used, however it is expensive, has a number of potentially serious complications, and enteral nutrition (EN) has been suggested as an alternative. EN when given by nasogastric tube in HEG exacerbates the nausea and vomiting and risks aspiration. Although post-pyloric placement of feeding tubes has been suggested to avoid some of these hazards, generally this has necessitated radiation exposure; recently naso-enteral tubes have been placed endoscopically and some have used percutaneous endoscopic gastrojejunostomy.

Method: We have successfully used blind-placed nasojejunal (NJ) tubes in two patients with hyperemesis, avoiding the risks of both endoscopy and radiation. Both tubes were self-propelling 'Bengmark' tubes, which have a coil at the end to aid transpyloric passage. Both patients were dehydrated, had electrolyte imbalance, ketonuria and weight loss and both had been hospitalised for weeks. Both returned to normal weight while being enterally fed, one patient returned to oral feeding but the second required tube feeding until after her delivery. Both had normal deliveries and healthy, normal babies at term. The average time the tubes remained in place was 19 days, although we believe that as experience accumulates tubes will be kept in longer and there is still improved cost-effectiveness over PN. Both patients were discharged despite dependence on EN with important psychological benefits in addition to the obvious resource advantages.

Comment: PN has more serious and more frequent side-effects than EN, although there are no studies comparing PN to EN in pregnancy or HEG. PN is expensive; the mean cost of nutritional support is generally estimated at 4–10 times greater in PN than in EN. EN in HEG has traditionally been dependent on intensive nursing back-up; however, as a result of our success with the tubes our nutrition support team has adopted NJ feeding by Bengmark tube as the preferred method of nutrition in hyperemesis gravidarum.

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157 PREVALENCE OF PERCEIVED FOOD AND DRUG ALLERGIES IN FUNCTIONAL AND ORGANIC GASTROINTESTINAL DISORDERS

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Many individuals presenting with abdominal symptoms believe they are allergic or intolerant to various foods. This study assessed whether self-reported allergy is linked to a subsequent functional or organic diagnosis. 1000 new patients (42% male), attending a gastroenterology clinic completed a brief questionnaire immediately prior to being seen. The questionnaire asked about atopy, any believed drug allergies, and details of suspected food allergies and foodstuffs thought to worsen symptoms for which the patient was attending. Final diagnosis was made by case-note perusal. 28 asymptomatic patients seeking colon cancer screening advice were excluded. Of the remaining 972 patients, the final diagnosis was organic in 505 (52%), and functional in 467 (48%). Overall, 19% reported drug allergies (mainly antibiotics), 14% reported food allergies and 30% identified foods that worsened their symptoms. Foodstuffs to which patients perceived allergy/intolerance varied widely but dairy, wheat, fatty foods were the most common. Patients subsequently diagnosed with a functional disorder were more likely than those with organic disease to report drug allergies, food allergies or intolerances (table 1).

Abstract 157, Table 1

	Organic (n=505)	Functional (n=467)	Odds Ratio (CI)
Drug allergy	74	116	1.9 (1.4–2.7)
Food allergy	33	105	4.1 (2.7–6.3)
Foods worsen symptoms	98	199	3.1 (2.3–4.1)
Food and Drug allergy	8	42	6.1 (2.8–13.2)
Food and Drug allergy and foods worsen	1	24	27 (3.6–198)

None of the 5 newly-diagnosed coeliac patients had recognised dietary gluten/wheat causing their symptoms. All 6 patients who were convinced they had coeliac disease had normal duodenal biopsies. Patients claiming drug or food allergies or worsening of symptoms with various foods are more likely to have a functional than an organic illness.

158 5-HT₁ RECEPTOR AGONISM PROLONGS THE CYCLE LENGTH OF THE MIGRATING MOTOR COMPLEX (MMC) IN THE STOMACH AND THE DUODENUM

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It has been shown that the 5-HT₁ receptor agonist, sumatriptan (S) induces premature jejunal phase III activity and shortens the cycle length of the MMC at the expense of phase II (Tack *et al*, *Gut* 1998;42:36; Houghton *et al*, *Gastroenterology* 1988;94:1276). The effect of S on interdigestive antro-pyloro-duodenal motor activity however, has been less well characterised. In 9 healthy volunteers (aged 21–36, 8 male), pressures in the antrum (3 sites 1.5 cm apart), pylorus (sleeve sensor, positioned by measurement of transmucosal PD.) and duodenum (4 sites, 3 cm apart) were therefore measured for two phase III's of the MMC and then following subcutaneous injection of either S (6 mg) or saline control for a further 2 phase III's. Treatment order was randomised and double blind.

Results: S significantly prolonged the cycle length of the MMC (median increase from pre-injection S 125 min, placebo –5 min, difference 130 min, range –197, 417min, $p < 0.03$) and this was associated with an increase in duration of phase II (S 82 min, placebo –10 min, difference 92 min, range 175, 350 min, $p < 0.03$) but not phase I (S 30 min, placebo 9 min, difference 21 min, –125, 58 min) or phase III (S 2 min, placebo –1 min, difference 3 min, –5, 1 min). Furthermore, similar proportions of phase III's started in the antrum for both S (pre-injection 6/9, post 4/8) and placebo (5/9, 5/9) groups. Examination of the patterns of activity during phase II showed a tendency for a greater amount of coordinated activity to involve the duodenum following S compared with control (median difference in number occurring pre to post-injection S 22, placebo –5, difference 27, range –31, 143, $p = 0.086$) but no difference in that involving the antrum (S 0, placebo 0, difference 0, –27, 105).

Conclusion: In contrast to previous observations in the jejunum, the cycle length of the MMC in the stomach and duodenum is prolonged by the 5-HT₁ receptor agonist, sumatriptan. This is associated with an increase in the duration of phase II, which appears to have a greater proportion of its coordinated activity involving the duodenum rather than the antrum. These results provide further evidence for the involvement of 5-HT receptors in the regulation of gastro-duodenal MMC activity in man. Glaxo Wellcome kindly supplied the sumatriptan for this study.

159 5-HT₁ RECEPTORS STIMULATE FASTING HUMAN ANTRAL MOTILITY

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Background: 5-HT₁ receptors are found on enteroendocrine cells, vagal and spinal afferent neurones and myenteric neurones. 5-HT₁ antagonists inhibit human fasting antral phase III motor activity and block the associated motilin rise. This suggests that 5HT₁ agonists stimulate fasting antral motility, however their effect on fed antral motility is not known.

Aim: To assess the effects of MKC-733 (a selective 5-HT₁ agonist) on fasting and fed antral manometry in humans.

Study Design: Double blind, randomised, placebo-controlled, 4 period, cross-over study.

Subjects: 12 healthy male volunteers aged 18–45 years.

Methods: A 6 channel, solid state, transducer catheter was inserted on the day before the study and allowed to migrate into the small bowel overnight. The proximal 4 transducers were placed in the antrum (20, 22.5, 25, 27.5cm from the tip). Fasting subjects received a single oral dose of MKC-733 (0.2, 1.0 or 4.0mg) or placebo. Fasted manometry was recorded for 8 hours before a second dose of drug was given followed, 30 minutes later, by a mixed nutrient meal (2796kJ). Fed manometry was recorded for 3 hours following the meal.

Results: (Expressed as mean $\pm$ SE; p = linear trend) Fasting; The number of MMC's arising from the gastric antrum per hour was significantly increased (placebo = 0.360 ± 0.026 /hour, 0.2mg = 0.390 ± 0.027 /hour, 1.0mg = 0.429 ± 0.025 /hour, 4mg = 0.549 ± 0.027 /hour, $p < 0.001$). There was significant increase in the number of antral contractions during phase II of the MMC (placebo = 111.5 ± 28.14 , 0.2mg 175.2 ± 28.34 , 1.0mg = 161.8 ± 26.42 , 4mg = 216.1 ± 28.34 , $p = 0.036$) but not the motility index. The duration of phase I of the MMC was significantly reduced (placebo = 326.8 ± 19.73 min,

0.2mg 317.5 ± 19.87 min, 1.0mg $=314.7 \pm 18.52$, 4mg $=268.9 \pm 19.87$ min, $p = 0.031$). Fed: There was no significant effect on the motility index, number and amplitude of antral contractions or the time to onset of fed antral activity.

Conclusion: Stimulation of 5-HT₃ receptors during fasting in man increases the frequency of antral MMCs and the number of phase II antral contractions but has no significant effect on fed antral motility. This work was supported by Mitsubishi-Tokyo Pharmaceuticals Inc.

160 MKC-733, A 5-HT₃ RECEPTOR AGONIST, STIMULATES SMALL BOWEL TRANSIT AND RELAXES THE GASTRIC FUNDUS IN MAN

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Background: 5-HT₃ receptors are abundant on enteroendocrine cells and nerves of the GI tract. 5-HT₃ antagonists are potent anti-emetics and also increase jejunal absorption and slow colonic transit. However the role of selective 5-HT₃ agonists has not yet been determined.

Aims: To assess the effect of MKC-733 (a highly selective 5-HT₃ agonist) on small bowel transit time (scintigraphy) and gastric fundal relaxation and antral motility (MRI).

Study design: 2 double-blind, randomised, placebo-controlled, 4 period, cross-over studies.

Subjects: Healthy males aged 18–45 years.

Methods: Fasting subjects received a single oral dose of MKC-733 (0.2mg, 1.0mg or 4mg) or placebo. 30 minutes later they consumed a pancake and milkshake (scintigraphy) or a viscous drink (MRI). Subjects then had serial anterior / posterior γ -camera images of the abdomen (n=16) or MR gastric volume and antral motility scans (n=12).

Results: (Mean $\pm$ SE) The small bowel transit time of the liquid meal was dose dependently decreased (placebo = 276.4 ± 17.6 min, 0.2mg = 265.3 ± 17.6 min, 1mg = 246.5 ± 17.6 min, 4mg = 222.9 ± 17.6 min; p value for linear trend = 0.035). After a 4mg dose the maximum cross-sectional area of the proximal stomach 30 minutes after the meal was significantly increased compared to placebo (placebo = 499 ± 36 cm², 0.2mg = 468 ± 46 cm², 1mg = 558 ± 39 cm², 4mg = 635 ± 18 cm², $p = 0.02$). There was no change in antral contraction speed or frequency in comparison with placebo.

Conclusions: 5-HT₃ agonists relax the gastric fundus without inhibiting antral motility and may be useful in the treatment of functional dyspepsia with impaired gastric accommodation. Faster small intestinal transit may be due to a stimulatory effect on small bowel secretion and motility and suggests that these drugs may also be useful in the treatment of constipated IBS. This work was supported by Mitsubishi-Tokyo Pharmaceuticals Inc.

161 5-HYDROXYTRYPTAMINE (5-HT), 5-HT TRANSPORTERS AND 5-HT RECEPTORS IN THE COLONIC MUCOSA: AN IMMUNOHISTOCHEMICAL ASSESSMENT IN IRRITABLE BOWEL SYNDROME (IBS) AND ULCERATIVE COLITIS (UC)

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Introduction: 5-HT is present in large quantities in the gastrointestinal tract and is implicated in the normal physiology of peristalsis, secretion and sensation. The distribution and transport of 5-HT has been studied in the brain in depression using immunohistochemical methods. In view of the developing role of the Brain-Gut axis in the pathophysiology of functional gastrointestinal conditions including the IBS we wished to examine the intestinal mucosal distribution of 5-HT, the serotonin transporter (SERT) and of 5-HT_{2A}, 2B and 5HT₃ receptors which are involved in colonic physiology.

Methods: Paraffin sections from patients with diarrhoea predominant IBS, constipation, ulcerative colitis and control (carcinoma resection margin) were examined. Immunohistochemistry was performed using the avidin biotin method (Vectastain elite kit or Strept ABC kit). Antibody dilutions were determined by optimisation experiments with primary antibodies from DAKO, Chemicon and

Oncogene Research. S100 antibody was used to stain for the presence of neuronal tissue. DAB chromogen was used in all cases except for SERT localisation where we used immunofluorescence with FITC.

Results: Immunohistochemistry studies showed that 5-HT and Chromogranin A staining enterochromaffin cells congregated mainly in the base of the crypts in all conditions. SERT and the 5-HT receptors were evenly distributed throughout the crypt epithelium in all conditions and neuronal tissue was comparable in all samples examined.

Conclusion: These studies indicate that the receptors and transporters of 5-HT in the colonic mucosa appear to be qualitatively similarly distributed in IBS and other gastrointestinal conditions.

162 ENTERO-ENDOCRINE CELLS ARE ELEVATED IN DIARRHOEA-PREDOMINANT IBS

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Introduction: Entero-endocrine (EC) cells are neuro-endocrine cells found throughout the GI tract, which store and secrete serotonin and other peptides, which may affect GI motility. Raised numbers of EC cells have been reported in patients with irritable bowel syndrome (IBS). We have investigated whether EC cell counts differ in clinical subtypes of IBS.

Methods: Thirty four patients with IBS attending a gastroenterology outpatient clinic and 10 normal controls were asked detailed questions concerning their bowel habit. All rectal biopsies, which were normal by conventional criteria, were further immuno-stained for entero-endocrine cells using synaptophysin (a vesicular protein).

Results: Nineteen patients had diarrhoea predominant IBS (d-IBS), with loose stool passed every day. Fifteen patients had symptoms which were not exclusive for diarrhoea or constipation predominant IBS (alternating IBS, alt-IBS). The mean EC count in the d-IBS was 3.7 per 100 epithelial cells, in the alt-IBS group 2.5 and in the controls 1.5 ($p < 0.001$).

Conclusions: Patients with diarrhoea predominant IBS have higher levels of entero-endocrine cells than those with alternating IBS. Rectal immuno-histology may select subgroups of IBS patients with high EC counts for targeted therapy.

163 URGE AND NO-URGE CONSTIPATION PREDOMINANT IRRITABLE BOWEL SYNDROME (IBS): SENSORY DYSFUNCTION OF THE WHOLE GUT

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It has been suggested that patients with urge (U) and no-urge (NU) constipation predominant IBS (CPIBS) have increased sensitivity of the rectum to distension. Furthermore, within both these groups, 2/3 are hypersensitive, which is similar to that seen in patients with diarrhoea predominant IBS (DPIBS). As we have shown that patients with DPIBS have increased sensitivity throughout the whole gut, it was the aim of this study to assess the whole gut in a similar way in CPIBS.

Methods: Sensory responses to distension of the oesophagus (O), duodenum (D), jejunum (J), ileum (I), colon (C) and rectum (R) were measured in 10 patients with U-CPIBS (aged 32–65yrs, 1 male) and 21 patients with NU-CPIBS (aged 19–62yrs, 3 males) and compared with 31 healthy controls (aged 20–61yrs, 6 males).

Results: Patients with U-CPIBS exhibited significantly lower discomfort thresholds to distension of the R (pts, 86(40,175)ml, geometric mean (range) v controls, 173(80, 400)ml; $p < 0.05$), C (90(50,220)ml v 163(60, 275)ml; $p < 0.05$), I (34(20,60) ml v 61(30,150) ml; $p < 0.05$) and J (34(20, 50)ml v 62(40,150)ml; $p < 0.05$), but not D (54 (30,100)ml v 72(40,150) ml) or O (10(8,15)ml v 17(8,45)ml) compared with controls. Patients with NU-CPIBS also exhibited significantly lower discomfort thresholds in the I (40(15,150) ml; $p < 0.05$), J (42(20,140)ml; $p < 0.05$) and O (12(5, 60)ml; $p < 0.05$) but not R (130(60,300)ml), C (126 (60,300)ml) or D (53(10,160)ml) compared with controls. Patients with U-CPIBS were more rectally sensitive than the NU-CPIBS patients ($p < 0.05$). Comparison of individual patient sensory thresholds with the 90% control range, showed hypersensitivity in 50% of U-CPIBS patients in R, 56% in C, 13% in I, 33% in J, 33% in D and 30% in O, whilst in the NU-CPIBS patients, hypersensitivity was observed in 33% in R, 25%

in C, 14% in I, 33% in J, 24% in D and 43% in O. Hyposensitivity was observed in 10 % of NU-CPIBS patients in the R, 5% in C, 7% in I, 10% in J, 14% in D and 14% in O. No U-CPIBS patient exhibited hyposensitivity.

Conclusion: Hypersensitivity can be identified throughout the whole gut in patients with U- and NU-CPIBS. However, hyposensitivity is confined to NU-CPIBS and can also be observed in any region of the gut.

164 IRRITABLE BOWEL SYNDROME DIAGNOSED IN PRIMARY CARE: HOW MANY PATIENTS FULFIL ROME 11 CRITERIA?

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Introduction: Many patients with functional gastrointestinal disease are excluded from clinical trials because they do not fulfil the diagnostic entry criteria. In September 1999, the Rome II consensus document was published including criteria for the diagnosis of irritable bowel syndrome (IBS). The aim of this study was to determine the number of patients with a GP diagnosis of irritable bowel syndrome who also fulfil the diagnostic criteria described by the Rome II committee.

Methods: 37 GPs participated in the study and provided details of patients who had been seen at least twice in the previous year with abdominal pain or change in bowel habit in whom they were confident of a diagnosis of irritable bowel syndrome. No diagnostic instructions were given and Rome criteria were not provided. Patients were then asked to complete a questionnaire providing details of symptoms and duration, according to Rome II criteria.

Results: 98 of the 101 patients identified agreed to complete the questionnaire. 39 of these (40%) fulfilled Rome 11 criteria for irritable bowel syndrome. Of the 59 patients who did not fulfil the criteria, 36 had symptoms for less than 12 weeks in the preceding year. 52 patients fulfilled two of the three diagnostic criteria and seven patients met just one of the criteria.

Conclusions: Most patients with a GP diagnosis of irritable bowel syndrome do not fulfil the diagnostic criteria of Rome II. These patients are therefore unlikely to participate in clinical trials of new treatments but represent the largest number of potential beneficiaries. These results support the use of more pragmatic trials in irritable bowel syndrome even if greater representativeness results in a reduction in patient homogeneity.

165 DEMOGRAPHICS AND SYMPTOM PRESENTATION OF IRRITABLE BOWEL SYNDROME IN COMMUNITY BASED VOLUNTEERS

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Despite the high prevalence of irritable bowel syndrome (IBS) and the significant morbidity that is experienced by many sufferers it's natural history remains poorly understood. Data from hospital specialist centres underestimates and may not be representative of the scale of the problem in the community. Relatively little is known about the natural history of IBS including disease presentation, consultation patterns, symptom frequency and pattern and treatment efficacy in the community. Most studies have been retrospective or short-term. Our aim is to gather prospective data about the natural history of IBS in community based 'healthy volunteers'. Five hundred and three volunteers with IBS were recruited via a national newspaper advertising campaign (419 females (83%) median age 42.1) by a call centre. Individuals were screened to confirm a diagnosis of IBS using Rome II criteria and volunteers diagnosis was confirmed by the general practitioner. Patients completed a baseline questionnaire and are completing daily diary cards for a six month period addressing the impact of IBS upon their lifestyle. Baseline data are presented here. More than half of the volunteers had been given a diagnosis by their general practitioner. Symptom presentation related to bowel function are presented in the table.

71% were currently taking prescribed medication however most of these individuals reported no or minimal improvement and described associated social and occupational morbidity. Over the counter medications were taken in 29 % of individuals, 80% had made dietary adjustments and 15% were engaged in alternative therapies, including hypnotherapy. Baseline findings highlight that despite the high

Abstract 165, Table 1

Symptom	No. of patients (%)
Constipation	120 (24%)
Diarrhoea	190 (38%)
Both (Alternating)	186 (37%)

number of physician consultations many treatments provided for IBS are ineffective and many patients suffer disability. This prospective study aims to provide greater understanding of symptom pattern, frequency and duration in IBS.

166 ABDOMINAL MIGRAINE IN ADULTS: AN UNDER-RECOGNISED VARIANT OF IBS?

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Background: Abdominal migraine is generally accepted as a distinct clinical entity in paediatric gastroenterology, characterised by recurrent abdominal pain with nausea and vomiting and a personal or family history of classical migraine. The community prevalence of abdominal migraine in children is between 1-4%. However abdominal migraine is rarely diagnosed in adults and its existence is controversial due to the lack of a precise definition and the high incidence of recurrent non-migrainous headaches reported in patients with irritable bowel syndrome.

Aims: To assess the clinical and biochemical features of five adult patients with suspected adult abdominal migraine.

Methods: The 5 patients had recurrent attacks of upper abdominal pain with normal biochemistry and haematology, normal upper GI endoscopy, small bowel radiology or CT scan of abdomen and lower GI imaging. Two patients had skin biopsies to exclude mastocytosis and one had a negative laparotomy. Median age was 40 years (range 24-42), 3 were female and the median duration of symptoms was 3 years (range 2-10). Migraine was defined by the International Headache Society (IHS) criteria and abdominal migraine was defined as previously described by Russell (*Arch Dis Child* 1995;72:413).

Results: All 5 patients fulfilled the criteria for abdominal migraine. Four of the five patients completed questionnaires on headache and 50% fulfilled IHS criteria for migrainous headache. Two of the five patients had urinary histamine measured during attacks and both of these were raised (229 and 21.9ng/ml (NR <20ng/ml)). All 5 patients responded impressively to prophylactic treatment with β blockers and general advice on avoidance of triggering factors.

Discussion: These cases suggest that abdominal migraine does exist in adults and is characterised by discrete stereotypic episodes of upper abdominal pain lasting more than an hour and resolving spontaneously which respond well to conventional treatment for migraine. Further studies are required to assess the relationship between classical and abdominal migraine and the utility of urinary histamine in diagnosing abdominal migraine.

167 EPIDEMIOLOGY OF THE FUNCTIONAL GASTROINTESTINAL DISORDERS DIAGNOSED ACCORDING TO ROME II CRITERIA: AN AUSTRALIAN POPULATION-BASED STUDY

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Background: The Rome II criteria for functional gastrointestinal disorders (FGIDs) have recently been defined. Population based studies are required to determine the prevalence and validity of the Rome criteria.

Aims: 1) To determine the prevalence of FGIDs defined according to the Rome II criteria; 2) To examine the relationship between FGIDs, psychological characteristics and mental functioning.

Materials and methods: Subjects included individuals aged 18 years and older (n=1225) from the Penrith population who were initially surveyed with The Penrith District Health Survey in 1997. Subjects were sent a self-report questionnaire that contained items on gastrointestinal symptoms applying the Rome II criteria. Subjects were also assessed on psychological factors and physical and mental functioning.

Results: The overall response rate for this study was 60.2%. 36.1% (n=276) of respondents were diagnosed with an FGID according to Rome II criteria. There were no differences in the number of males

and females who were diagnosed with an FGID. The five most prevalent FGIDs were functional heartburn (10.4%), IBS (8.9%), functional incontinence (7.6%), proctalgia fugax (6.5%) and functional chest pain (5.1%). Individuals with an FGID scored significantly higher on the Scale of Emotional Arousability ($t=-3.38$, $p<0.001$) and the Vulnerable Personality Style Questionnaire ($t=-4.32$, $p<0.001$), than individuals who did not have an FGID according to Rome II criteria. Furthermore, those with FGIDs (17.4%) were significantly more likely to be a GHQ-12 'case' than those with no FGID (5.8%) ($\chi^2=17.76$, $p<0.001$).

Discussion: Individuals diagnosed with an FGID according to Rome II criteria show a higher level of impairment of physical and mental functioning than individuals without an FGID diagnosis. This project was supported by the Multinational Working Team for Diagnosis of Functional Gastrointestinal Disorders (Rome Committees).

168 ABDOMINAL DISTENSION IN FEMALES WITH IRRITABLE BOWEL SYNDROME (IBS): THE EFFECT OF THE MENOPAUSE AND HORMONE REPLACEMENT THERAPY

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There is evidence to suggest that sex hormonal status of female patients with irritable bowel syndrome (IBS) may affect the severity of their symptoms. This study examines the effects of the menopause and hormone replacement therapy (HRT) on abdominal distension in female patients with IBS.

Method: A self-administered questionnaire on abdominal distension and hormonal status was completed by 27 pre-menopausal female IBS patients not taking the oral contraceptive pill (aged 29–43yrs), 23 post-menopausal patients not taking HRT (aged 61–72yrs) and 17 post-menopausal patients who were taking HRT (49–63yrs). All patients satisfied the Rome I criteria for IBS.

Results: Post-menopausal IBS patients not taking HRT experienced significantly more episodes of distension than pre-menopausal patients not taking the oral contraceptive pill (post-menopausal: median (range); 7days/week (5–7)days/week v pre-menopausal: 3days/week (2–7)days/week; $p<0.005$). The use of HRT by the post-menopausal patients however, significantly reduced the episodes of distension to pre-menstrual levels (3 days/week (2–5)days/week; $p<0.005$).

Conclusion: The results of this study suggest that sex hormonal status has a substantial effect on abdominal distension in female patients with IBS. Cognizance of these data may also be useful in the management of this condition as HRT appears to improve the symptom of distension.

169 IRRITABLE BOWEL SYNDROME: CAN SOMATISATION RISK FACTORS AFFECT SYMPTOM SEVERITY OR RESPONSE TO HYPNOTHERAPY?

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Background: Somatisation may play a role in producing symptoms in at least some IBS patients. Individuals at risk for somatisation may display high levels of one or more of the following: neuroticism (N), catastrophising (C), social desirability (SD) and hypnotic ability, which interact to transduce psychological threat into physical symptoms or amplify symptoms in excess of pathophysiology. We have recently shown IBS patients to have higher levels of N, C and mental absorption (one component of hypnotic ability) compared with healthy controls (HC) (*Gastroenterology* 2000;118:A332). The aims of this study were to determine whether these risk factors influence severity of symptoms or their response to hypnotherapy (HT).

Method: 66 female IBS patients completed the Tellegen Absorption Scale, NEO-FFI, Zocco Scale and Marlowe-Crowne Scale, to measure absorption, N, C and SD, respectively, and an IBS scoring questionnaire. 45 patients who also received HT completed the IBS questionnaire again after treatment.

Results: Mean levels of N and C, but not SD, were higher in patients than HC: (N (mean, 95%CI): 28.9(26.4–31.1) v 21.5(19.4–23.6); C: 42.2(38.1–46.3) v 31.6(28.6–34.7), both $p<0.001$), and more patients had high mental absorption (IBS v HC: 44% v 25%, $p<0.001$). None of these measures correlated with symptom scores, except for N with reported degree of life interference ($r=0.316$, $p=0.011$). In patients without high levels of N and C ($n=15$), SD correlated highly with pain severity ($r=0.721$, $p=0.004$) and overall IBS

score ($r=0.707$, $p=0.001$). HT significantly reduced IBS symptoms (overall IBS score, pre- v post-HT (mean, 95%CI): 350(327–373) v 169(138–200); % change in score: 53(45–60%); both $p<0.001$), but improvement was not associated with levels of mental absorption or the other psychological measures.

Conclusion: Levels of N, C and absorption do not appear to affect symptom severity, but SD may influence this in a subset of patients. The lack of effect of mental absorption on improvement with HT suggests that level of hypnotic ability is not an essential factor in patient selection for this treatment.

170 ABSTRACT WITHDRAWN

171 ALVERINE CITRATE (SPASMONAL) FAILS TO RELIEVE THE SYMPTOMS OF IRRITABLE BOWEL SYNDROME: RESULTS OF A DOUBLE BLIND, RANDOMISED PLACEBO CONTROLLED TRIAL

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Background/Aims: Alverine citrate (Spasmonal) has smooth muscle relaxant properties and has been used in the treatment of IBS for many years at a dose of 60 to 120 mg three times daily. It has never been the subject of a randomised placebo controlled trial to demonstrate its efficacy. This study was designed to evaluate a new formulation of Alverine citrate, a 120 mg capsule, which is intended to improve patient compliance by reducing the number of capsules required each day.

Methods: 107 patients with the diagnosis of irritable bowel syndrome (satisfying the Rome criteria) were randomised to take 120 mg Alverine citrate (single capsule) three times daily or placebo for 12 weeks. Baseline observations were recorded in a 2 week run-in period. The main efficacy variables, analysed on an intention-to-treat basis, were the abdominal pain scores recorded at each clinic visit and on three 2 week patient diary cards. Secondary efficacy variables included scores for severity and frequency of abdominal bloating, nausea, early satiety and general well being.

Results: The treatment and placebo groups were well matched with regard to all demographic variables. The severity and frequency of abdominal pain improved in 66% and 68% of the patients treated with Alverine citrate respectively compared with 58% and 69% of the placebo group with no significant difference between the groups ($p=0.5$ and 0.65 respectively). The mean percentage reduction in patients' diary scores for abdominal pain from baseline to the final 2 weeks, although greater in the Alverine citrate group (43.7%) compared with the placebo group (33.3%), was also not statistically significant ($p=0.25$). Other symptoms (bloating, nausea, early satiety) and general well-being improved steadily during the 12 week study but no significant difference between the treatment and placebo groups was evident. No serious adverse events were reported.

Conclusion: Alverine citrate is no better than placebo at relieving the symptoms of irritable bowel syndrome. This study was supported by Norgine (UK) Ltd.

172 COGNITIVE BEHAVIOURAL THERAPY AND RELAXATION THERAPY ARE NO BETTER THAN GOOD ROUTINE MEDICAL CARE FOR MANAGING IRRITABLE BOWEL SYNDROME

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Aim: To compare cognitive behavioural therapy (CBT), relaxation therapy (RT) and routine medical care (RMC) for managing Irritable Bowel Syndrome (IBS).

Methods: Subjects with clinically confirmed IBS (81% females, mean age 42 yrs, mean duration of IBS 15 yrs) were randomly assigned to CBT ($n=35$), RT ($n=36$) or RMC ($n=24$). 78 subjects (74%) completed at least one half of the treatment sessions. Females were more likely to be non-completers as were subjects undergoing RT. Outcomes measures were the Bowel Symptom Severity Scale (BSSS), Hospital Anxiety and Depression Scales (HAD-A & HAD-D) and the SF-36 Physical and Mental Component Scores

(PCS & MCS). Measurements were taken at baseline 1 (B1), two weeks later at baseline 2 (B2), approximately 8 weeks later at end of treatment (P), and a further 10 months later at followup (F).

Results: There were no differences between the groups in terms of sex ratio, age, duration of IBS, and B1 outcomes measures. A repeated measures MANOVA to determine the immediate effects of treatment (ie, B1, B2 and P) revealed no significant differences for group ($F=0.74$; $df=10,144$; $p=0.686$), nor a significant interaction ($F=0.87$; $df=20,596$; $p=0.622$). There was however a significant improvement over time ($F=6.78$; $df=10,294$; $p<0.001$). A STEPDOWN analyses revealed significant improvements in BSSS, HAD-A and PCS. Improvements occurred from B1 to B2 and continued to P. A second MANOVA to determine follow-up effects from the 44% of subjects with complete data, revealed similar results with no treatment effects, but a continual improvement over time in all groups.

Conclusions: This study found that CBT, RT and RMC were equally effective in managing IBS. While thoughts may have a role in the continuance of IBS, good routine medical care, with an emphasis on education and reassurance, can be as effective as CBT and relaxation in reducing symptoms of IBS.

173 PUDENDAL LATENCY: AN IMPORTANT PROGNOSTIC INDICATOR IN ANTERIOR SPHINCTER REPAIR

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It has been suggested that pudendal nerve terminal motor latency (PNTML) has little part to play in the prognosis after anterior sphincter repair. By using an artificial neural network we have been able to show that both PNTML and the results of biofeedback are an important part of the prognosis. 30 patients who underwent anterior sphincter repair had 32 preoperative investigations including anorectal physiology, endoanal ultrasound and PNTML measurements. 15 of them also underwent biofeedback therapy. The results of the repair were graded as 1 no change, 2 mildly improved, 3 socially continent, 4 excellent result. The variables were then processed through a neural network and a Spearman correlation between the predicted and actual results was performed. The neural networks were then altered by removing parts of the data (table 1).

Abstract 173, Table 1

	3 Months		6 Months		12 Months	
	Correlation	P value	Correlation	P value	Correlation	P value
Full net	90%	0.0001	74%	0.002	93%	0.0001
No biofeedback	58%	0.025	90%	0.0001	78%	0.001
No PNTML	71%	0.003	56%	0.033	66%	0.013
PNTML only*	48%	0.68	69%	0.05	78%	0.001
Biofeedback & PNTML only*	38%	0.036	37%	0.049	35%	0.09

Also age, functional length, high-pressure zone; Bold=significant.

The results show that the full use of preoperative data is necessary to get the best correlation and that if only PNTML and biofeedback are used then the correlation is poor. It also shows that by removing either has a dramatic effect on the correlation. However if PNTML only is used then the correlation at 12 months is 78%. From these results we can deduce that PNTML is an important factor in the pre operative investigation in patients who may receive an anterior sphincter repair.

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174 NON-INVASIVE TESTING FOR *HELICOBACTER PYLORI* MAY BE ASSOCIATED WITH DELAY IN DIAGNOSIS OF UPPER GI MALIGNANCY

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Background: Non-invasive testing for *H. pylori* (serology or radiolabelled ¹⁴C urea breath testing) is increasingly used without upper gastrointestinal endoscopy in selected patients with new onset of dyspepsia (the 'test and treat' strategy).

Aims: To determine whether non-invasive testing was associated with delay in referral and diagnosis in patients with upper GI malignancy.

Patients and methods: Patients diagnosed with gastric or oesophageal malignancy from 1st January 1997- 31st December 1999 were identified from histopathology records. Non-invasive testing for *H. pylori* within 2 years of diagnosis of malignancy was identified from case notes, general practitioners' records and microbiology records.

Results: 152 cases were identified, with mean age 70 years (range 34-91y, 4 patients younger than 45 years). 86 were male. 59 malignancies were oesophageal, 8 junctional, 77 gastric and one duodenal adenocarcinoma; in 7 the precise anatomical origin was undetermined. 22 patients (14.5%) had been tested for *H. pylori* prior to diagnosis (tested group), all by serology (9 oesophageal, 2 junctional and 11 gastric carcinomas); 20/22 were older than 45 years. The median interval between *H. pylori* serology testing and referral for endoscopy was 21 days (range 1-615 days, mean 109 days). There was a delay of more than 12 weeks between serology and referral in 6 patients; 17/22 patients had locally advanced or metastatic disease at diagnosis. Of all patients, median delay between referral to the endoscopy service and diagnosis of malignancy was 9.1 days (range 1-181 days, mean 24.0 days; medians 12 v 9.1 days in tested and untested groups respectively, $p=NS$). Of the patients aged 45 or older, 20/148 (13.3%) had *H. pylori* serology.

Conclusion: Serological testing for *H. pylori* was used in a significant minority of patients aged 45 years or older who were subsequently diagnosed with upper GI malignancy, and in some it was associated with considerable delay in referral and treatment. Non-invasive testing for *H. pylori* in patients with new onset of dyspepsia should be reserved for patients less than 45 years.

175 AUDIT OF THE "TWO WEEK CANCER RULE" FOR GASTROINTESTINAL MALIGNANCY

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Background: In order to assess resource issues necessary to support a successful "two week cancer" service, the Cornwall Gastrointestinal Unit introduced this service in January 2000.

Aims: To audit the "two week cancer" service for upper and lower GI malignancy.

Methods: A retrospective audit of all GP referrals received over a 9 month period. The main outcome measure was the number of patients who were found to have cancer. The data were also analysed for: (i) time from GP referral to initial assessment, diagnosis and treatment and (ii) the number of referrals that fulfilled the "two week cancer rule" guidelines. Any patient who was referred under the "two week cancer rule" was seen irrespective of whether or not they met the guidelines. The number of patients on the waiting list for endoscopy was measured before and after implementation of the "two week cancer" service.

Results: The audit included 105/146 upper and 264/398 lower GI referrals. GI malignancy was found in 25% of upper and 14% and lower GI referrals. For upper GI compared to lower GI referrals the median time (days) to initial assessment was 16 (range 0-53) vs 12 (1-181); diagnosis 20 (4-77) vs 30 (1-181) and treatment 29 (7-117) vs 34 (2-226). 85% of referrals fulfilled upper GI guidelines whilst 72% fulfilled lower GI guidelines. Cancers were only found in patients who satisfied the guidelines. The number of patients on the waiting list for endoscopy increased by 25% by the end of the study.

Conclusions: The detection rate of GI malignancy was good, with the majority of patients receiving their initial assessment within 2 weeks. The guidelines appear robust, as patients who did not fulfil the referral criteria did not have cancer. Although it is possible to provide a "two week cancer" service within existing resources, patients referred by the more traditional route have to wait longer.