Welcome

Welcome to the April 2017 edition of NewWave.

If you have any relevant articles or papers that you would like to be included in future editions, please email them to steve.perring@poole.nhs.uk

Contents:

Page 2: Forthcoming meetings
Page 4: Meeting review—AGIP Masterclass in Upper GI Physiology
Page 6: Meeting review—Pelvic Floor Society Annual Meeting
Page 8: Report on electrosensitivity in patients undergoing SNS therapy
Page 10: Case study: Achalasia in Evolution.
Page 12: News from RCCP

ROC curve—result of electrosensitivity assessment compared with effectiveness of SNS treatment

See Page 8 for more details
Forthcoming Events 2016/2017:

6th-9th May 2017  Digestive Disease Week  
Chicago  

10th-13th May 2017  ESPGHAN Annual Meeting  
(European Society for Paediatric Gastroenterology, Hepatology and Nutrition)  
Prague  
http://www.espghancongress.org/

16th May 2017  Small bowel capsule endoscopy training day—Capsocam+  
St Thomas’ Hospital, London  
01494 721820 or info@ardmorehealthcare.com

19th-22nd June 2017  BSG Annual Meeting  
Manchester  

3rd-5th July 2017  ACPGBI Annual Meeting  
Association of Coloproctology of Great Britain and Ireland  
BIC Bournemouth  
Includes training session in endo-anal ultrasound  
https://acpgbiconferences.org.uk/registration-fees/
Small Bowel Capsule Endoscopy  
Training Day – Capsocam+

Tuesday 16th May 2017  
St Thomas’ Hospital, London

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00 – 10.30</td>
<td>Coffee and registration</td>
</tr>
</tbody>
</table>
| 10.30 – 10.35 | Welcome and introduction  
Simon Anderson                                                             |
| 10.35 – 10.55 | Indications and Contraindications for CE  
Simon Anderson                                                            |
| 10.55 – 11.15 | Capsocam+: What’s new? A practical demonstration  
Charlie Birkett, Ardmore Healthcare Ltd                                    |
| 11.15 – 11.45 | A European Experience with Capsocam+  
Dr Pachowszky, Vienna, Austria                                            |
| 11.45 – 12.00 | Coffee                                                                   |
| 12.00 – 12.20 | Patient selection and screening  
Dean-Martin Borrow                                                          |
| 12.20 – 12.50 | Case studies – Step by step guide to using the Capsocam+ analysis software  
Dean-Martin Borrow                                                          |
| 12.50 – 13.30 | Lunch                                                                    |
| 13.30 – 16.00 | Case studies – interpreting pathologies  
Dean-Martin Borrow, Simon Anderson, Dr Pachowszky                           |

To register for this event please contact Ardmore Healthcare;  
Tel: 01494 721820 or email info@ardmorehealthcare.com
This was a well-attended and extremely well organised meeting at the QE Hospital in Birmingham addressing a host of topics regarding good practice in Upper GI Physiology.

The first speaker of the day was Anthony Hobson discussing advances in GI physiology measurement. One of the key points he made was that we can all learn from an MDT environment and he impressed the importance of Inviting consultants to review studies, particularly the individual difficult cases. He noted a generalised lack of understanding from referrers. Anthony is an enthusiastic proponent of using combined high resolution manometry and impedance, particularly in diagnosis of rumination and for visual biofeedback when teaching diaphragmatic breathing.

He noted SBBO is surprisingly common in patients even in the absence of any known risk factors for it e.g. small bowel surgery, diabetes. There is likely to be considerable overlap between reflux symptoms and SBBO symptoms, with suspicion being raised if the symptoms include belching/ bloating. Anthony recommends 550mg Rifaxamin for treatment of SBBO as it is an antibiotic that is unlikely to penetrate into the large bowel and destroy the beneficial large bowel biome. Anthony also discussed malodorous flatulence and suggested the future possibility of also measuring hydrogen sulphide as well as hydrogen and methane.

Prof Stephen Attwood is always an entertaining speaker and did not disappoint. He referred to the imminent BSG guidelines on HRM. He cautioned that parameters used in the Chicago Criteria are manufacturer and catheter specific and encouraged provocations beyond the 10 wet swallows required for Chicago. He also advocated being more aware of eosinophilic oesophagitis, which he pointed out is 20 times more common than Achalasia.

Rami Sweiss initially ran through the principles and details of the Chicago 3 Criteria. He emphasised that some intermittent minor motility disturbances such as fragmented or failed peristalsis are commonly seen in normal individuals. He then emphasised the need to go beyond Chicago to further understand motility disorders, including the importance of multiple wet swallows, free drinking and solid swallows up to a typical meal to challenge the oesophagus and to effectively distinguish between pathologies.

Caroline Race discussed the use of ambulatory impedance/pH assessment in a range of situations including previous inconclusive pH study, post fundoplication, chronic cough and breakthrough symptoms on maximum PPI therapy.
Sarah Kelly, Paul Sharpe and Tanya Miller discussed the latest developments in the Science Training Programme, Registration Council for Clinical Physiologist/Academy of Healthcare Scientists merger and AGIP membership respectively.

Some breakout sessions were organised to allow one-to-one training on different manufacturers’ equipment. In addition a number of training studies were presented in small groups. One highlighted the potential for opiate medication to adversely affect motility to the extent of the patient potentially being diagnosed as having Achalasia. Another emphasised the overlap between reflux symptoms and IBS symptoms, with the need to consider small intestinal bacterial overgrowth as a cause of symptoms.

AGIP are seriously considering repeating the event next year. Look out for notices in future editions of NewWave

Budding Reviewers

If you attend a meeting and wish to review a presentation at that meeting in a future edition of NewWave, please contact the NewWave editor (steve.perring@poole.nhs.uk)

Help-out the rest of us who did not manage to get to the meeting
This year’s Pelvic Floor Society annual scientific meeting was held in Cardiff. As always it was an interesting meeting, with a good range of disciplines involved in diagnosis and treatment of pelvic floor problems.

The meeting started with a couple of masterclasses, one in pelvic floor physiotherapy and one in surgery. Both appeared well appreciated by the attendees.

There was much discussion of chronic pelvic pain, a condition where the pain outlasts the healing of the tissue damage that initially triggered the pain. The delay in diagnosis can be substantial, Bill Taylor (physiotherapist, Edinburgh) quoting a mean time to diagnosis of 87 months in the case of male pelvic floor pain. The reasons for continuing pain are multi-factorial, including anxiety, musculoskeletal factors including failure to relax the pelvic floor muscles and damage to the coccyx, opioid use and withdrawal, constipation and deficiencies in estrodiol hormone levels. Surgical intervention can often amplify such pains, but may be necessary if the pain emanates from complications of mesh implantation. Catherine Mair-Whital (physiotherapist, Swansea) was among many who emphasised the need for psychological input in the Pelvic Floor MDT and treatment of chronic pelvic pain.

Yoram Inspector, a psychologist at St Marks, gave a very interesting talk about the role of psychology in treatment of pelvic floor conditions, particularly where there is a history of abuse. He related the symptoms and treatment of pelvic floor psychological issues back to the ancient Mesopotamian epic of Gilgamesh and Enkidu. In it Gilgamesh the cultured warrior king and Enkidu the antithesis and wild man raised by animals eventually become constant companions. In the same
way he indicated the need for the conscious mind to meld with the primitive self to achieve recovery. He also displayed an interest image showing how the famous picture by Michelangelo of Adam and God on the Sistine Chapel ceiling could be interpreted as signifying the need for interlinking of the human body and the conscious brain, “compassionate dialogue” between mind and body.

Alison Byrne (nurse, Birmingham) talked about female genital mutilation (FGM). There are still very few specialist FGM support service units in the UK. She emphasised the huge psychological issues associated with FGM quite apart from the severe physical risks of the procedure (it is often the women of the family who force the child to submit to the procedure). She emphasised that it is mandatory to report FGM in patients under 18 years of age.

There was considerable consensus in the sessions of the importance of sensitivity and time spent with the pelvic floor patient to understand their symptoms fully and prepare them effectively for the diagnostic tests to be performed if they are to have meaningful results. As physiologists we are ideally placed to provide this time and opportunity to fully discuss their symptoms.

In contrast Emmanuel Cavazzoni (Perugia, Italy) presented the THD Anopress system as a replacement for normal manometric assessment, emphasising the speed and simplicity of the technique. Sharply contradictory views about this new technique were expressed and it was a shame that the opportunity for discussion was so drastically curtailed at the meeting.

As in previous meetings, there was a lot of discussion about experience of problems with mesh use in pelvic floor surgery. Surgeons such as Tony Dixon from Bristol indicate a low level of mesh complications, but the much publicised letter from the Chief Medical Officer to “consider suspending the use of artificial mesh” has resulted in wide variation in its use across the country and considerable concern about the medico-legal aspects of mesh use. The Pelvic Floor Society has set-up a register of mesh operations so as to facilitate monitoring of mesh issues.

There was an interesting presentation by Justine Munur (University of Hertfordshire) concerning the evidence for the use of acupuncture in treatment of constipation. She posited links between acupuncture and bowel function based on modulation of the autonomic nervous systems and regulation of serotonin output.

Image of Sistine Chapel Ceiling with an interpretation of the God figure as the brain
Thanks to Yoram Inspector for the image
Rectal electrosensitivity assessments in patients undergoing sacral nerve stimulation for faecal incontinence

Ismail Miah MEng (Medical Eng.) MICR and Mohsin Qayyum BEng (Electrical Eng.)

Guy’s and St Thomas’ NHS Foundation Trust

Introduction

Rectal electrosensitivity (RES) testing is not commonly practiced and little is known of its clinical use to manage patients with pelvic floor disorder. The application of RES testing in assessing spinal cord injury patients with bowel dysfunction has demonstrated to be clinically significant [1].

Method

The patients underwent RES testing prior to Sacral Nerve Stimulation (SNS) treatment using an anorectal electrosensitivity catheter with bi-polar ring electrodes 2cm and 3cm respectively from the tip (Gaeltec Devices Ltd, Isle of Skye, UK) (see fig. 1a). The RES catheter was inserted 8-10cm from the anal verge and held fixed in position and the rectal mucosal electrical stimulation was performed by delivering constant current stimulus at 0.5ms and 10Hz with 0.5mA increments per second that was controlled by an EMG neuro module (Medical Measurements Systems, Enschede, The Netherlands) (see fig. 1b) until the patient reported a throbbing or buzzing sensation [1][3]. The RES testing was performed 3 times and the lowest recording of sensation was accepted as the RES threshold [2]. All the patients who underwent the pre-operative RES investigation and SNS treatment for faecal incontinence prior to October 2010 were included in the study. The total number of patients in this study were 128 (female: male=113:15, age 20-74 years old).

RES thresholds were compared between the successful and failed SNS outcomes using mean, median, t-test, and 95% CI. A Receiver Operating Characteristic (ROC) curve was used to determine the critical threshold RES response in patients between successful and failed SNS groups. Using the critical RES threshold, fisher exact test, positive predictive value (PPV) and odd ratio (OR) tests which were performed.

This study was a mini test of a wider SNS study submitted for a BSc degree in clinical gastrointestinal physiology. The research project was an offshoot of a MD/PhD research project that was approved by the trust’s local R&D unit, Harrow Research Ethics Committee and ICREC.
Results

The findings show RES is statistically significantly higher in the patients with the successful SNS outcome (mean RES= 23.4mA vs. 19.0mA; median RES= 21.5mA vs. 17.1mA; p=0.029) with 95% CI at 21-25.7mA. Notably the mean, median and 95% CI of RES in the successful SNS outcome are >20mA in contrast to RES mean and median in failed SNS outcome to be <20mA. This was further demonstrated in the ROC curve showing the critical RES threshold between successful and failed SNS outcome to be at 20mA (sensitivity 67% and 54% specificity). Subsequent analysis with ROC curve threshold revealed that 55/101 patients in the successful SNS group had RES >20mA and 19/27 in the failed SNS group had RES <20mA (p=0.040), the PPV for successful SNS treatment when RES is >20mA is 85.9% and a OR of 2.4 showing the greater likelihood of patients responding to SNS treatment when RES is >20mA compared to when RES is <20mA.

Conclusion

The finding of this study suggests that increased sensitivity of RES to be associated with failed SNS treatment outcome in patients with faecal incontinence. This could mean patients may be more susceptible to sacral pain which would be the reason to discontinue SNS treatment and deem as failed outcome.

References

2. Ano-Rectal Physiology Tests and Protocols, April 2006. Rectal Mucosal Electrical Stimulation. Sir Park’s Physiology and GI Imaging Unit: St Mark’s Hospital and The Academic Institute

---

If you have some interesting research or an interesting case that you would like to share with the AGIP community in a future edition of NewWave, please contact me at steve.perring@poole.nhs.uk
Introduction
The detailed assessment of Achalasia and its sub-categorisation into Types 1 to 3 has been a major triumph of the Chicago project. Inherent in the Chicago categorisation of Achalasia is acknowledgement that the pathology presents with a range of characteristics and that there is progression of the disease over time. It is only by repeated manometric assessments that we can characterise the pattern of progression. Here I present an interesting example of disease progression.

Background
A 70 year old male presenting in early 2016 with intermittent dysphagia as well as globus and voice problems.

High resolution manometry was performed

A screenshot of a 60 second period of wet swallowing showing a hypertensive resting LOS, effective LOS relaxation (mean IRP 12mmHg), a distal peristalsis borderline effective (mean DL 4.5s) and an early simultaneous pressure wave throughout the whole oesophageal length. Mean DCI 1028mmHg.cm.s

A broadly similar pattern seen during a period of solid swallows, with no dysphagia symptoms reported
MII-impedance assessment was performed and showed pathological reflux (DeMeester score 20.8) and normal bolus clearance.

In early 2017 the patient was re-referred with increasing symptoms of dysphagia

A screenshot of a 60 second period of wet swallowing showing broadly similar motility to the previous assessment. IRP 16mmHg, DL 4.5s, DCI 1383mmHg.cm.s

No symptoms reported at this point

A period of solid swallowing showing failure of LOS relaxation (mean IRP 60mmHg) and reduced Distal Latency (3.3s) accompanied by dysphagia symptoms. DCI 2776mmHg.cm.s

Characteristic of Type 3 Achalasia

This study illustrates a number of issues:

1. The importance of provocation testing e.g. solid swallows beyond the standard water swallowing to provoke symptoms and challenge the motility of the oesophagus
2. The potential for symptoms and motility to deteriorate over time
3. What treatment to recommend when the motility pattern is not consistently indicative of Achalasia?
RCCP appoints new Chairman and Vice Chairman

Amanda Casey, Chair of The Registration Council for Clinical Physiologists (RCCP) has stepped down from the post after completing a six year stint. Amanda has been active in the management of the RCCP since it was formed in 2001 and has played a significant role in developing the standards required for registration with RCCP and in its campaign for statutory regulation of all clinical physiologists.

Trefor Watts, who has previously been Vice Chairman of RCCP and Chairman of the RCCP Education Committee has been appointed the new Chair of RCCP. Catherine Ross has been appointed as Vice Chair of RCCP and will be playing a role in increasing the profile of RCCP though its social media channels.

You can follow updates and news from RCCP on its Twitter feed (@clinphys) and on its Facebook page (search for Registration Council for Clinical Physiologists).