Welcome:

Welcome to the belated July issue of NewWave.

The AGIP committee would like to welcome its new President Prof Graeme Duthie. We would also like to take this opportunity to thank Dr John de Caestecker (ex - President) and Graham Buckton (ex - Symposium Secretary) for their commitment and contribution over many years. John and Graham have recently stood down from the council. We wish them all the best for the future.

AGIP Handbook and Application Forms:

The final version of the Handbook and related forms were ratified at the recent AGM on 23rd June at the AGIP seminar session of the DDW. These are due to be posted on the BSG web site on 1st October 2015.

A few changes were made to the Draft circulated in April in response to feedback from the membership and these have been incorporated in the final version. Please find enclosed (within NewWave) Form 2 and Form 5 for your particular attention.

Please be aware that 30th September 2015 is the last opportunity to apply for Accreditation under the current criteria. Please bring this to the attention of any colleagues who might benefit from applying now and who may not be included in the email forum.

Patricia Vales - Hon Member BSG

AGIP DDF Bursaries:

You will notice that within this issue of NewWave there are nine reports from this year’s Digestive Disorders Federation (DDF); DDF is a combined meeting of:

- Association of Coloproctology of Great Britain & Ireland (ACPGBI)
- Association of Upper Gastrointestinal Surgeons (AUGIS)
- British Association for Parenteral and Enteral Nutrition (BAPEN)
- British Association for the Study of the Liver (BASL)
- British Society of Gastroenterology (BSG)

AGIP offered ten bursaries of up to £500 to help with the cost of registering and attending this year’s DDF meeting. Surprisingly only nine people applied!
Dr Mark Scott gave an informative overview of anorectal physiology testing in patients with defaecation disorders and what tests are available for these patients. One of the key messages was that anorectal investigations are not for all patients suffering from these disorders but should be used in patients who fail to respond to conservative management and who have a significant reduction in their quality of life. Defaecation disorders fall under three sub classifications: faecal incontinence, constipation and evacuation disorders with overlap seen in 43% of patients that had only been reported in 16% of referral letters. This impresses the importance of taking a thorough clinical history from the patient and that these conditions have multi-factorial pathophysologies. Thus, multiple investigations are often required as one test is not diagnostic in most situations. The aims of anorectal investigations are to confirm the clinical impression, provide a basic for treatment, educate the patient about their condition, and attempt to phenotype the patient on the basis of their pathophysiology.

Faecal incontinence is a symptom that can present with urgency or passively. Anorectal ultrasound can be used to assess the anatomy and integrity of the anal sphincters. Anorectal manometry can be used to assess the function of the anal muscles by measuring parameters such as resting tone, cough amplitudes and squeeze pressure and duration. High resolution anorectal manometry is an emerging technology likely to replace conventional manometry. However, the clinical superiority has yet to be confirmed. It does however; propose an opportunity for test standardisation. Rectal sensitivity can also be assessed by inflation of a balloon with air or liquid or barostat to assess the points of first sensation, urgency, and the maximum tolerated volume. The conventional barostat is time consuming (45 minutes). A new test called the “Rapid barostat” has shown favourable results when compared with the conventional barostat and may be a future tool to assess these patients. Balloon distension has the disadvantage that the balloon has inherent elastic properties and this may affect the measurements. This test can indicate whether the patient has a rectum hypersensitive to distension or suggest low compliance.

Constipation may be related to disorders of the colon or anorectum. Transit marker studies can assess a patient for slow transit constipation. Colonic manometry is an interesting tool being used in the research field to assess the motility patterns seen in this group of patients compared with normals. Uncoordinated motility in constipation has suggested the possibility of stasis. It is however invasive. The “wireless motility capsule” is also an emerging technology which may be useful in measurement of colonic transit time. Defaecation begins with an urge sensation. If this is impaired, a patient’s perception of rectal contents will be altered and a disorder of evacuation result. Hyposensitivity can lead to constipation, overflow incontinence and in some cases megarectum. The balloon expulsion test can be used adjunct to manometry or a barostat test can be performed. However, there are substantial artefacts related to this test in that the patient is lying in the left lateral position with an empty rectum. It can identify impaired evacuation but a normal test does not rule out a mechanical cause. Studies have shown that healthy volunteers can show patterns of dysynergia performing strain manoeuvres. Defecating proctography (X-ray or MRI) can also be performed if the balloon expulsion test is inconclusive. This test can show morphological anomalies such as intussusception. Disadvantages of this test are patient inhibition to the situation and non physiological positioning in the supine posture during MRI defaecating proctography. Upright scanners are optimal but not available in many trusts. This test provides real time and dynamic information which is both qualitative and quantitative.

There are multiple investigations available to investigate disorders of defaecation and more than one test will be required to assess a patient due to the multi-factorial nature of these conditions. Each test has advantages and disadvantages. Standardisation of test protocols will be an advantage in order to ensure each trust is undertaking tests according to the same protocol. Emerging technologies such as high resolution manometry, colonic manometry and wireless motility capsule tests provide an opportunity to further this area of investigation and gain more insight into these complex disorders.
Dr Trudgill began by explaining the clinical indications for consideration of ARS.

- Typical reflux symptoms
- Volume regurgitation
- Complicated hiatus hernia
- Severely impaired quality of life
- No alternative therapy

Other considerations to take in to account:

- Fitness
- Age

Dr Trudgill described GORD as a complicated entity due to the atypical symptoms it can present such as chest pain, cough, and symptoms of the throat which are often difficult to control with PPI. Gastroenterologists frequently receive GP referrals stating that high dose PPIs are not working in these groups of patients, and should the patient have alternative treatment such as ARS.

**What predicts a good outcome after ARS?**

- Abnormal pH study
- Typical primary symptom (such as heartburn/regurgitation)
- Complete or at least a partial response to PPI (any less is associated with poor outcome from ARS)

Impedance was explained as being extremely beneficial in the investigation of reflux symptoms compared to pH alone. This is due to the greater sampling rate (40 per sec), the ability of impedance monitoring to detect weakly acidic episodes, and the fact that it is more reproducible.

**Pre-ARS work up**

The importance of ‘having your ducks in a row’ with regard to pre surgical work up was clearly explained. Having the appropriate pre surgical work up and paying attention to the findings significantly improves the surgical outcome.

- Patient should have typical symptoms
- Patient should have a typical response to PPI
- Oesophagitis (preferably)
- Normal manometry
- Pathological pH study/impedance study
- Good symptom association
- Weak LOS
Impact of low FODMAP dietary advice and probiotics on symptoms in irritable bowel syndrome: A randomised, placebo controlled, 2x2 factorial trial
Heidi Staudacher (Kings College London)

There is a longstanding difficulty with conducting randomised controlled trials (RCT) in dietetic studies as it is difficult to blind a patient to whether they are undergoing an intervention or not. A solution to this is to offer the patient sham dietary advice, instead of asking them to continue with their normal diet, thereby blinding them to whether or not they are in the treatment or sham arm of the trial. Heidi Staudacher from King’s College, London presented results from the first RCT evaluating the effect of low FODMAP diet (LFD) advice utilising sham dietary advice. The sham diet was designed to be equivalent in nutrients and FODMAP content to usual diet. A LFD is known to have a negative impact on the gastrointestinal microbiota and so the investigators utilised a 2x2 factorial design to also assess combining a LFD with a probiotic.

Adults suffering from IBS who had been referred to a dietetic service were recruited and then randomised to a low FODMAP diet (LFD) or sham dietary advice and to a probiotic (VSL#3) or placebo. At baseline assessment and at their 4 week follow up their IBS symptoms were measured using the validated IBS symptom severity scale (IBS-SSS) and the global symptom question ‘did you have adequate relief of your IBS symptoms over the last 7 days?’. They recruited 104 volunteers and 95 of these completed the study.

The investigators found that 57% of participants reported adequate symptom relief after following a LFD compared to 38% of participants who followed the sham dietary advice, which was not quite statistically significant (p=0.05). However, IBS-SSS analysis did produce statistically significant differences with mean scores significantly lower for participants following the LFD compared to the sham treatment (p<0.001). Interestingly, although 57% of participants taking probiotics reported adequate relief at follow up compared to 37% in the placebo group, which again was not quite statistically significant (p=0.05) but does seem to suggest some positive effect from probiotic use, no difference was found in IBS-SSS scores for those taking probiotics compared to a placebo. They did not find significant interaction between between dietary advice and probiotic use for either outcome measure.

These findings lead the investigators to conclude that LFD dietary advice was more effective than sham dietary advice for improving IBS symptoms. The inclusion of a probiotic gave equivocal results in terms of symptom improvement and they suggest further investigation into probiotic use combined with a LFD.

Long-term effectiveness of short chain fermentable carbohydrate (FODMAP) restriction in patients with irritable bowel syndrome
Lee Martin (Kings College London)

Low FODMAP diets are regularly introduced in clinical practice in the treatment of irritable bowel syndrome (IBS). Dieticians initially advise patients to undertake a FODMAP exclusion period lasting between 4 and 8 weeks at which point the patients are reviewed and their response to exclusion assessed. In the next phase of treatment, which patients are encouraged to self-manage, they are instructed to gradually reintroduce FODMAP groups allowing them to identify their own tolerance levels. Lee Martin from King’s College London, presented a study which combined the symptom assessments routinely taken at baseline and following the initial exclusion period with a postal questionnaire 6-18 months after reintroduction to assess the long-term efficacy of this treatment model.

358 patients were identified who had been seen in clinical practice and been treated for their IBS symptoms with a low FODMAP diet introduced by a dietician and they were invited to participate in the study. Of these, 100 patients consented to be part of the study and returned questionnaires at between 6 and 18 months following FODMAP reintroduction. The patients were asked to answer the question ‘do you currently have satisfactory relief of your gut symptoms?’ as well as completing the Gastrointestinal Symptom Rating scale, symptom assessments that had been performed at baseline and following the initial exclusion period.
When reviewed after the initial FODMAP exclusion period at 4-8 weeks, 62/100 patients reported adequate symptom relief. Of these 44 (71%) continued to report satisfactory relief of their symptoms at the point of completing their long-term questionnaires. The vast majority of those reporting relief (42/44) continued to adapt their diet at least 50% of the time suggesting that the improvement in symptoms is attributable to the LFD.

This study not only further supports the effectiveness of a LFD for treating IBS symptoms in the short term but also provides some good evidence that way that it is being delivered is effective over a reasonably long period (6-18 months) and does enable patients to self-manage their symptoms. Mr Martin did present some of the issues reported by patients following a LFD including increased expense and challenges when eating out. It would be interesting to see whether the same proportion of patients continue to adhere to a LFD over an even longer follow-up period.

**DDF May 2015 Report for AGIP by Warren Jackson (Hull & East Yorkshire Hospitals)**

*Optimising Outcomes and Prevention of Late Complications of Antireflux Surgery*

*John Hunter MD (Portland, OR, USA)*

This talk was predominantly aimed at GI Surgeons with an interest in antireflux surgery. The talk started by making the audience aware of the dangers of a patient constantly performing their symptoms in front of you in clinic (i.e. belching)! It gave an overview of the rise and fall of the lap nissen from the USA perspective, peaking in 2000 but as ‘lap nissen gets a black eye’ as it was depicted by Mr Hunter resulted in a 27% decrease by 2003 with the greatest decrease being in 30-50 year olds. The rise and fall of the lap nissen was highlighted by the following:

- Poor patient selection
- Incomplete evaluation
- Post op management issues
- Deficiencies intrinsic to the nissen

The failure of laparoscopic fundoplication was a result of operating on the wrong-patient or doing a technically inadequate operation. As such the “Montreal Consensus Definition” was highlighted; this defines the indications for antireflux surgery as follows:

- Troublesome symptoms
- Mild reflux – 7 days a week
- Moderate to severe symptoms 2-3 days a week
- ...despite adequately dosed PPI

The “predictors of a satisfied patient following fundoplication”:

- Responsive to PPI’s
- Typical symptoms of GORD
- Abnormal 24-hour pH study
- ...if all present 98% satisfied or extremely satisfied with operation
- ...if all absent – forget about it!

The “predictors of a dis-satisfied patient following fundoplication”:

- Normal pH study & preoperative impairment in quality of life
The “post-operative care” was discussed and despite no controlled trials it was suggested that:

- A liquid or mushy diet was followed for one week
- Avoid meat and breads for 4-6 weeks
- Treat nausea aggressively
- Evaluate retching with barium swallow
- Careful on heavy lifting for first 6-12 weeks

Mr Hunter suggested that strictures with normal oesophageal motility should be dilated to >49 French before fundoplication and it was nice to see HRM tracings being used in his slides! How the procedure has evolved was discussed and very little has changed in the last 10 years, the use of a Nathanson liver retractor was advised, intra-operative endoscopy and the mesh buttressing of the hiatal hernia for giant hiatal hernia was briefly explained to the audience. The “11 year follow up of the lap nissen” (Morgenthal CB, et al (2007) J Gastro Surg) concluded that 94% of patients were satisfied about their fundoplication and they would make the same decision about the operation today. The “15 year follow up of lap nissen vs anterior fundoplication” (Broeders JA et al (2013) Ann Surg) concluded that intraoesophageal acid exposure and GORD symptoms are common in the partial fundoplication group and that gas, dysphagia, bloating, inability to belch no different between operations.

**DDF May 2015 Report for AGIP by Dr Emma Jones (Poole Hospital)**

**The IBD: IBS Interface.**

**IBS Diagnostics – Have they come of age? Anthony Hobson**

This was a very interesting and useful talk regarding the diagnostic and management options for IBS. It is suggested that functional gut symptoms such as IBS are found in 20-40% of the population. Managing IBS is a cyclical process of accurate diagnosis of symptoms, effective treatment and behavioural change. IBS has a significant impact on QOL resulting in bloating and distension with diarrhoea and / or constipation. The functional disorders model describes autonomic nervous system involvement and altered HPA-axis function in brain/gut balance in IBS. It is thought that IBS is more likely after an infectious event.

Small intestinal bacterial overgrowth (SIBO) and colonic mal-fermentation have both been identified as a cause for IBS. Pyleris et al (2012) found 60% of IBS-D patients had SIBO. Highly fermentable foods (FODMAPS), alongside poorly digested carbohydrate can exacerbate symptoms. In the small bowel there should be no bacteria present with numbers increasing through the bowel into the colon. Testing for SIBO and colonic mal-fermentation can be done using combined hydrogen and methane breath testing using a challenge substrate (lactulose / glucose / lactose / fructose) to prompt fermentation of undigested food where gases are excreted via the lungs. Breath testing requires stringent pre investigation preparation with restricted diet prior to testing. A move towards using Lactulose instead of glucose for all SIBO testing would mean that bacterial overgrowth in the distal small intestine would also be detected. Whereas glucose is absorbed in the first few feet of small bowel and distal SIBO could be missed.

After ingestion of the substrate the patient blows into a bag every 15 minutes. The hydrogen / methane content of the sample are measured. At least 10-25% of patients will be non-hydrogen producers, instead producing methane, which is more common in patients with constipation. A sample containing a rise in >20ppm above baseline at 90 minutes for the sum of the two gases indicates SIBO. A rise >60ppm in 90 minutes with an enhanced second peak indicates colonic mal-fermentation. Treatments available include antibiotics, pro-biotics, FODMAP diet, pre-biotics, elemental diet and prokinetics. Patients with a rise in hydrogen should be treated with Rifaximin. Patients positive for methane should be treated with Rifaxim + Neomycin.

Oro-caecal transit time has been assessed using MRI and compared against the wireless Smartpill, with good concordance between the techniques. Caecal pH is generally lower in the caecum in patients with bloating and distension. It is possible that heightened fermentation in the cecum with associated elevated concentrations of short chain fatty acids inhibit proximal colonic motor activity potentially leading to caecoparesis.
Background to the Biofeedback development

The mcompass System, with the Biofeedback therapy software, was recently selected by the National Institute of Child Health and Human Development (NICHD) Pelvic Floor Disorders Network to be used in the CAPABLE study (Controlling Anal incontinence by Performing Anal exercises with Biofeedback or Loperamide). The goal of this randomised placebo-controlled trial, involving seven research institutions, is to learn more about medication and pelvic muscle training treatments for faecal incontinence (accidental bowel leakage). Specifically, this study will compare Pelvic muscle training with drug treatments for faecal incontinence to see if one treatment or both together are better than usual care at improving this condition. The team at Medspira learned a lot about what is necessary for both the clinicians and patients relating to anorectal manometry and biofeedback using manometry.

Pelvic floor retraining can be an option for both women and men suffering from Faecal/urinary incontinence and chronic constipation. Performing pelvic floor exercises can help strengthen the muscles under the uterus, bladder, and bowel to directly assist with bowel control and urinary leakage. The mcompass gives patients an option to retrain their pelvic floor muscles without the need for more invasive treatments. For patients that do require surgery, pelvic floor retraining may help them maximise their potential to stay continent.

Developed at the world renowned Mayo Clinic, Mcompass from Medspira is the first ever simple to use Anorectal Manometry device that makes testing of pelvic floor function easy, fast and flexible. This portable System doesn’t even need a dedicated room so is ideally suited to the practical needs of both NHS and Private Practice.

For further information and evaluation contact:
email: sales@synmed.co.uk   Telephone: 01992 782570
SynMed Ltd, Synmed House, 7 The Pavilion Business Centre, 6 Kinetic Crescent, Innova Park, Enfield EN3 7FJ
This talk started by stating around 30% of patients are unhappy with PPIs and require some sort of surgical intervention. The gold standard for GORD is a fundoplication. This however has a failure rate from 5% to 50% depending on the patients history and centres’ experience. There are also a number of patients who do not want a fundoplication because it has a bad name and some patients are not satisfied with PPIs often due to recent bad press. At this point, new technologies may be considered.

Four technologies were reviewed in detail. Transoral Incisionless Fundoplication (TIF) procedure, Stretta, LINX and Endostim.

A Transoral Incisionless Fundoplication (TIF) procedure is carried out using the EsophyX device. The procedure is done via the oesophagus and creates tissue folds secured with implantable fasteners to create a 3-5cm valve enveloping the distal oesophagus below the diaphragm. There have been a number of studies between 2010 and 2014. Results noted were improvement in reflux symptoms and quality of life. 75% of patients stopped using PPIs and 72% of patients were satisfied. Serious adverse events were 0.4% (for example distal oesophageal perforation). In conclusion, the procedure has encouraging results, longer follow up is required, technology is bulky but evolving and the procedure has significant complications but the overall rate remains low.

Stretta is non-ablative radiofrequency applied to the lower oesophagus. This is low voltage and low energy so there is no fibrosis. The patient is endoscoped and the device is placed at the gastro oesophageal junction where the therapy is delivered and also at the fundus of the stomach. The procedure takes approximately 30 minutes. Over 18,000 Stretta procedures have been carried out over 15 years with many research papers published. One of these papers, Durability of Stretta Radiofrequency Treatment for GERD: Results of an 8 year follow up by Dughera et al was presented. This included 26 study participants (this was one of the earlier studies). 76% of patients were off PPIs, quality of life scores are improved and SAGES and the American Society of Gastroenterology recommend this procedure. In conclusion good results with a 10 year plus follow up, endorsement by SAGES and ASGE, low side effect profile and an attractive option in patients with a ‘hostile’ abdomen.

The Endostim device provides electrical stimulation to the lower oesophageal sphincter. Pilot studies for Endostim showed good results which were sustained for 3 years. Over 250 implants have been carried out, 90% of patients were off PPIs and no unanticipated adverse events. Three device or procedure related SAEs were successfully resolved. In conclusion, the procedure has encouraging results, longer follow up is required, technology is bulky but evolving, low complication rate, low side effect rate but the device is very expensive.

The LINX device wraps around the lower oesophageal sphincter. It is a ring of magnets on a wire. If the patient has a normal manometry and has the device fitted, a bolus swallow spreads the magnets and allows safe passage of food through it. A pivotal study was presented at the DDW meeting in 2015. It noted reflux control at year 5 remains good as does patient satisfaction. A safety study noted that around 3% of devices are explanted, mostly due to dysphagia. In conclusion, there are good results at year 5 follow up, good safety profile, patient selection is the key to success, for the right patient it is a good alternative to fundoplication but is expensive.

Dr. Rami Sweis is part of the working group that has recently updated the Chicago Classification of oesophageal motility disorders. The classification is now in its third iteration since the original 2008 study based on 450 patients and 75 controls from which the normative values were based. This was spurred by the introduction of two main innovations: multiple sensors to provide simultaneous recording of the entire
oesophagus; and the representation of the acquired data as a topographical contour plot. Since then there has been both praise and criticisms of the classification’s use in physiology.

**Summary of v3.0:** The lecture began with a review of the new classification including incite as to how parameters were derived and what should be considered when applying them. V3.0 has emphasised the separation of GOJ obstruction, major and minor peristaltic disorders. As Dr. Sweis explained, this prioritisation was made because pathology at the GOJ almost always leads to problems in the oesophagus and, along with the major peristaltic disorders, is found to frequently require interventional therapy.

**GOJ Outflow Obstruction:** Immediate focus during analysis should fall on the GOJ and the corresponding measurement of IRP. A change to recording the median rather than mean IRP has been made in this version, as outlier values were seen to skew the result. It is useful to remind that IRP measures only the lowest pressures during the relaxation period, meaning that contribution by the crura can be minimised, allowing for high specificity and sensitivity for achalasia. It was also noted that different sensor types have separate normalised values and care must be taken that this distinction is made.

The definitions of the three achalasia subtypes have remained largely similar. The issue of achalasia with normal IRP had been raised before v3.0 was published but a caveat has been included now to consider achalasia where there is 100% failed peristalsis and a borderline IRP (10-15mmHg) or where there is evidence of oesophageal compression. The presenter suggested that normal IRP achalasia may be due to the fact that a registerable resistance caused by outflow obstruction requires a large enough proximal compression which may not be possible with only 5ml of water in a dilated oesophagus. Additionally spastic achalasia has been restricted to premature contractions rather than including ‘fragments of distal peristalsis’ as was seen in v2.0. It was thought that pressurisations in type III may obscure instances of normal peristalsis, the presence of which would alter the diagnosis.

**Major peristaltic disorders:**

It has been recognised that hypercontractility can include or be exclusive to the LOS and so this must be taken into consideration. Dr. Sweis noted that although this disorder does not generally disrupt function, it can be associated with pain and is not seen in health. V2.0 allowed a minor classification for hypertensive peristalsis with DCI>5000, however contractions of these magnitudes may be seen in normal patients and so it has been removed from v3.0. A DCI >8000 is uniformly associated to dysphagia or chest pain and was not seen in normal patients (Fig. 2), however the diagnosis now requires at least two swallows of the ten.

Absent peristalsis is still considered a major disorder but whereas in v2.0 this was recorded as a peristaltic segment in the 20mmHg isobaric contour of <3cm, it is now measured as a DCI of <100.

In distal oesophageal spasm, peristaltic velocity is no longer a factor, and in fact rapid contraction has been removed as a peristaltic disorder. Spasm without premature latency may

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**Figure 1:** Type I Achalasia with normal IRP

**Figure 2:** Prevalence of hypercontractility in a population
be due to variant achalasia and attention must be made to separate these.

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**Minor peristaltic disorders:** As mentioned above measurement of length in the 20mmHg contour was previously preferred as a wider peristaltic gap was found to relate to incomplete transport. Hypomotility had been divided into small breaks, large breaks and failed but now the term ineffective motility has returned, requiring >50% of swallows to exhibit DCI<450. No distinction has been made between weak or failed resulting in the loss of ‘frequent failed peristalsis’ as a diagnosis. Dr. Sweis explains that ineffective motility is considered minor as it is most commonly associated with GORD rather than primary dysmotility and that it worsens with increased AET and symptoms.

**Adjunctive tests:** The need for extra tests beyond the 5ml swallows has been a major criticism of the classification to date. Dr. Sweis agreed with studies that showed that 5ml swallows would rarely provoke symptoms and are not representative of normal behaviour, however he rationalised the need for a reproducible standard. A survey he conducted showed that many departments were already doing more than the 5ml swallows and his explanation of how these tests function was interesting.

The multiple rapid swallow can involve either five 2ml swallows or a free drink of 200ml. The 10ml MRS should cause peristaltic inhibition followed by a post-inhibitory contraction revealing the state of neural reflexes in the oesophagus. Patients with a poor post-inhibitory response were shown to be more likely to develop dysphagia after anti-reflux surgery. In studies the 200ml MRS was able to reveal pathological resistance to flow and it was especially useful in solidifying different achalasia subtypes.

Solid challenges, including viscous swallows or 1cc bread, can increase vigor, coordination and duration of swallows. Meal challenges have had slower uptake in clinical practice due to the increased study length and the complex patterns that occur. The presenter showed that in studies, meals frequently exhibit 2-3 pharyngeal contractions without a subsequent oesophageal contraction and that it is only when >5 consecutive swallows fail to produce a contraction that pathology should be considered. Meals can reproduce more symptoms, increase the yield of major motility disorders, and treatments based on the diagnoses gave better symptom resolution.

**Opinion and ideas for v4.0:** The issue of tailoring anti-reflux surgery in relation to low DCI was raised during the lecture and although Dr. Sweis said that it was a future goal of the classification, so far studies had been unclear, however fundoplication was still performed in achalasia and so success may not be related to DCI.

V3.0 goes some way to addressing the problems some authors had with the classification of achalasia however issues with early or variant achalasia are likely to continue. It has been noted that although type II appears to be an earlier form of type I, that type III tends to occur in older patients, suggesting that it may be a different entity to achalasia. These question marks are likely to remain for the time being and the experience of the physiologist will be key in providing interpretation.

Disorders of smooth muscle oesophagus and LOS have been the main concern so far and the current classification is robust in this sense. Calls have been made however for other areas to be included in the
future including disorders of the pharynx, conditions such as rumination and obstructions due to tight funduplications or gastric bands. These areas of upper GI manometric investigations are certainly included in the repertoire of many physiologists yet are not covered by any agreed standards and until such time will suffer from inconsistencies between different centres.

As a final note, the normative values in v3.0 are still based on swallowing in the supine position and caters for centres that use water perfused systems. Dr. Sweis repeated the contention of others that measurements in the supine position are unphysiological. This could be seen as an extension of the wider issue where conventional manometry is still in use. Studies have shown that HRM improves diagnosis and effort should be made to move away from the conventional line tracing. Equally then, especially with the advent of combined impedance manometry which is not possible with perfused systems (unless a pH/impedance probe is passed at the same time to assess bolus clearance), effort should be made to move towards normative values in the upright position and a classification which includes the use of impedance HRM. Although more research is necessary, impedance manometry has been shown to correlate well with bolus retention as seen on Barium swallow, and provides additional information in an array of disorders.

Figure 3: Correlation of impedance manometry and Barium swallow in bolus retention

DDF May 2015 Report for AGIP by Samantha Leech (Functional Gut Clinic, London)
Medical and Surgical Treatment of Achalasia
Dr Giovanni Zaninotto

Achalasia is a primary oesophageal motility disorder involving the smooth muscle layer of the oesophagus and the lower oesophageal sphincter (LOS). It is categorised by the incomplete relaxation of the LOS, increased LOS pressure and lack of peristalsis which usually results in the lack of ability to pass boli through the oesophagus efficiently. Typical symptoms of Achalasia is dysphagia, regurgitation and chest pain. Diagnosis is reached with oesophageal manometry and/or barium swallow.

Although the cause of Achalasia is not clear, research indicates that Achalasia results from gradual degeneration of ganglion cells in the myenteric plexus in the oesophagus leading to failure of relaxation of the LOS which is usually associated with loss of peristalsis in the distal oesophagus.

Treatment of achalasia is aimed at reducing the resting pressure in the LOS to a level at which the sphincter no longer hinders the passage of boli. This can be achieved by disruption of the muscle fibres of the LOS (eg pneumatic dilation (PD) or surgical Myotomy) or by decreasing the LOS pressure (eg injection of botulinum toxin, nitrates or calcium channel blockers).

Calcium channel blockers and nitrates are used to decrease LOS pressure. This treatment is used predominantly in elderly with contraindications to surgery.

Botulinum toxin can be used to block the release of acetylcholine, via intrasphincteric injection at the region
of the LOS, resulting in the balance between inhibitory and excitatory neurotransmitters to become restored. This is performed endoscopically, however this treatment has limited value. A small number of patients who are treated endoscopically experience relief of dysphagia, one year post treatment. Majority of patients will require repeated botulinum toxin injections with unfortunate short lasting benefits.

Pneumatic dilatation (PD) is a treatment proposed for patients where surgery is not appropriate for them. A balloon is inflated at the gastro-oesophageal junction (OGJ) to rupture the muscle fibres although ensuring that the mucosa is left intact. Majority of Pneumatic dilatations are successful, 70%-92%, and perforation rate is reasonably low, although nearly 50% of patients may require further dilations.

A laparoscopic Heller’s myotomy is considered by the majorities, to be the primary treatment for a patient with Achalasia. A partial fundoplication added to the myotomy involves better functional outcomes in comparison with a total fundoplication, with a lower risk of persistent or recurring dysphagia. However, a patient who undergoes a Heller’s myotomy and a partial fundoplication has a higher chance to encounter gastroesophageal reflux.

Peroral endoscopic Myotomy (POEM) is an innovative treatment to achalasia. It is performed under general anaesthetic with the use of an endotracheal tube/ catheter. A submucosal tunnel is created allowing passage past the OGJ and into the proximal stomach. Once the submucosal tunnel is complete, a Myotomy of the circular muscle fibres takes place above and below the OGJ. After identifying and selecting the circular muscle fibres of the LOS and proximal stomach, the mucosal entry site is closed. 50% of patients who undergo POEM report gastroesophageal reflux post operatively, reproducing similar results as post-operative Myotomy patients. Surgical modification in patients with recurring dysphagia after POEM may be difficult. The presence of adhesions between the submucosal and longitudinal muscular layers after POEM might make any further surgical treatment difficult.

For patients who are not suitable for surgical intervention, may be treated with an endoscopic dilatation first. If this fails, a second operation (extending the previous myotomy) can be tried once the reason of failure has been acknowledged with diagnostic tests. The last option is to surgically remove the oesophagus.

The comparison of pneumatic dilatation and laparoscopic Heller’s myotomy is that the myotomy is associated with significant improvements to the symptoms of dysphagia and gastroesophageal reflux post operatively, with a significantly lower risk of re-intervention. During short term follow ups results were similar although most myotomy patients who were seen during long term follow ups were asymptomatic compared to only 50% of ‘dilation’ patients, many of these had multiple pneumatic dilations.

Several studies have shown better outcomes after laparoscopic Heller’s myotomy than pneumatic dilatation in younger patients. Studies also show that, previous endoscopic treatment, such as botulinum toxin injection or pneumatic dilatation, may jeopardise the clinical outcome of laparoscopic Heller’s myotomy. These findings may be related to scar tissue at the level of the OGJ, which makes surgical dissection difficult.

Long-term follow-up on post-operative POEM patients and comparing the findings with laparoscopic Heller’s myotomy and fundoplication will determine the role of this newer method in the treatment of Achalasia.

DDF May 2015 Report for AGIP by Dr Steve Perring (Poole Hospital)
Review of Beyond Oesophageal pH – New Insights from Ambulatory testing
Dr Phil Woodland, Royal London Hospital

This talk was part of the AGIP Symposium on 24th June 2015 at DDF. Dr Woodland stated that the aim of ambulatory pH investigations is to distinguish the pathological reflux patients (ERD and NERD) from those who are not refluxing excessively but still suffer reflux-related symptoms (hypersensitive reflux disease) or where symptoms do not relate to reflux at all (functional heartburn). There are however a wide range of other investigations of varying efficacy to look at reflux disease:

Ambulatory impedance testing. The case for this is well established and was reiterated here. Impedance dramatically increases the symptom association with reflux, particularly if the individual is assessed on PPI.
treatment. It also allows discrimination of patients with reflux-like symptoms who are in practice supragastric belching. Mention was also made of impedance baseline measurement as a discriminator of patients with reflux, though the degree of overlap between normal and reflux traces suggests this technique is not clinically useful.

Restech as an assessment of laryngopharyngeal reflux was reviewed unfavourably, the poor correlation with reflux measured by pH/impedance being cited. Similarly the Pep Test method of sampling for pepsin in saliva was noted to have very poor sensitivity (roughly 50%) and no association with symptoms.

Bravo is an alternative measure of pH with a capsule attached to the oesophageal lining. Once attached (during gastrography) the device can record for an extended period, with evidence presented that the longer recording periods (48 hours up to 96 hours) give better diagnostic yield for pathological reflux. However the symptom association does not appear to improve with extended studies.

Other ambulatory measurement systems are on the horizon, including combined pH with laser Doppler to assess oesophageal wall perfusion during swallows and transient LOS relaxations, with the suggestion that ischaemia may be causing oesophageal pain. On prompting Dr Woodland also mentioned work in progress looking at ambulatory high resolution manometry to assess full oesophageal function during normal daily activity.


Forthcoming Events:

We hope to publicise forthcoming meetings and educational events. We would like to invite interested parties to contact the NewWave editor (warren.jackson@hey.nhs.uk) to have the details included in future NewWave publications.

2015: MMS Seminar Program 2015:

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<th>Speaker</th>
<th>Date</th>
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<tr>
<td>Dr A Bredenoord</td>
<td>September 8</td>
<td>3.00 - 3.45 pm CEST</td>
<td>HRM case interpretation</td>
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<tr>
<td>Dr D Janssen</td>
<td>September 9</td>
<td>3.00 - 4.30 pm CEST</td>
<td>Good Urodynamic Practice</td>
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<tr>
<td>Prof R Tutuian</td>
<td>September 22</td>
<td>3.00 - 4.30 pm CEST</td>
<td>Impedance-pH update and Case interpretation</td>
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<td>October 6</td>
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<td>High Resolution Esophageal Manometry (HRM)</td>
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<td>Dr M Scott</td>
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<td>3.00 - 4.30 pm CEST</td>
<td>Anorectal Manometry &amp; HRAM</td>
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<td>Dr M V Wijk</td>
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<td>Paediatric Impedance-pH studies</td>
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<td>Dr A Bredenoord</td>
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<td>Dr K Lindley</td>
<td>November 11</td>
<td>3.00 - 4.30 pm CET</td>
<td>Paediatric High Resolution Manometry (HRM)</td>
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Prof R Tutuian  November 13 (Friday)  Impedance-pH update and Case interpretation  
3.00 - 4.30 pm CET (AMS)

Dr D Janssen  November 17 (Tuesday)  Urodynamic case interpretation  
3.00 - 4.30 pm CET (AMS)

Dr A Bredenoord  November 19 (Thursday)  HRM case interpretation  
3.00 - 3.45 pm CET (AMS)

Dr A Bredenoord  December 8 (Tuesday)  HRM case interpretation  
3.00 - 3.45 pm CET (AMS)

For further details go to:  

24th - 28th Oct 2015  United European Gastroenterology (UEG) Week  
Fira de Barcelona, Barcelona

For further details go to:  
https://www.ueg.eu/week/

2016:

21st - 24th May 2016  Digestive Disease Week (DDW)  
San Diego Convention Centre, San Diego, California

For further details go to:  
http://www.ddw.org/

Liverpool ACC, Liverpool

Further information will be made available soon:  
http://www.bsg.org.uk/events/bsg-annual-meeting-2016.html

15th - 19th Oct 2016  United European Gastroenterology (UEG) Week  
ACV, Vienna, Austria

Further information will be made available soon:  
https://www.ueg.eu/week/past-future/ueg-week-2016/
Form 2 - AGIP registration as an Accredited Independent Healthcare Professional in GI Physiology

Criteria

Accredited Independent Membership will be given to those Healthcare Professionals who:-

• Are members of AGIP (BSG).
• Are State Registered where appropriate.
• Have a minimum of 4 year experience in GI Physiology.
• Have obtained appropriate academic qualifications and professional competencies.
• Have a formal portfolio that evidences practice conforming to the highest standards of good clinical and scientific practice.

The numbers listed here correspond with the superscript numbers found in the form:

(1) Insert the title by which you are normally addressed (Dr, Mr, Mrs, Ms etc).

(2) This address will be the one given in the register. Please ensure you inform the Council of any future change in address.

(3) Proposer 1 should be a senior clinician or line manager. Proposer 2 must be an Accredited Independent Healthcare Professional in GI Physiology registered with AGIP. Proposers may be approached by the association for references. You may name an additional referee of your own choice if you wish.

(4) Complete this section on a separate sheet of paper if you need more room. Please indicate any periods of employment in other fields or career breaks.

(5) Complete this section as instructed in Portfolio of previous experience and current practice. You should submit only copies of documentary proof at this stage.
Personal Details

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Proposers

Proposer 1 – Senior Clinician / Line Manager

Title: 
Family Name: 
Given Name: 
Date of Birth: 
Address for Correspondence: 

Postcode: 
Telephone and extension: 
Fax: 
Email: 
I support the application of: 
Signed: Date: 

Proposer 2 - Accredited Independent Healthcare Professional registered with AGIP

Title: 
Family Name: 
Given Name: 
Date of Birth: 
Address for Correspondence: 

Postcode: 
Telephone and extension: 
Fax: 
Email: 
I support the application of: 
Signed: Date: 
AGIP Registration Number: 

3
Professional Record

Present Position: __________________________________________________________
Grade: __________________________________________________________________
Date appointed: __________________________________________________________
Address: __________________________________________________________________

Postcode: __________________________________________________________________
Telephone and extension: __________________________________________________
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Previous positions in chronological order(4)

Post: _____________________________________________________________________
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Portfolio of previous experience and current practice

Admission to the register requires that you submit a comprehensive portfolio detailing your education, training and experience. Your total submission should not be more than 25 pages including application details, report and copies of certificates, assessments, publications and any documentation referred to in your report and each page should be numbered. If appropriate you may also include your current CV and official Job Description within the 25 pages of your submission. The font size for text should not be smaller than 12 point and certificates or other evidence should not be photo-reduced to fit more than one to a page. Publications should use Vancouver style referencing.

The portfolio should begin with a report of no more than 2000 words in support of your application for Accreditation as a Healthcare Professional in GI Physiology. The report should cover a range of topics to demonstrate the breadth and depth of your knowledge and skills and should clearly indicate how competence in GI Physiology has been developed.

The following suggested topics are for guidance only and are neither inclusive nor exclusive and you may submit any evidence that demonstrates your ability to fulfill the requirements of Accreditation; this may include knowledge, skills and experience in previous areas of employment or involvement. This is not a mapping exercise but you should ensure that any evidence included is clearly referenced in your report and a Contents Page would be helpful. All patient information in evidence must be anonymised. You should submit evidence to demonstrate your good scientific and clinical practice and the ability to practice as an autonomous professional.

The following list of examples is intended for guidance purposes only, and as such will not necessarily apply to every individual.

Examples:-

- Evidence to demonstrate ability to practice safely within legal and ethical boundaries of the profession.
- Membership of Professional Body.
- Membership of Registration Body.
- Underpinning knowledge (Academic Qualifications or specific course content, Professional Body Exams, experiential training or CPD).
- Evidence to demonstrate ability to practice as an autonomous professional.
- AGIP competence assessments or equivalent evidence from extended scope of practice training.
- Evidence of understanding and undertaking the process of obtaining written, informed consent.
- Evidence of understanding and obtaining a detailed history and treating your patient to the highest standards of care with respect to diversity, dignity and confidentiality.
- Examples of diagnostic and therapeutic procedures including clinical reporting which demonstrates ability to identify the clinical decision which the report informs.
- Example of ability to initiate, modify or cease procedure with record of the decision process and any recommendation for further intervention.
- Example of ability to receive appropriate referrals and be able to recommend or develop a
• Evidence to demonstrate ability to draw on appropriate knowledge and skills to inform practice.
• Examples of communications with clinicians and a range of healthcare professionals.
• Evidence of understanding the importance of case history meetings, attendance at MDT or other team or management meetings.
• Examples of leadership role.
• Evidence of understanding of the role of Reflective Practice to inform work activity.
• Evidence to demonstrate responsibility for planning work activity.
• Evidence to demonstrate understanding of quality control issues eg Record keeping/calibration/service/COSHH, etc.
• Evidence to demonstrate understanding of accreditation systems.
• Evidence to demonstrate ability to use research to inform practice.
• Evidence to demonstrate understanding and use of audit.
• Evidence of ability to search and appraise scientific literature to inform practice.
• Ability to plan and carry out a research project.
• Ability to communicate research findings to peers.
• Evidence to demonstrate role of supervision in structured training and teaching.
• Other evidence that you may wish to submit in support of your application.

Your statement, JD and CV should all be signed by your head of department or the person responsible for your training as a correct record (The council may also request a reference from the head of the department).
I declare that, if my application for Accreditation as a Healthcare Professional in GI Physiology is accepted by the council then for as long as I remain a member of the register I will:-

• Observe a high standard of professional conduct in practicing as a clinical physiologist in gastroenterology.
• defer to the guidance and relevant rulings of the council in questions of conduct.
• maintain the dignity and welfare of the council and the reputation of the register to the best of my ability.

I further declare that the information I have given is true and accurate.

Signed

Name (Printed) Date

Please return completed application and portfolio to:

AGIP Accreditation Officer

see AGIP Council list BSG website: http://www.bsg.org.uk/sections/agip-membership/index.html
Form 5 – Continuing Professional Development

Criteria

In order to retain Accredited Independent Healthcare Professional status the following CPD has to be undertaken annually and submitted every other year by April 30th to the Accreditation Officer:-

• 10 hours CPD which may include up to 5 hours in-house or mandatory training and 5 hours external training / courses.
• 3 Reflective Practice reports which may be based on the CPD submissions.
• A Personal Development Plan.
• Extended Scope of Practice (if applicable).

Personal Details

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Family Name: __________________________
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Email: ____________________________
AGIP Registration number: __________________________
**Section 1 - Record of CPD Activity**

Please use the table to indicate range of CPD undertaken and attach robust evidence e.g. proof of attendance or participation (Nb. A programme schedule is **not** appropriate evidence), publications or presentations. Reflective Practice reports confirmed by a senior colleague may also be submitted in support of activity such as B and K.

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Section 2 - Reflective Practice

It is important for practitioners to reflect on any development activity undertaken using this form. A separate copy of the form below should be submitted for each of the six (3 per year) reports required for submission.

Description of developmental activity:

Summary of learning from the activity:

Limitations of the experience:

Future application of experiential development and learning:
Personal competences demonstrated and to be developed further:

Other development areas to which this experience relates:

Links to other activities:

Outcome of developmental activity on service delivery or patient care:

Supporting documentation and evidence of outcome:
Any further actions arising from this developmental activity:

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

**Confirmation of the Line Manager**
I confirm that this is an accurate summary of the learning activity, and its outcomes:

Signed:

Date:

(Line Manager, or equivalent senior colleague)

**Confirmation by the person submitting this reflective practice:**
I can confirm that this is a fair and accurate account, which I have read and discussed with the line manager whose name and signature appear above:

Signed:

Date:
Section 3 - Personal Development Plan

Please give a brief list of any planned CPD for the year to come, for examples please see the list in Section 1. There is no need to list any more than five objectives.

<table>
<thead>
<tr>
<th>Development Objectives</th>
<th>Type of CPD (use codes from Section 1)</th>
<th>Intended outcomes</th>
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Signed:

Date:
## Section 4 - Extended Scope of Practice

The association should be aware of the work you do as an accredited professional. Since your last submission, please detail below if you have extended your scope of practice into new areas. E.g. clinical skills, service development, teaching, management

<table>
<thead>
<tr>
<th>New Scope of Practice</th>
<th>Details of Training Received</th>
<th>Evidence or Health Manager’s confirmation</th>
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Signed:

Date:
Section 5 – Check List

Please make sure you have completed all the above sections before submitting as incomplete submissions will be returned.

<table>
<thead>
<tr>
<th>Section</th>
<th>Completed</th>
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<tbody>
<tr>
<td>Personal Details</td>
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<tr>
<td>Robust evidence of CPD activity</td>
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<tr>
<td>Six signed Reflective Practice reports (signed and dated by you and an appropriate senior colleague)</td>
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<tr>
<td>A Personal Development Plan</td>
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<tr>
<td>Extended Scope of Practice (if appropriate)</td>
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</tbody>
</table>

Late submissions will be subject to a £50 administration charge made payable to the BSG