OXVIII/1 063

THE EFFECT OF DUODENAL LIPID INFUSION UPON GASTRIC MOTOR AND SENSORY RESPONSES TO DISTENSION IN PATIENTS WITH NON ULCER DYSPESPIA (NUD).

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Patients with NUD exhibit an enhanced gastric mechanosensitivity, and their symptoms are often relieved by low-fat meals. The aim of this study was to investigate whether patients with NUD have an increased sensitivity to the presence of fat in the duodenum, both before and during gastric distension with a bicarbogel.

METHODS: In six patients with NUD (4 males, 2 females, mean age 36 yrs) and in six healthy subjects (4 males, 2 females, mean age 31 yrs), intraduodenal lipid was infused using a catheter, distensions of the stomach were carried out with air at a rate of 100 ml/min, while the duodenum was perfused with either 10% intralipid (1 kcal/ml) or 0.9 % saline, at a rate of 1 ml/min. Intragastric pressure was continuously recorded by a non-perfused manometric system. Subjects were asked to report sensations such as perception of the bag, epigastric fullness and discomfort.

RESULTS: Our data show that the pressure-volume relationship of the stomach during distension is similar in patients with NUD and healthy subjects. Intraduodenal lipid caused a significant increase in gastric compliance (p < 0.01) and a decrease in gastric phasic activity in both groups of subjects. In spite of this, the patients tolerated significantly smaller volumes for each of the subjects, on the other hand, tolerated higher volumes than during saline infusion. The table shows the threshold volumes for the sensations of fullness and discomfort during intraduodenal lipid (LI) and saline (SI) infusion. Data are presented as mean ± SEM.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Patients</th>
<th>Subjects</th>
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<tbody>
<tr>
<td>LI</td>
<td>257 ± 46</td>
<td>643 ± 69</td>
</tr>
<tr>
<td>SI</td>
<td>302 ± 26</td>
<td>489 ± 10</td>
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</table>

Neither patients nor subjects had any unpleasant sensations during the saline infusion. However, 5 out of 6 patients experienced symptoms of severe nausea and vomiting while the lipid infusion was initiated by all subjects. Moreover, gastric distensions exacerbated the symptoms, and in two patients induced vomiting. None of the subjects experienced any symptoms either during saline infusion or gastric distension.

CONCLUSIONS: Our data do not only confirm that patients with NUD have an increased mechanosensitivity, but for the first time demonstrate a strong relationship between chemical stimulation of the small intestine and the occurrence of symptoms.

OXVIII/2 013

EFFECT OF CCK AND PYY ON GASTRIC SECRETION, MOTILITY AND METABOLIC RESPONSES FOLLOWING A CARBOHYDRATE MEAL. R. Ebert, C. Höper, G. Rasadaci.
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Besides CCK the gut peptide PYY is also secreted following fat ingestion. Therefore, the role of both, CCK and PYY, on gastric secretary and motor function was evaluated in 12 healthy volunteers. In 60 min after the meal, the following tests were performed: (1) intragastric glucose load (60g) (2) intragastric glucose plus fat (100 ml) (3) intragastric glucose plus IV CCK (15 pmol/kg/h) (4) intragastric glucose plus IV PYY (0.4 pmol/kg/h) (5) intragastric glucose plus IV CCK and PYY. Gastric emptying was measured by the dye dilution technique with continuous monitoring of the intragastric glucose concentration. Acid secretion was determined by pH and chloride measurements. CCK, PYY, motilin and insulin were recorded by specific radioimmuneosays.

Results: In addition to the glucose load inhibits gastric emptying within 10 min. This inhibitory effect reached a maximum at 40 min, and thereafter did not further increase. IV CCK, producing physiological plasma levels in the range of 4 pmol/l, markedly inhibited gastric emptying. IV PYY, raising plasma levels from 16.4 ± 2.4 to 35.1 ± 3.1 pg/ml, had only a minor effect on gastric emptying. Combination of both peptides induced a sustained inhibition of gastric emptying (31% delivered at 20 min: Control 16.2 ± 0.8 vs CCK + PYY 8.0 ± 0.4, p < 0.02). Gastric acid secretion was significantly inhibited by both, but not by CCK. Each peptide, infused together, strongly suppressed the acid secretory response. Both peptides, infused together, significantly changed the blood glucose response, but the early insulin response was curtailed. Conclusion: The inhibitory effect of both on gastric motor activity was only partly triggered by CCK. PYY must be added as a further candidate for this effect. Both peptides act synergistically on the secretory function of the stomach. Furthermore, the early postprandial insulin response is under the control of both peptides.

OXVIII/4 073

ANALYSIS OF THE PHARYNGO-OESOPHAGEAL (PO) PRESSURE PROFILE IN MOTOR NEURONE DISEASE (MND).

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Dysphagia is one of the most distressing symptoms of advanced bulbar MND. Treatment by laryngeal tracheostomy at the late stage has been advocated for almost 30 years but is successful in only a minority of patients. The rationale for the procedure has not been explored using modern manometric techniques. The aim of this study was to establish the PO pressure profile in MND using sensitive intraluminal transducers.

Methods: 13 patients 5F, 8M, mean age 63 years, with a mouth to 6 year (x±2y) history of MND underwent PO manometry with a 2.8mm diameter 6 sensor strain gauge assembly linked to a computer recorder (GR500, Albyn Medical, Dingwall) with a sample rate of 32Hz. The results were compared with those of 13 age and sex matched asymptomatic healthy volunteers by Mann Whitney analysis.

Results: 7 patients had dysphagia severe enough to warrant dietary modification. 2 had mild dysphagia, 1 was asymptomatic. In all 5 patients' choking episodes suggested recurrent aspiration. No patient had a vocal cord palsy on examination. There was no significant difference between patients and controls in distal oesophageal or lower oesophageal sphincter motility or any pressure parameter of PO motility. Separate analysis of the 7 more dysphagic patients showed a significantly lower pressure at the upper oesophageal sphincter (UOS) and higher contractive amplitude during water swallows in patients (median 46mmHg) than controls (97mmHg; p=0.01). No significant difference was found when data of patients 34mmHg and controls (115mmHg; p=0.002). Tonic UOS pressure pharyngeal contraction amplitude and PO coordination were, however, within normal limits.

Conclusions: The dysphagia in MND is not associated with UOS spasm or hypertonicity. Rather dysphagic patients have reduced water and bolus swallows. UOS after contraction pressures. Where successful, therefore, cricopharyngeal myotomy may act by lowering the resistance of the upper high pressure zone in the presence of diminished tongue propulsion. Laryngeal overactivity is a common finding in our patients despite normal apposition of the vocal cords on phonation, and may be due to failure of retrolingual bolus control.

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It is generally accepted that manometric assessment of the lower oesophageal sphincter (LOS) is a poor predictor of the amount of acid reflux and the severity of patients’ symptoms. This may be due to the criteria used to assess LOS pressure rather than a true lack of correlation.

The application of a 3-dimensional measurement technique to the LOS has received little attention. We set out to apply the measurement of lower oesophageal sphincter pressure vector volumes (LOSPVs) to a group of 63 patients referred to our unit for 24 hour pH monitoring who were subsequently identified as having significant acid reflux.

LOSPVs were calculated using a 4 channel water perfused manometry catheter withdrawn in a stepwise fashion across the LOS to obtain a 3-dimensional measurement. Results were compared with upright and supine reflux times as a percentage of total monitoring time and DeMeester score.

RESULTS (median and i.q. range):

<table>
<thead>
<tr>
<th>LOSPV (ml, ml, ml)</th>
<th>24 657</th>
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<tr>
<td>Total Reflux Time</td>
<td>9.7 (5.2-13.2)</td>
</tr>
<tr>
<td>Upright Reflux</td>
<td>12.7 (6.1-16.9)</td>
</tr>
<tr>
<td>Supine Reflux</td>
<td>3.4 (0.4-11.3)</td>
</tr>
<tr>
<td>DeMeester Score</td>
<td>33.6 (20.5-44.7)</td>
</tr>
</tbody>
</table>

There was no correlation between LOSPVs and upright reflux time. There was a significant correlation between LOSPVs and supine reflux time (r = -0.29, p = 0.05) and that between LOSPVs and supine reflux time (r = -0.46, p = 0.0001).

The severity of acid reflux and, in particular, the amount of supine reflux can be predicted byometry of the LOS. Different pH gastro-oesophageal reflux.

The correlation between 3-dimensional sphincter competence and acid reflux parameters may have an application in the clinical trials of anti-reflux therapies.
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Epidemiological studies have identified a link between Helicobacter pylori (H. pylori) infection and gastric carcinoma. Increased epithelial cell proliferation is an indicator of risk of cancer. We have found that subjects with Helicobacter pylori gastritis have greater gastric epithelial cell proliferation compared with subjects with H. pylori negative gastritis. The aim of this study was to assess the effect of eradication of H. pylori on gastric epithelial cell proliferation. Ten patients with H. pylori positive gastritis were recruited for the study. The patients were treated with triple therapy for two weeks and were re-endoscoped post therapy (median 6 weeks, range 5-6.5). Twenty subjects with H. pylori negative gastritis and 20 subjects with normal OGD were also included as control groups. The conclusion was compared by histology and the H. pylori status was assessed using CLO test, histology, gram stain and culture. Four mucosal punch biopsies were taken from the antrum at endoscopy for gastric epithelial cell proliferation. The mean age between the groups was not significantly different. H. pylori was eradicated in 6 of the 10 subjects (Hp E) and four subjects remained H. pylori positive (Hp NE). The results are expressed as mean and standard error.

Inclusion, postprandial antral motility shows a dose-dependent inhibition induced by fat infusion in HC but not in C0 pts. C0 pts have a decreased antral contractility, as compared to HC, regardless of the composition of the meal. High and medium, but not low concentrations of dietary fats further worsen postprandial contractility in C0 pts.

INTERLEUKIN-6 LEUKOTRIENE B4 AND PROSTAGLANDIN E2 PRODUCTION BY MONOCYTES STIMULATED WITH H. PYLORI IN H. PYLORI PATIENTS, X.J. Fan, A. Chua, X.G. Fan, D. Kelleher and PWN Keeling. Departments of Clinical Medicine, Immunology and Gastroenterology, St. James’ Hospital and Trinity College Dublin Ireland

Inflammation factors are released from activated monocytes which play an important regulatory role in Helicobacter pylori (H. pylori) infection. We investigated 22 dyspeptic patients (12 H. pylori positive and 10 H. pylori negative) in vitro, the response of peripheral mononuclear monocytes to stimulation with interleukin (IL-6), leukotriene B4 (LTB4) and prostaglandin E2 (PGE2), both in the presence of H. pylori and H. pylori with autologous serum. Monocytes were incubated in Dulbecco’s modified Eagle’s medium (DMEM) with inactivated whole H. pylori or inactivated whole H. pylori with autologous serum for 24 h at 37°C in 5% CO2. IL-6, LTB4 and PGE2 were measured by ELISA and [3H]RIA respectively. IL-6 production was significantly increased in monocytes cultured with H. pylori, in patients with H. pylori infected patients [90±83 vs 60±77, pg/ml, X±S.E.M.; P<0.05]. LTB4 levels in supernatant of monocytes, cultured with H. pylori plus serum, was also significantly higher in H. pylori positive individuals compared to the uninfected patients [20±63±3 vs 12±11, X±S.E.M., P<0.05]. In the absence of serum, IL-6 and LTB4 production though increased, did not reach statistical significance. The secretion in monocytes by stimulated H. pylori was much higher (164±04±11 vs 116.74±10.4, pg/0.1ml, X±S.E.M., P<0.01), and H. pylori plus serum also much higher (182.57±83 vs 143.41±8.8, pg/0.1ml, X±S.E.M., P<0.005) in H. pylori positive group compared to negative group. Our results indicated that circulating macrophage from H. pylori positive individuals produced increased quantities of soluble factor which may play an important role in the acute phase response and possibly in leukocyte chemotaxis.