Welcome

Following on from the last edition of NewWave when AGIP produced its ‘Agreed AGIP Guidelines for Oesophageal High Resolution Manometry’ The AGIP committee have now produced the ‘Agreed AGIP Guidelines for High Resolution Anorectal Manometry (HRAM)’.

The committee is extremely grateful to Dr Mark Scott (Senior Clinical Scientist), Barts and The London School of Medicine and Dentistry, Queen Mary University of London and his colleague Dr Emma Carrington (Clinical Research Fellow) for their invaluable input and expert advise into producing this guideline.

Questionnaire looking at all aspects of anorectal manometry practice:

Dr Mark Scott and Dr Emma Carrington have been working on producing a comprehensive online questionnaire that looks at all aspects of practice with regard to use of anorectal manometry – the most widely available investigation of anorectal physiological function. They see the results of this questionnaire as a first step towards universal standardisation of anorectal function testing, which is fundamental to academic and clinical progress.

If your department has an interest in this technique they would be very grateful if you, or a suitable colleague within your department, would complete this short questionnaire. To access the questionnaire, please click on the link below:

Anorectal manometry practices questionnaire

If you have any comments, questions or queries please contact:

Emma Carrington
Clinical Research Fellow
e.v.carrington@qmul.ac.uk
ARE YOU GETTING ALL THE DATA?
How are you assessing your PPI resistant patients today?

Patients on PPI's who continue to experience symptoms such as cough, heartburn, regurgitation and chest pain often are difficult to diagnose using traditional acid (pH) monitoring approaches. In fact, a recent study states that physicians using only acid (pH) monitoring for diagnostics, lack the capability of accurately diagnosing GORD in 35% of their patients*.

The ZephHR® Impedance/pH Reflux Monitoring System employs impedance to detect ALL reflux activity and uses pH to categorize each episode as acid or nonacid for Total Reflux Monitoring. Comprehensive analysis quantifies all reflux patterns and symptom associations in patients studied on or off acid suppression medication.

Having introduced impedance/pH monitoring to the G.I. market, Sandhill continues to evolve this unprecedented technology... delivering all the information you need for a precise, comprehensive assessment of acid and nonacid reflux as well as the correlation between reflux and symptoms.

**Indications for combined impedance/pH testing**
- Persistent symptoms while on acid suppressive therapy
- Primarily postprandial symptoms
- Reflux symptoms and frequent meal ingestion (i.e., infant)

**Get TOTAL REFLUX monitoring ANALYSIS**

**Small size... Big Performance**
Small BUT powerful! Your patients will appreciate the large, easy to understand controls including our well known symptom buttons that make reporting as easy as 1-2-3.

**Treatment Conclusions**
- Patients with non acid reflux identified by impedance/pH whose symptoms have not responded to PPI therapy may benefit from the use of other medications.
- Clinical trials have established that nonacid reflux can be associated with GORD symptoms. In addition, ZephHR® provides a true negative study by identifying patients with no reflux association.
- Positive symptom index for nonacid or acid reflux using impedance/pH predicts successful response to Laparoscopic Nissen Fundoplication.

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* An Analysis of Persistent Symptoms in Acid-Suppressed Patients Undergoing Impedance-pH Monitoring: Sharma, Agrawal, Freeman, Vela & Castell; Clinical Gastroenterology and Hepatology 2008;6(11)
Agreed AGIP Guidelines for High Resolution Anorectal Manometry (HRAM):

**Equipment suggestions:**
- Either a solid-state (reusable) or water-perfused (usually disposable) high-resolution anal manometry (HRAM) catheter should be used.
- A maximum 10 mm inter-sensor spacing is recommended to allow pressures between sensors to be appropriately interpolated (estimation of a value between two known values) for display / analysis.
- A minimum recording length of 8 cm is recommended to allow for assessment of both distal rectal and anal events.
- For water-perfused catheters, perfusion rate should be kept to a minimum to limit the volume of water flowing within the anorectum during the procedure, but of sufficient rate to retain fidelity / accuracy of recording.
- A standard (approximately 6 cm length x 4 cm width; maximum volume >360 ml) non-latex balloon should be mounted onto the catheter tip for assessment of rectal sensation and the rectoanal inhibitory reflex (RAIR).
- If possible, balloon inflation should be performed with an automated pump, to allow standardization of inflation speed (for sensation, recommended at 2 ml / second).

**Patient selection and preparation in advance of procedure:**
- Patients should be assessed by a gastroenterologist or colorectal surgeon prior to referral for HRAM. Ideally, patients should undergo endoscopy +/- biopsies to exclude carcinoma or inflammatory conditions as the cause of symptoms, and to assess for structural abnormalities such as intussusception or stricture.
- An information leaflet should be given to patients prior to attendance outlining preparation required, what to expect during the procedure, risks and post-procedure advice.
- Patients should be informed of the date of their test well in advance.
- Patients should be informed that they may continue to take their usual laxatives, enemas or suppositories (if necessary) prior to attendance.
- If required, an advocate should be in attendance during the procedure.

**Patient preparation on attendance:**
- The patient’s details should be checked prior to starting the procedure.
- The patient may be invited to open their bowels prior to starting the procedure. Enema administration to facilitate rectal emptying is not routinely recommended, although this can be considered in the context of faecal impaction.
- A full and focused clinical history should be taken from the patient documenting relevant symptoms, associated past medical, surgical and obstetric history, and current medications.
- The procedure should be explained in detail to allow informed consent and full co-operation during the test. The patient must be given the opportunity to have any questions or concerns they may have answered to their satisfaction before the procedure starts. The patient should be informed that they can withdraw consent at any time during the procedure.
Written consent may be taken, according to local guidelines

**Equipment preparation:**
- As per the ‘BSG Guidelines for Decontamination of Equipment for Gastrointestinal Endoscopy’ (February 2008), before the start of each procedure the anorectal catheter (if reusable) should undergo a full cleaning cycle, unless last used and decontaminated within the preceding 3 hours. This should be undertaken by trained, competent staff. Relevant tracking details should be entered into an appropriate (catheter) cleaning log
- In the case of reusable catheters, it is important to ensure that the chosen disinfectant has been approved for decontamination by the catheter manufacturer
- Catheter calibration should be checked as per manufacturers’ guidelines
- If required, the non-latex balloon should be adequately secured to the catheter, and inflation performed ex vivo to check for air leaks; if a leak is evident, the balloon should be re-secured to the catheter, and then re-tested
- The catheter should be zeroed at the start of every procedure

**Performance of the procedure:**
- The member of staff performing the procedure must either be fully trained and accredited in this procedure, or supervised by a fully trained and accredited practitioner
- Staff should wear appropriate protective clothing
- Ideally, a chaperone should be present during the procedure
- Each step of the procedure should be explained to the patient to ensure compliance
- The patient should be asked to lie down in the left lateral position with a sheet covering any exposed areas to ensure dignity
- If required, and performed by an appropriately trained and experienced practitioner, a digital rectal examination should be undertaken prior to HRAM, and documented with particular reference to:
  i) inspection of the perineum
    • excoriation
    • erythema
    • skin lesions
    • scars from previous surgery / perineal trauma
    • fistulae / external haemorrhoids
    • presence of mucosal prolapse / rectal prolapse on request to strain
  ii) digital rectal examination
    • palpable anal / rectal lesions
    • anal sphincter tone at rest
    • anal sphincter and puborectalis response on request to squeeze
    • anal sphincter and puborectalis response on request to strain
    • presence of stool within the rectum
    • presence of a rectocele
- Any untoward sinister pathology noted incidentally during the procedure should be documented and the referring clinician informed without delay
- During digital rectal examination, a brief trial / tutorial of ‘squeeze’ and ‘push’ can be performed to ensure patient understanding prior to onset of the procedure
- After digital rectal examination, a minimum 5 minute period of rest should be allowed
- Lubrication gel should be applied to the catheter prior to commencement of the HRAM procedure to allow for comfortable insertion
• The HRAM catheter tip should be gently advanced through the anus into the rectum. If resistance is felt during insertion, pull back the catheter before re-advancing. If catheter placement is problematic then do not continue to advance the catheter if discomfort is caused or if placement is overly difficult.

• The catheter should be placed with the last 2 manometric sensors visible from the anal verge (to facilitate post hoc analysis), and taped into position to prevent inadvertent movement during the testing protocol.

• The following protocol should be performed, incorporating several manoeuvres:

  (1) **Familiarisation** – a minimum of 3 minutes familiarisation period should be allowed. The patient should be asked to lie still, relaxed, without talking if possible. During this time it is useful to mark the limits of the anal canal for future reference;

  (2) **Resting period** – a 1 minute period of measurement at rest should be taken, again with the patient relaxed and without talking. Any sudden movement (e.g. talking, coughing etc.) should be noted on the trace to prevent confusion during post hoc analysis;

  (3) **Squeeze manoeuvre** – two squeezes of 5 seconds duration, separated by a 30 second rest period, should be performed in response to the (suggested) following command “please squeeze in tight with the muscles around your bottom and hold until I say stop”. A 30 second rest period should also be allowed following the second manoeuvre;

  (4) **Endurance squeeze** – a single 30 second endurance squeeze should be performed in response to the (suggested) following command “please squeeze in tight with the muscles around your bottom. This time I would like you to hold on for 30 seconds, or as long as you can”. The patient should be encouraged to continue squeezing during the 30 second period to aid compliance. A 30 second rest period should again be allowed following the manoeuvre;

  (5) **Pushing down manoeuvre** – two 5 second pushes (simulated defaecation), separated by a 30 second rest period, should be performed in response to the (suggested) following command “please push / bear down as if you were going to the toilet to open your bowels”. A 30 second rest period should be allowed following the second manoeuvre;

  (6) **Coughing manoeuvre** – two single coughs, separated by a 30 second rest period, should be performed, with the patient encouraged to cough as forcefully as possible. The patient should be instructed to refrain from coughing multiple times, as this impairs data interpretation. A 30 second rest period should be allowed following the second manoeuvre;

  (7) **Sensory testing** – rectal sensory testing should then be performed, ideally using an automated pump attached to the anorectal catheter. Using a ramp (continuous) inflation paradigm, the balloon should be inflated at a rate of 2 ml/second and the patient asked to report: (1) volume for first constant sensation, (2) desire to defaecate volume, and (3) maximum tolerated volume. A 30 second rest period should be allowed following the manoeuvre;

  (8) **Rectoanal inhibitory reflex (RAIR)** – if this test is to be performed, the balloon should be inflated with an automated pump at a rate of 30 ml/second to a volume of 60 ml. The balloon should then be deflated after a period of 5 seconds. If the reflex is absent, increase the inflation volume in 60 ml increments (to a maximum of 240 ml) until the reflex is observed and sustained;

  (9) **Rest period** – a 30 second post-procedure period of rest should be recorded.
• At the end of the procedure, the catheter should be removed and a short period of recording performed ex vivo to ensure there has been no pressure ‘drift’ during the recording period
• The catheter should then be disconnected for decontamination purposes, and the recording saved for post hoc analysis.

### Time (mins)

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<thead>
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<th>Time</th>
<th>Action</th>
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<tbody>
<tr>
<td>0</td>
<td>Familiarisation - 3 minutes</td>
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<tr>
<td>3</td>
<td>Rest – 1 minute</td>
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<tr>
<td>5</td>
<td>Squeeze - 5 seconds</td>
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<tr>
<td>5</td>
<td>Squeeze - 5 seconds</td>
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<tr>
<td>7</td>
<td>Endurance squeeze - 30 seconds</td>
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<td>7</td>
<td>Push - 5 seconds</td>
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<tr>
<td>7</td>
<td>Push - 5 seconds</td>
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<tr>
<td>7</td>
<td>Cough</td>
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<td>9</td>
<td>Cough</td>
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**Post-procedure practice:**

• If a reusable catheter has been used, then a trained, competent member of staff needs to immediately clean the catheter as per the manufacturers’ recommendations
• The cleaning details should then be entered into an appropriate catheter cleaning log
• If a single-use, water-perfused catheter has been used, it should be placed straight into an appropriate clinical waste bag for disposal
• The patient may either go home, or progress to other studies of anorectal / colorectal function within the same clinical appointment (e.g. endo-anal ultrasound, pudendal nerve terminal motor latencies, anal sensitivity testing, evacuation proctography, and gastrointestinal / colonic transit studies, as required)
• Analysis of the HRAM recording and subsequent reporting should be made by an appropriately trained and accredited practitioner, or under the supervision of a fully trained and accredited practitioner
• As no formal guidelines yet exist, interpretation should be on the basis of comparison with an appropriate healthy volunteer dataset of suitable size
• Any complications noted during the study should be fully documented and appropriate follow-up provided if required

[AGIP Committee, July 2013. Review Date: July 2015]
Future Meetings

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 their details included in future issues.

Sept - Dec 2013 Medical Measurement Systems (MMS) web seminar schedule for 2013:

- 11th Sept 2013 High Resolution Manometry (HRM)
- 22nd Oct 2013 Anorectal manometry (HRAM) & Colonic manometry
- 6th Nov 2013 Paediatric Impedence-pH Studies
- 19th Nov 2013 Impedance-pH studies
- 4th Dec 2013 Paediatric High Resolution Manometry (HRM)

Each session is FREE of charge:

www.mmsinternational.com/int/1599/mms-education-web-seminars-2013

27th Sept 2013 Eosinophilic Gut Diseases: A Case Study Approach
UCL Institute of Child Health, London
Website: www.a-p-g.org/COURSES/egd2013
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<tr>
<th>Date Range</th>
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<tr>
<td>30th Sept - 2nd Oct '13</td>
<td><strong>Short Course in Upper GI Physiology</strong></td>
<td>Newcastle University</td>
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<td>For more information, please email: <a href="mailto:lynne.smith@sth.nhs.uk">lynne.smith@sth.nhs.uk</a></td>
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<tr>
<td>12th - 16th Oct 2013</td>
<td><strong>United European Gastroenterology (UEG) Week</strong></td>
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<td>6th - 8th Nov 2013</td>
<td><strong>Sandhill Scientific Clinical Training Seminars</strong></td>
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<td>6th Nov 2013: Introduction to Impedance/pH Reflux Testing</td>
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<td>7th Nov 2013: High Resolution Impedance Manometry</td>
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<td>8th Nov 2013: Impedance / pH Reflux Testing, Advanced; Adults</td>
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<td>18th Nov 2013</td>
<td><strong>High Resolution GI Manometry Study Day</strong></td>
<td>University College Hospital, London</td>
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<td>For more information, please email: <a href="mailto:rachel@ardmorehealthcare.com">rachel@ardmorehealthcare.com</a></td>
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<td>(or call 01494 721820)</td>
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<td>21st – 22nd Nov 2013</td>
<td><strong>Capsule Endoscopy in Clinical Practice Autumn 2013</strong></td>
<td>Lumley Castle Hotel, County Durham</td>
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<td><strong>High Resolution Manometry Training Day</strong></td>
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