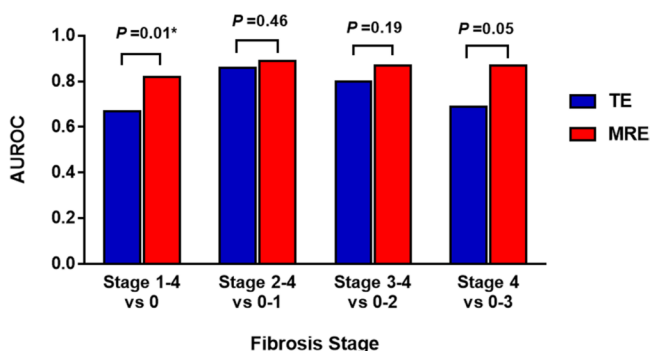
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REACTIVITY TO NEOEPITOPES OF DGP-TTG COMPLEXES CAN PREDICT THE HEALING STATUS IN TREATED CELIAC PATIENTS

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Background: Celiac disease (CD) has features of an autoimmune disease with increased levels of antibodies to tissue transglutaminase (tTG) that return to normal after following a strict gluten-free diet (GFD). However, normal levels of tTG-IgA after GFD are a poor predictor of healing of the intestine; the only accurate method available to verify intestinal healing is duodenal biopsy, which is neither practical nor cost-effective. We have previously developed an ultrahigh density protein/peptide array that enables a detailed comprehensive interrogation of the antibody responses to native and deamidated gliadin derived peptides and tTG as well as novel combinations of peptides derived from both. **Aim**: Our aim was to identify if the pattern of antibody recognition to these peptides are predictive of mucosal healing of CD. **Methods:** Serum samples from the following groups were used; untreated CD (n=82), treated/healed CD (n= 85), treated/unhealed CD (n= 81), and healthy controls. CD patients were confirmed by serology and histology. We created neo-epitopes that could be found in a complex of deamidated gliadin peptides and tTG. To differentiate the mucosal healing status in treated celiac patients, these cohort samples were tested on synthesized epitopes of DGP-tTG complex and analyzed using machine learning models such as Support Vector Machine (SVM). **Results:** Treated/healed CD patients (mean=45.7 yr old [± 14.7]) were younger on average than treated/unhealed CD patients (53.9 yr old [± 15.8]), but similar with regard to sex (females: 73% vs 72%). The duration of GFD was longer in treated/unhealed CD patients (median=3.5 yr [IQR, 1.8-8.1]) compared to treated/healed CD patients (median=2.8 years [IQR, 1.7-5.1]). While 7% of treated/healed CD patients were still positive to tTG-IgA, 27% of treated/unhealed CD patients were positive to tTG-IgA, and about three quarters of treated/unhealed CD patients were negative. The heat map was generated based on samples of treated/healed, treated/unhealed, untreated CD patients, and controls. The binding intensity against DGP-tTG complex was greatest in untreated CD. The healed patients differed little from controls (Fig), suggesting that binding intensity correlated with mucosal damage. The data was analyzed using statistical techniques which includes Principal Component Analysis (PCA) followed by SVM modeling showing a high sensitivity (84%) and specificity (95%) with a positive predictive value of 0.94 and a negative predictive value of 0.86 to identify healing status of CD. **Conclusions**: The loss of the immune responses to novel epitopes that combine subsequences of DGP and tTG show a promising non-invasive predictor for healing in treated CD. This data also suggests that unlike antibodies to tTG these novel antibodies persist long after treatment in those that lack healing.
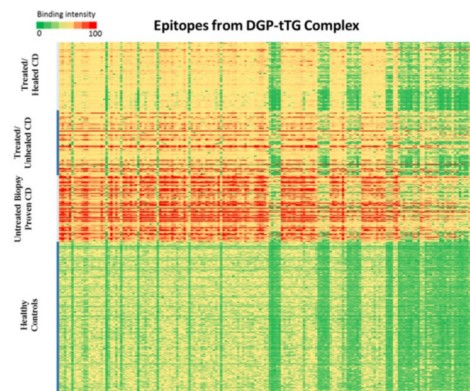

Figure. A heat map based on the binding intensity of epitopes sets from the deamidated gliadin peptides and tissue transglutaminase complex in patients with untreated, treated/healed, treated unhealed CD, and controls.