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The UCSD GI Motility Department

By Debbie den Boer BSN, RN, CGRN

The phone rings, I answer; “UCSD GI Motility. This is Debbie. How can I help you?” The person on the line said: “Maternity? Oh, I think I have the wrong department!”

I realized how uncommon the phrase “motility” is and that patients as well as employees don’t really know what is done in a motility department. The best phrase to describe what the focus is of a motility lab, is gastrointestinal (GI) functional testing. According to the Rome III classification, functional gastrointestinal disorders (FGID’s) are: “...disorders of function associated with abnormal motility, visceral hypersensitivity and deregulation of the brain-gut function.”

Who refers patients to the GI Motility Department?

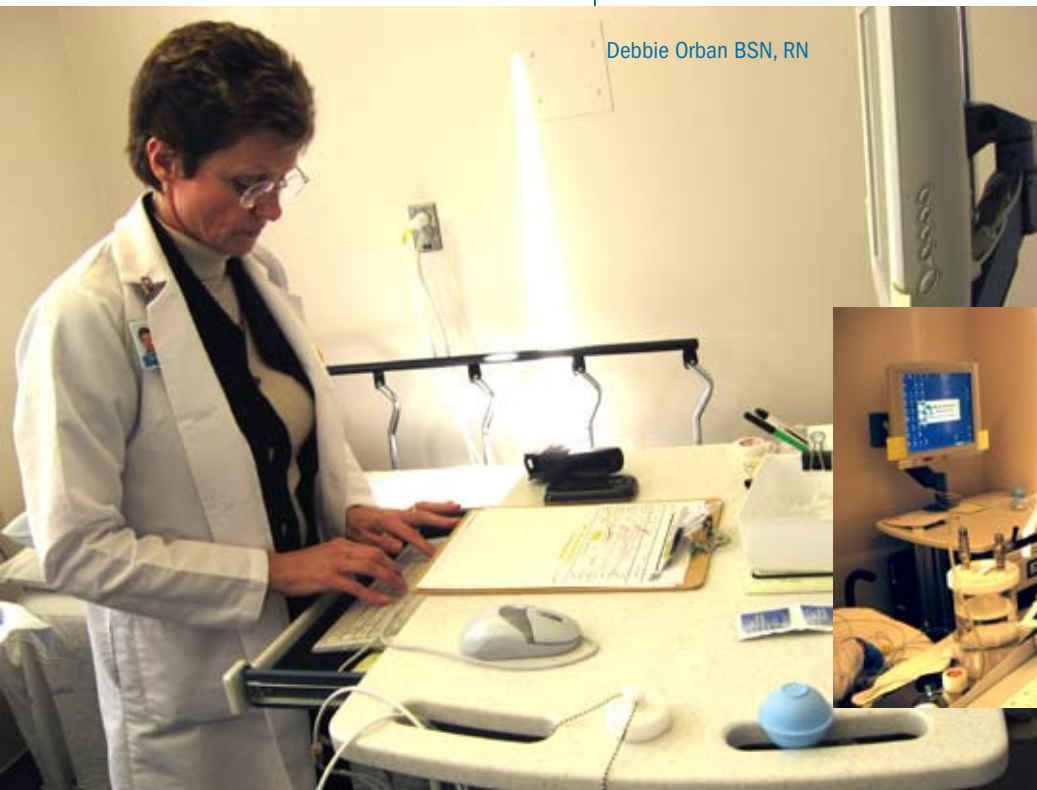
Our referrals are generated mainly from gastroenterologists, surgeons, ear nose

and throat specialists, pulmonologists, lung transplant surgeons and prime-care physicians. Although many referrals are generated from “in-house UCSD Medical Center” the largest number of referrals comes from the greater San Diego and North County community and as far as Palm Springs and Arizona. Not many hospitals or health care facilities are offering these tests, partly because of the expensive specialized equipment and low reimbursement value. The main reason is actually that many facilities do not have a dedicated gastroenterologist who specializes in GI functional testing.

Dr Ravinder Mittal, MD. Is the Medical Director of the Gastrointestinal Motility and Physiology Center at UCSD Medical Center and has been Professor of Medicine at the University of California, San Diego for the last twelve years. He has been studying



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Debbie Orban BSN, RN





Dr. Ravi Mittal, D. Orban RN, D. den Boer RN

the esophagus for the last 25 years and authored more than 100 original papers, book chapters and review articles and for the last 10 years investigated the role of the longitudinal muscles of the esophagus. Dr Mittal also has a keen interest in the pelvic floor muscles and function and many hours of research are spent on unraveling the mysteries of the pelvic floor muscles.

What kind of symptoms and complaints do our patients have?

Gastroesophageal reflux disease (GERD) with its common symptoms of heartburn, regurgitation and chest pain makes out a large percentage of our patient population. But numerous symptoms other than heartburn are associated with GERD. These may include frequent belching, difficult or painful swallowing, chronic cough, severe dental erosion, globus sensation in the throat, constant clearing of the throat, sore throat and/or hoarseness. Chronic asthma, wheezing and non-cardiac chest pain may be due to GERD. Dysphagia and the sensation of food getting stuck in the esophagus or solid and liquids “not going down when swallowing” is a more serious condition. Non-cardiac chest pain may present as angina, causing severe chest pain and pressure and may be caused by

esophageal spasms.

The Motility staff

Our nursing staff consists of two part time RN’s trained specifically in GI manometry, motility and pH monitoring. Debbie Orban RN started 3 years ago and was trained to perform all the procedures that our unit offers. Debbie den Boer BSN, RN, CGRN has been a GI Endoscopy nurse for nearly 40 years and been involved in manometry/ motility procedures for more than 18 years. What makes the motility unit so interesting and fascinating is the

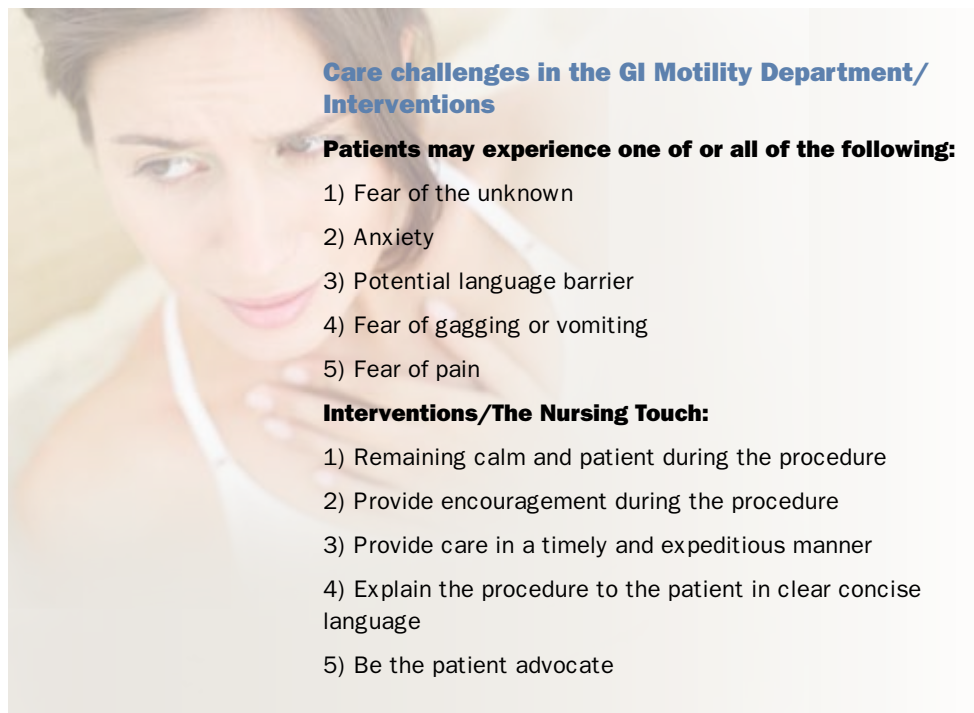
constant development in technology and the very close relationship with the patient. The procedures in the motility unit are not performed by physicians but by the nursing staff.

Patient teaching and education

We as nurses believe that a well informed patient is one of the most important aspects of a smooth running and successful GI motility department. We developed our own GI motility website as a resource for patients and employees. When our patients are scheduled, a package with instructions, preparation guidelines and a questionnaire are mailed to them as well as directions to the unit. Since certain medications affect the very muscles that we measure and monitor, patients get instructions to be off those medications, if possible. The 24 hour pH monitoring studies are usually performed while a patient is off antacid medication for a period of time. Following these instructions is very important to secure accurate results.

So how do we do an esophageal manometry and motility test?

Most of our patients already had an upper endoscopy procedure or barium swallow test done. Our referring physicians fax us the results which are very important for the nurse to review as well as a short medical and surgical history. The patient fills out a specific esophageal questionnaire that is geared



Care challenges in the GI Motility Department/ Interventions

Patients may experience one of or all of the following:

- 1) Fear of the unknown
- 2) Anxiety
- 3) Potential language barrier
- 4) Fear of gagging or vomiting
- 5) Fear of pain

Interventions/The Nursing Touch:

- 1) Remaining calm and patient during the procedure
- 2) Provide encouragement during the procedure
- 3) Provide care in a timely and expeditious manner
- 4) Explain the procedure to the patient in clear concise language
- 5) Be the patient advocate

Indications for esophageal manometry

1. Primary esophageal motility disorders

- Achalasia
- Nutcracker esophagus
- Diffuse esophageal spasm
- Hypertensive lower esophageal sphincter

2. Secondary esophageal motility disorders – associated with systemic disease:

- Scleroderma
- Diabetes
- Collagen vascular disease

3. Other indications for esophageal manometry:

- Preoperative evaluation prior to anti-reflux surgery to assess peristaltic function
- Preoperative evaluation prior to bariatric surgery and lung transplant
- Determination of LES location prior to pH catheter placement

towards the specific problem that the patient has. This is reviewed by the nurse to have a good understanding of what the problem is and what we are looking for. The nurse will explain the administration of the topical anesthetic, the sensations the patient may experience, the intubation process, how long the procedure will take, the water swallows and what they may feel when the catheter is removed.

The GI motility department at UCSD Medical Center has State-of-the-art-equipment to perform esophageal manometry. The high resolution catheter has 36 sensors one cm apart and each sensor has 12 circumferential transducers. This portrays a full pressure image of the esophagus, from the pharynx to the upper stomach.

After the procedure is explained to the patient, one nostril is prepped with 2% viscous Lidocaine and 2-3 ml 2% viscous Lidocaine is placed in the back of the throat for the patient to swallow. This provides an adequate anesthetic effect and keeps the gag reflex a bit under control. The high resolution catheter is inserted and while the patient swallows, it is advanced into the stomach. Our success rate with esophageal intubations is more than 99.9% and we ascribe that to our effective patient teaching, the very

relaxed atmosphere for the patient with soft background music, and our expert technique. During the recording 10-12 10ml water swallows are given to the patient and we can observe the pressures and movement in the esophagus. After removal of the catheter the patient is discharged with instructions.

Anal manometry and ano-rectal electromyography studies

The GI Motility department is also a referral center for patients with pelvic floor discoordination, e.g. severe constipation, fecal incontinence, soiling and rectal pain. During an anal manometry data is collected from the pelvic floor muscles and internal and external anal sphincters. A catheter/probe is placed in the anal sphincter and the patient is instructed to perform certain “squeeze and push exercises”. This will indicate the pressure or relaxation generated by the muscles involved. Rectal sensation is measured by inflating a small balloon, which is on the tip of the catheter, with certain volumes of air and record the sensation the patient feels. Anal sphincter relaxation is also recorded.

The ano-rectal electromyography study records the “electrical activity” in the muscles. An anal probe is inserted in the anus and electrodes are placed on the

right lower abdomen and the patient’s back to obtain electrical impulses from the anal muscles and the abdominal muscles. The patient is again instructed to squeeze the anal sphincters and to bear down. Although this is not an uncomfortable test, it is embarrassing for the patient and we make sure during the initial interview to explain all the sensations and circumstances with the patient. Patient privacy is honored and respected at all times and this is possible by covering the patient adequately during the test, Soft music as background help relax the patient as well as making them feel comfortable.

RESOURCES:

1. ANMS American Neurogastroenterology and Motility Society. www.motilitysociety.org
2. International Foundation for Functional Gastrointestinal Disorders. www.iffgd.org
3. Society of Gastroenterology Nurses and Associates. www.sgna.org
4. The Rome Foundation. Rome III Functional Gastrointestinal Disorders. www.theromefoundation.org
5. <http://health.ucsd.edu/specialties/gastro/motility>

Glossary of terms

Manometry-a diagnostic test measuring changes in intraluminal pressure and the coordination of muscle action.

Motility- measures the movement or activity, e.g. wave forms, contractions and peristalsis.

pH monitoring- Esophageal pH (acid) monitoring measures the amount of acid in the esophagus over a 24 hour period, to tell whether acid reflux is causing symptoms.

24 hour pH monitoring-This test is usually ordered to determine the amount of acid reflux in the esophagus over a 24 hour period of time