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The intestinal neuroendocrine network of energy balance is changed in obese versus normal weight patients

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Background: Recent studies have demonstrated an association between gastrointestinal hormone release and the regulation of appetite and body weight. We found that the intestinal serotonergic system is involved in these processes. Hitherto, most data derive from animal experiments, whereas human data investigating gastrointestinal hormones are rare. Our study focuses on possible interactions between weight regulating hormones and the serotonergic system in obese and differences when compared to normal weight humans.

Methods: Jejunal whole tissue samples were collected from 164 obese (120 women; BMI (Mean \pm SD): 43.5 \pm 6.6 kg/m², Age: 41.5 \pm 12.9 years) that underwent Roux-en-Y gastric bypass and 18 normal weight patients (7 women; BMI (Mean \pm SD): 23.5 \pm 3.0 kg/m², Age: 71.6 \pm 10.9 years). mRNA expression of cholecystokinin (CCK), peptide YY3-36 (PYY), nesfatin-1, ghrelin, ghrelin O-acyl-transferase (GOAT), leptin, leptin receptor (leptinR), glucagon-like-peptide 1 receptor (GLP-1R), serotonin transporter (SERT), tryptophan hydroxylase 1 (TPH1) and serotonin receptor 3A (5-HT3AR) were measured with qRT-PCR. Protein expression of two tight junction molecules (zonula 1/2) was determined with western blot. Correlations were calculated using SSPS.

Results: Positive bivariate correlations of not only weight regulating but also serotonergic factors and tight junction proteins were determined in the obese. Similar correlations were found in normal weight patients; however significant differences for the receptors were detected. Comparing mRNA expression of the obese with normal weight patients, we found significant differences for CCK, nesfatin1, ghrelin, GOAT, leptinR as well as SERT and TPH1.

Conclusion: For the first time it is shown the correlations between weight regulating, serotonergic factors and tight junctions in the intestine of obese and partly normal weight patients. Furthermore, a dysregulation of important weight regulating molecules seems to exist in the obese. Simulation of key weight regulating and serotonergic signals using combination therapies may be a promising strategy in controlling meal size and subsequent weight gain.

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Prevalence of gastroesophageal reflux disease in the Saudi Arabia

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Background: Gastro-esophageal reflux disease (GERD) is a common health problem worldwide and is associated with Barrett's esophagus and is identified as a risk factor for esophageal adenocarcinoma (EAC). There is scarcity of data from the developing countries on the prevalence of GERD. Most literature in Middle East comes from Iran which reports a high prevalence of 33% compared to the west of 28%, even though the prevalence of EAC is much lower. Hence, the aim of this study was to look at the prevalence of GERD in the Saudi Arabia (KSA)

Methods: Cross-section survey of the western region of KSA was done using a validated GerdQ questionnaire by a team of researchers who randomly approached participants at schools, hospitals, offices, government establishment and shopping malls. Apart, from the questionnaire demographic details, comorbidities and medication history was collected.

Results: Of the 1423 participants who filled the GerdQ, 425 were excluded due to incomplete answers. The mean age of the 998 participants included was 29.9 years with a male to female ratio of 1:2. Based on the GerdQ questionnaire with a score of ≥ 8 , the prevalence of GERD was 23.47% (234). Participants who were obese had a higher prevalence of GERD than who were not (BMI ≥ 30 vs. < 30 kg/m², $p=0.01$). In addition, having diabetes mellitus or hypertension was associated with higher prevalence of GERD compared to does who did not (42.02% vs. 29.09%, $p=0.02$ and 53.12% vs. 21.43%, $p=0.0001$ respectively). However, history of chronic lung disease, ischemic heart disease, smoking or use of non-steroids anti-inflammatory medication was not related to higher GERD prevalence.

Conclusion: The prevalence of GERD in the Gulf region is similar to that found in the west and is associated with other comorbidities. This raises the contention that GERD is more prevalent than actually recognized and probably under treated.

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