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Digest

Our mission is to advance the biopsychosocial understanding and care of patients with functional GI & motility disorders through research, training and education.

The burden of chronic abdominal pain in adolescents may increase thoughts of suicide

Learn more about this recent nationally-recognized news topic when Miranda hosts an Evening with an Expert chat session on December 1st at 8pm at ***www.med.unc.edu/ibs***

Miranda van Tilburg, PhD
Assistant Professor of Medicine

People who suffer from chronic abdominal pain know how frustrating and difficult it is to live with chronic pain. It affects their daily function, thoughts, feelings and behaviors and can have a great impact on their quality of life. However, others around them may not realize the burden of chronic pain. The pain often is often perceived as not serious, because it is not progressive and does not shorten life expectancy. However, we are now finding that in some cases, the suffering associated with chronic pain can be so great that patients can even contemplate suicide. There is growing evidence that chronic pain increases thoughts of suicide in adults. Pain is one of the main reasons that terminally ill patients request physician assisted suicide, and non-malignant chronic pain is associated with 2-3 fold increases in suicide, suicide attempts and suicidal ideation. There is some data to indicate that suicide attempts and suicidal ideation may be particularly high in chronic abdominal pain patients.

Suicide is the third leading causes of death among adolescents, compromising about 11% of all deaths among those who are 10-24 years old. In 2005, 17% of youths in the US had seriously considered suicide, 13% made a suicide plan and 8% attempted suicide. Girls are more likely to attempt suicide, but boys are 4 times more likely to die through suicide because they use more violent means and act more impulsively.

There is hardly any literature on the role of pain in suicide among adolescents, despite the high prevalence rates of chronic pain in adolescents; an estimated 25% of adolescents have suffered from recurrent or constant pain for at least 3 months. Although chronic abdominal pain may signal an abnormality, in most cases (90-95%), no disease explanation is found. This type of pain is referred to as functional abdominal pain. Functional abdominal pain is common in children and adolescents, with prevalence rates of up to 19%, which is similar to rates among adults. For example, an estimated 16% of adolescents and 15% of adults suffer from Irritable Bowel Syndrome, for which abdominal pain is one of the central symptoms.

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DIGEST is a quarterly publication of the UNC Center for Functional GI & Motility Disorders, a center of excellence within the Division of Gastroenterology and Hepatology, School of Medicine, University of North Carolina at Chapel Hill.

The Center's co-directors are. Douglas Drossman, MD, Professor of Medicine and Psychiatry, and William Whitehead, PhD, Professor of Medicine and Gynecology. For more information about the Center, please visit our website at www.med.unc.edu/ibs.

Over the past decade, the UNC Center for Functional GI and Motility Disorders has enjoyed significant grant support from a number of private foundations and corporations. These grants have ranged from sponsorships of specific events (symposia or CME courses) to unrestricted grants in support of fellowships and the Center's education and training effort. The following are among the Center's valued sponsors:

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McNeil Fellow

Ademola Aderoju, MD

Ademola is a graduate of Belmont University in Nashville, TN and he did graduate work at Tennessee State before entering medical school at Meharry. Following graduation from medical school in 2005 he entered the residency program at UNC where he excelled. Along the way he earned a number of honors and awards. He was elected to Alpha Omega Alpha, the Medical Honor Society and he received the Frank and Pamela Royal Scholarship. Ademola is interested in the area of functional bowel disorders, and he will be mentored over the next two years by Drs. Douglas Drossman and William Whitehead. He has recognized racial disparities in the demographics, treatment, and outcomes of individuals with functional disorders. He is also interested in cross-cultural and international differences in these disorders.

As part of his NIH supplement, Dr. Aderoju is working with Dr. Drossman and the biometry core on achieving a better understanding of: 1) the racial differences in clinical and psychosocial factors among patients with functional GI disorders, and 2) the differential predictive effects of clinical and psychosocial factors on predicting health outcomes among African Americans and Native Africans. As part of Dr. Drossman's NIH data base of patients with functional bowel disorders, over 40 African Americans have been extensively studied and will be used in this analysis, and when indicated, compared to the data of Caucasians. In addition, Dr. Aderoju will be looking at possible differential effects of race on response to antidepressant and cognitive behavioral treatment. Following this, Dr. Aderoju will be studying the epidemiology of patients with functional GI disorders in his home country of Nigeria. Once these data are obtained, the results will be compared to the US NIH database of Caucasians and African Americans.

Dr. Aderaju is a co-investigator with Drs. Steve Heymen, Jan Busby-Whitehead, and William Whitehead in a study of patient characteristics which influence the decision of medical staff to discharge elderly patients to nursing homes. A key aim of the study is to determine whether fecal incontinence plays a significant role in nursing home referral independent of other factors such as dementia, impaired mobility, and having multiple chronic illnesses. Dr. Aderaju's particular interest in this study is to investigate whether race influences the decision to refer; his hypothesis is that African American patients may be less likely to be referred to nursing homes because (1) it is known from a previous survey by the UNC team that physicians are less likely to refer incontinent patients to nursing homes if there are family members present who are willing to assist the patient with toileting, and (2) there is anecdotal evidence to suggest that African American families are more willing to care for disabled family members in their homes. Thus, Dr. Aderaju will test the hypothesis that being African American actually protects patients from referral to a nursing home. This study is supported by an NIH K07 Leadership Award to Drs. Heymen and Busby-Whitehead from the Center for Aging and Diversity, which is a part of the UNC Institute on Aging.

(Continued from cover page)

Functional abdominal pain in adolescence is associated with significant psychological difficulties, reduced quality of life, and disability such as school absences, restrictions in daily living and medical consultation for the pain. Not only does severe chronic abdominal pain result in tremendous suffering, but medical treatment is largely inadequate and many patients have to deal with accompanying symptoms such as bloating, constipation and diarrhea, which may be particularly embarrassing at an age when appearance, strength and developing peer relationships are very important.

Given the suffering associated with pain and the the possibility for increased risk of suicide in this age group, our research team investigated if chronic pain increases the likelihood that youth think about or attempt suicide 1 year after the onset of pain in a large (N > 10,000) nationally representative database of US adolescents. We found that pain in various locations, including the head, abdomen and muscles, was associated with increased suicidal thoughts and behaviors. The associations with abdominal pain were slightly stronger than pain in other body parts. These findings lead us to conclude that functional abdominal pain in youth is a risk factor for suicidal thoughts and behaviors, similar to adults. We did not have data on actual suicide deaths in this population and thus cannot test if pain increases death by suicides. However, thinking about suicide and attempting suicide (but not dying from it) are important risk factors for completing suicide at a later time.

We then studied whether the association between pain and suicidality is explained by these individuals also suffering from depression. We know that the majority of those who attempt suicide suffer from depression, which is also associated with increased reporting of bodily symptoms such as abdominal pain. In other words, could depression associated with pain be responsible for driving the wish to die? Upon closer examination of the data, we found that both pain and depression are independently associated with suicidal ideation. However, only those adolescents who also have depressive symptoms actually act on their wishes to die and attempt suicide. These findings indicate that it is of utmost importance to treat both the pain and the co-morbid depression in order to prevent detrimental outcomes.

We also had the opportunity to investigate how youth fared when they were in early adulthood (5-6 years later). We found that chronic abdominal pain in adolescence continued to be associated with suicidal thoughts in young adulthood, whether or not these individuals suffer from depression. By contrast, associations between pain in other body locations and suicidal thoughts were no longer found, suggesting that abdominal pain is associated with greater risk for suicidal thoughts than pain that is present in other locations. In addition, we found that young men, but not women, who reported abdominal pain were at increased risk for suicide attempts in adulthood, again independent of depression. This may be due to increased access to alcohol and guns in young adulthood, which are associated with more violent and impulsive acts of suicide to which boys are more vulnerable. Together, these findings suggest that abdominal pain among adolescents increases suicidal thoughts and suicide attempts in both the short term and long term more so than headaches and muscle aches.

Could a history of physical or sexual abuse explain why abdominal pain raises the risk for suicide ideation/attempt among adolescents? In a previous study, we found that childhood abuse is more prevalent among youth who suffer from abdominal pain. Also, in adults, abuse history is a well recognized risk factor for suicide. Going back to the data, we indeed found that physical and sexual abuse predicted suicidal thoughts and attempt as reported in many other studies. However, contrary to our expectations, abuse did not alter the association between suicidality and pain. In other words, patients with abdominal pain have the same risk for suicidal thoughts whether or not they have an abuse history. Perhaps other factors such as hope for improvement, loss of control over pain, and expectation of treatment effectiveness play a role.

Treatment options for abdominal pain are limited compared to other common pain locations. For example, no pharmacological treatments have been found successful for treating abdominal pain in adolescents, while chronic headaches in this age group are successfully treated with acetaminophen, ibuprofen, and nasal-spray sumatriptan. Fewer treatment options can lead to more uncontrollable pain experiences and its associated burden.

In sum, the extent of the effect of pain on a patient's life is often not fully recognized. Pain places a large burden on the patient and his/her family. In some cases the burden of abdominal pain can be so extensive that youth may contemplate suicide and the effect can last into young adulthood. This is an important finding as suicide is one of the leading causes of death in this age group and suicide thoughts and attempts are one of the most important risk factors for dying by suicide. We do not yet understand completely why some adolescents with chronic abdominal pain develop suicidal thoughts whereas others do not. Suicide attempts, on the other hand, are more likely to occur if an adolescent suffers from both abdominal pain and depression. Therefore the presence of abdominal pain should alert clinicians to screen for suicidal thoughts and depression. Addressing the pain and the emotional consequences of living with pain is of utmost importance to reduce the increased vulnerability to suicidal attempts among adolescents who suffer from chronic abdominal pain.

Faculty Profile

Spencer Dorn, MD
Assistant Professor of Medicine

Why did you choose the field of Gastroenterology?

During my first two years in medical school at SUNY Downstate, I was interested in physiology and pathophysiology, subjects which involve the ways that organ systems function in health and disease. Later, during my clinical rotations I most enjoyed interacting with adult patients, an early indicator that I would do a medicine residency. A fourth year gastroenterology rotation piqued my interest in the field. I found several aspects of GI particularly appealing. First, I desired to help patients with symptomatic physical conditions. Unlike asymptomatic conditions such as hypertension or diabetes, people are well aware when their gut is not functioning properly and I wanted to help to alleviate this suffering. Second, I liked that gastroenterology was focused yet diverse, involving a number of different organs and including both procedural and purely cognitive work.

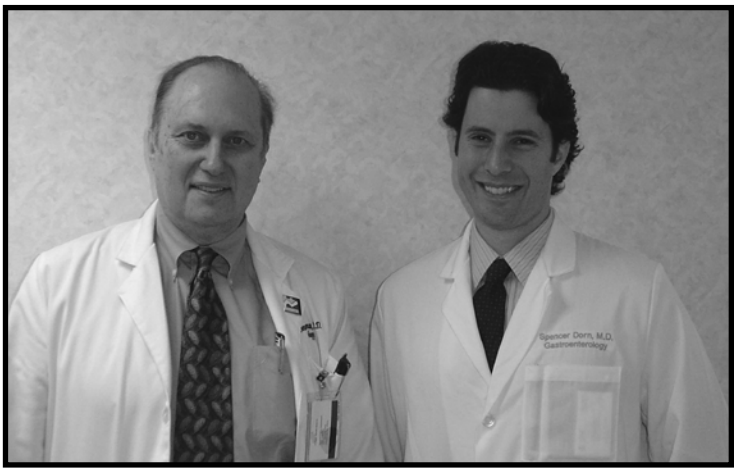
Why functional GI and motility disorders?

When I began my training in internal medicine at Brigham and Women's Hospital in Boston, I thought I'd continue to pursue research in inflammatory bowel disease (which I had started as a fourth year medical student). But over time I gravitated towards functional GI disorders, which seemed to nicely dovetail with my interest in the mind-body relationship that dated back to childhood when I would read books on meditation and guided imagery. I was also intrigued that while functional GI disorders are highly prevalent in society, science has yet to fully understand these afflictions. Thus, the field seemed ripe with research opportunities and I got involved in one that examined the placebo response in IBS trials.

What are your research interests?

As a post-doctoral research fellow and later a clinical fellow, I gained a deep appreciation for the biopsychosocial model. Working under Dr. Drossman, he taught me that the more patient-centered, "holistic" biopsychosocial approach is more appropriate and more effective for functional GI disorders. This idea has been further supported in our research findings. In Dr. Drossman's group, we found that in celiac disease, psychosocial factors more than disease-based measures are powerful predictors of health status. Likewise, in Dr. Whitehead's group, we learned that increased pain sensitivity in IBS is more strongly influenced by psychological factors rather than neural sensitivity.

While Dr. Drossman's and Dr. Whitehead's work has repeatedly demonstrated the central role of mind-gut dysfunction in functional GI disorders and the importance of a biopsychosocial approach, this has not yet been translated across clinical practice. In fact, like most chronic conditions, the care for functional GI disorders is characterized by staggering costs, yet uneven quality and sub-par health outcomes. Building on my background in epidemiology, I'm interested in assessing new models for delivering health care to patients with functional GI disorders. I'm also interested in the ways in which health care policy, the biopharmaceutical industry, and other societal elements affect clinical practice.



Dr. Drossman with Dr. Dorn

Beyond Tricyclics

Douglas, Drossman, MD
Professor of Medicine and Psychiatry

New Ideas for Treating Patients with Painful and Refractory Functional GI Symptoms

At our Center for Functional GI and Motility Disorders, we are always seeking new treatment methods for patients referred to us with painful and refractory functional GI Disorders (FGIDs). These patients have painful symptoms and associated motility disturbances as well as high levels of emotional distress going back many years. They have been to many specialists and have been referred to our clinic because all motility type agents or other gastrointestinal treatments have failed. They have also used narcotics which paradoxically can make them feel worse. They have "surfed" the internet seeking novel treatments that could help them, and joined IBS forums to share their difficulties and concerns. When the patients arrive to be evaluated, they feel hopeful that something previously missed will be found, and if that fails, they expect to receive a specific treatment to make their symptoms go away. Others may sit with arms folded, cautious and even skeptical. They have tried everything ("been there and done that"); their pessimism is obvious. Some are guarded in their responses, concerned that they will not be believed or worse, considered crazy since "nothing has been found".

Many will resist recommendations to take antidepressants or engage in psychological treatments because of the stigma: "I'm not depressed! What will I tell my family and friends?"

This scenario is challenging for any clinician. Yet in balance, it provides an opportunity to learn much about the patient's illness experience and to find novel approaches to their care: to go where others have not gone, by employing new treatment modalities. In this article I will discuss some newer treatment methods for patients with refractory and painful functional GI symptoms. Their rationale is sound because they have been tried and tested in treatments of psychiatric disorders. Adapting these methods for patients with GI pain should not be surprising since the enteric nervous system of the intestines (ENS) and the gastrointestinal pain pathways are both responsive to central treatments. These two neural systems began from the same origins, and are connected. These treatments are part of the specialty practice of the Center for Functional GI & Motility Disorders, and they may not be found at other programs. General treatment approaches to the psychopharmacological and behavioral care of patients with FGIDs can be found elsewhere.[1-3]

General Approach

At the heart of it all, treatment begins with an effective physician-patient relationship[4]. It improves patient satisfaction, adherence to treatment and even the clinical outcome[5]. Also, it reduces litigation[6], and it may explain why complementary treatments like acupuncture work[7]. The physician-patient relationship remains the cornerstone, and the most important component of treatment.

Building upon the physician-patient relationship, treatment is biopsychosocial in concept and multi-component in method. We employ any combination of physiological, behavioral and pharmacological modalities[3,8]. Psychological treatments such as cognitive behavioral therapy, hypnosis and stress management are safe, effective and long lasting[9], though do require clinicians who are skilled in these methods. The pharmacological treatments are directed toward the gut, the brain-gut axis and the CNS in various combinations.

Antidepressants and Psychotropic Agents

Antidepressants are being used more and more for both IBS and other painful FGIDs. In a recent international survey of IBS patients using the internet, 31% of 1,966 patients reported taking an antidepressant[10]. These treatments are most often used for patients with more severe symptoms, who form the majority of our tertiary care practice.

In general, we employ either a tricyclic antidepressant (TCA) or a serotonin norepinephrine reuptake inhibitor (SNRI) because of their enhanced pain benefit, or a serotonin reuptake inhibitor (SSRI) when there are associated symptoms of anxiety, obsessive features or phobic behaviors.

Treatment is begun in modest dosages, increased to an optimal level of benefit and continued for 6-12 months or longer. We actively work with the patient to address any side effects because that is what reduces adherence to treatment[11]. However we are cautious not to quickly adjust dosages up or down, or discontinue or switch to other medications. Our studies have shown no relationship of dosage level with clinical benefit[12], and interestingly, the "side effects" commonly reported after beginning treatment relate more to concurrent anxiety than to true side effects of the medication itself[13].We also select medications based on the associated symptoms: a TCA when there is diarrhea, an SSRI with constipation, mirtazepine with nausea, or buspirone with postprandial early satiety or fullness[14].

Rationale for Antidepressants, a Reappraisal

Non psychiatric physicians are not well trained in psychopharmacology and may prescribe antidepressants based more on misinformation than evidence. They may prescribe because IBS is perceived as a psychiatric problem, or as a means to reduce stress; neither is correct. The true rationale for their use relates to treating pain sensations from the gut, or modulating bowel symptoms. Higher dosages are used to treat psychiatric co-morbidities that can aggravate the pain. Brain imaging studies indicate that antidepressants may act on an area of the brain called the anterior cingulate cortex to reduce pain from the intestines[15].

In the last few years some newer ideas on the action of antidepressants for psychiatric disorders and chronic pain have emerged to add to or possibly replace older theories for depression. The monoamine hypothesis which has held ground for over 40 years, relates clinical depression to reduced activity of certain neurotransmitters in the brain. Thus, the SSRI's increase available neurotransmitter, and presumably this leads to clinical improvement.

This understanding doesn't explain why it takes up to 6 weeks to get a clinical response when the effect within the synapse is much sooner.

More recently, the concept of neuroplasticity i.e., loss of cortical neurons with psychiatric trauma and neurogenesis or regrowth of neurons with clinical treatment[16], is reshaping our understanding of psychiatric and possibly functional GI disorders. When I went to medical school in the 1960's we were taught that nerve cells are established at birth or soon after, and there was little evidence that these cells died. Furthermore the brain was thought to be incapable of neurogenesis. Over the last decade studies began to show that brain cells can die in key areas of the brain, such as the hippocampus after severe emotional trauma such as sexual abuse, or war trauma leading to PTSD[17]. In the last year or two, brain imaging studies are showing reduced cortical density in other areas of the brain including cortical regions involved with emotion and pain[18,19].

Adding to this is new evidence that antidepressant (and possibly psychological) treatments can restore lost neurons. Brain-derived neurotrophic factor (BDNF), a precursor of nerve cell growth (neurogenesis), appears to increase with antidepressant treatment and the increase correlates with longer periods of treatment and with the degree of recovery from depression[16,20]. Furthermore, from a clinical perspective the longer patients are treated with antidepressants the lower the frequency of relapse or recurrence of the depression[21,22].

These findings give us new insight into how the brain functions in response to emotional trauma and closer to home, how we understand chronic visceral and somatic pain and their treatments. Now we are learning that patients with severe depression or chronic pain show reduced cortical density in the anterior cingulate and prefrontal cortex and thalamus, regions that interface between emotion and pain regulation[18,19].

These new data provide new and important opportunities for research and patient care using antidepressants for treatment of FGIDs. From the clinical perspective, this effect on nerve cell growth regulation helps explain the observed benefit of using psychotropic agents in reducing GI pain. It also raises questions as to whether neurogenesis might also occur in the nervous system of the GI system as well as the CNS; certainly neural degeneration is seen with severe motility disturbances[23], and perhaps with proper treatments this can be reversed or slowed. In fact one recent study[24] has shown that serotonin agonists can increase enteric neurons developing from precursors and increase neurite outgrowth and decrease apoptosis.

Detoxification from Narcotics

Unfortunately, and out of sheer desperation, clinicians sometimes prescribe narcotics for functional GI pain even though there is no evidence that they provide long term benefit[25]. Prescriptions for narcotics have grown remarkably

to treat chronic non-malignant pain and currently about 18% of patients with IBS are inappropriately taking narcotics[10]. This overuse may be encouraged because the health care system reimburses for it and it is a way to treat patients and get them quickly released from the hospital, ER or clinic, and without needing to take the time to address more comprehensive management approaches. Furthermore, patients, not knowing of other treatment options, often demand it. The USA, which represents less than 5% of the world's population prescribes over 80% of narcotic prescriptions, and the use of oxycodone has increased 400% based on data from 1997-2002[26]. More importantly, there is growing evidence to suggest that these treatments are harmful, producing what has been called narcotic bowel syndrome (NBS)[25], a complication of narcotic treatment where there is increased pain which usually leads to worsening over time. Patients with painful FGIDs who are taking narcotics must be detoxified, and in many cases the pain will then be reduced. A protocol for detoxification as well as further information on the mechanisms for NBS is available[25].

Augmentation Treatment

If single medication treatments are not successful, we consider intensifying the treatment by using combinations of treatments. In our referral population, sequencing one medication after another sometimes fails, due to lack of response or side effects, so when this occurs what is needed is an approach that employs multiple treatment modalities to achieve synergistic or additive effects. The concept of augmentation is to use two or more treatments that act upon different receptor sites or areas of the brain to enhance the therapeutic effect. Frequently, medications can be used at lower dosages to minimize side effects[27]. This approach is particularly helpful when multiple single treatments are unsuccessful even at higher dosages or have side effects.

Some of the different combinations of treatments are described below.

Psychological Treatment and Antidepressants

One logical approach is to combine antidepressants with psychological treatment. Clinically we know that antidepressants can improve pain and vegetative signs of depression. In addition, psychological treatments improve higher levels of brain functioning such as coping, reappraising of maladaptive thinking and adaptation to previous losses and trauma. Also, being in psychological treatment can improve adherence to taking a medication, and conversely taking an antidepressant can increase psychic energy to improve the efficiency of the work of therapy. Brain imaging studies have shown that antidepressants work in areas such as the anterior cingulate cortex and insula to improve connectivity to prefrontal and other cortical areas ("bottom up" effects) while psychological treatments work on prefrontal or cognitive ("executive") areas, "top-down" effects[28]. Finally over the last 10-15 years, clinical trials show added benefit of combining these two treatments for depression and other psychiatric disorders [29-32] and migraine headache[33] among other disorders. In fact the difference for combined treatment can be 50% or more than either monotherapy treatment[30,33]. The Rome III committees have recommended this type of augmentation treatment for patients having more severe functional abdominal pain[2].

Treatment with two or more Psychotropic agents

We often employ combinations of psychotropic agents when a single treatment has failed. For example we might use a low dose SSRI with a low dose TCA, to address multiple symptoms such as anxiety, depression, pain and diarrhea. Here the SSRI provides anxiolysis and the TCA helps to control the pain and diarrhea. For patients not responding to a single antidepressant, and who have associated anxiety and/or postprandial early satiety we might add buspirone to an antidepressant. The agent has known ability to augment antidepressants[27] and also has peripheral effects that improve sensorimoter gut function [14,34]. More recently we have added a low dose atypical antipsychotic (e.g., quetiapine) to a TCA or SNRI to augment pain control, reduce anxiety and enhance sleep[35,36]. Finally, if the patient has a musculoskeletal component to the pain, e.g., abdominal wall pain or fibromyalgia, we might add gabapentin or pregabalin to the antidepressant[37].

With all combinations, we prefer to use low dosages to minimize side effects, especially the serotonin syndrome[38]. This most often occurs with higher dosages or combinations of higher dosages of serotonin enhancing agents. The clinical features include tremor and hyper-reflexia, spontaneous clonus and muscle rigidity with fever. In general augmentation treatment using multiple psychotropic agents should be prescribed by a psychiatrist, psychopharmacologist or gastroenterologist with advanced training in the use of these medications.

Concluding Comment

Patients presenting with severe and refractory FGIDs have been prescribed many treatments without benefit. Effective treatment requires a broader range of treatment options. At the base is an effective physician-patient relationship. Building upon this are the use of antidepressants targeted toward various symptom features, and the removal of narcotic agents when prescribed. Their benefit may now extend to include reducing neuroplastic effects associated with visceral hypersensitivity and possibly increasing neurogenesis. Finally, augmentation treatments, combining behavioral interventions with antidepressants or combinations of psychotropic agents should be considered. The latter will require input from a psychopharmcologist or psychiatrist.

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A modified version of this report is currently in press: *Drossman DA. Beyond tricyclics: New ideas for treating patients with painful and refractory functional GI symptoms. Am J Gastro, in press, 2009.*

Guest Column

Brennan Spiegel, MD, MSHS
Assistant Professor of Medicine;
Program Director, UCLA GI Fellowship Training Program

Diagnostic Testing in Irritable Bowel Syndrome: Theory vs. Reality

Editor's Note: ***In July of this year, our Center was delighted to host Brennen Spiegel, MD as a Visiting Professor of the UNC Center for Functional GI and Motility Disorders and the Division of Gastroenterology and Hepatology. During his stay, Dr. Spiegel presented at a Division Research Conference on the topic, "Introduction to Health Related Quality of Life Measurement" and he also spoke at a Center Luncheon on "Culling the Wheat from the Chaff in Irritable Bowel Syndrome". This luncheon topic is also the basis of his Guest Column in this issue of The Digest. We hope you enjoy this article.***

Irritable Bowel Syndrome: A Clinical Chameleon

Although irritable bowel syndrome (IBS) is extremely prevalent, affecting up to 15% of the general population, diagnosing IBS is not always straightforward. Properly diagnosing IBS can be challenging and uncertain for several reasons, including: (1) there is currently no consistent biological marker of IBS, leaving clinicians to rely on patient symptoms alone to make the diagnosis; (2) the symptoms of IBS are often difficult to objectively quantify, both for patients and their doctors; and (3) many other conditions can masquerade as IBS. The last fact is most troubling to clinicians and patients, many of whom remain unsettled by the prospect of overlooking alternative diagnoses such as inflammatory bowel disease, infections, small intestinal bacterial overgrowth, celiac sprue, or colon cancer, among many others. This uncertainty often prompts a series of diagnostic tests to exclude alternative conditions. In other words, many clinicians approach IBS as a diagnosis of exclusion, largely because IBS is a sort of "clinical chameleon." That is, many clinicians work to exclude other conditions before settling on the diagnosis of IBS.

Guidelines State that IBS is Not a Diagnosis of Exclusion

Despite the tendency to order diagnostic tests in the face of IBS symptoms, the diagnostic criteria for IBS, such as those supported by the Rome Committee, encourage clinicians to make a positive diagnosis on the basis of validated symptom criteria, and emphasize that IBS is not a diagnosis of exclusion despite the extensive list of other conditions that masquerade as IBS.[1] This recommendation is based on extensive evidence that diagnostic testing is generally very low yield in patients with IBS who otherwise lack alarming signs or symptoms (e.g. blood in the bowel movements, unintended weight loss, anemia, etc).[2] Studies show that meeting the Rome criteria for IBS nearly ensures a lack of underlying alternative conditions. Specifically, if a patient meets the criteria for having IBS, then there is a 98% chance that there is, in fact, IBS – and only a 2% chance that there is some other condition lurking in the background.[2] So, patients should ask their physicians if they "meet the Rome criteria." If they do, then there is a 98% chance that their diagnosis is, indeed, IBS – not something else.

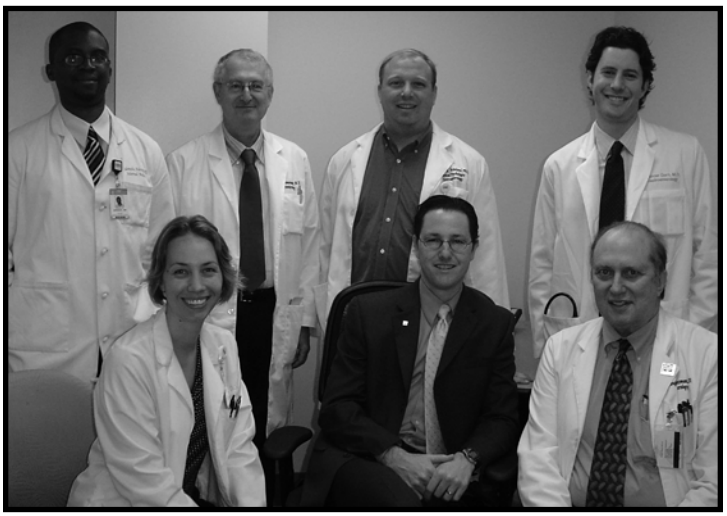
Evidence of Poor Guideline Buy-In

The current Rome guidelines for IBS state that IBS can be diagnosed in the absence of "alarm features," and is "often properly diagnosed without testing."[1] Doctors routinely screen for "alarm features," including unintended weight loss, bloody bowel movements, recurrent vomiting, fevers, or chills, and iron deficiency anemia, among others. These features are relatively straightforward to detect. When alarm features are present, the diagnosis of IBS should not be made. However, the part about diagnosing IBS "without testing" can be murky ground for clinicians. This clinical asterisk is understandably difficult for many clinicians to reconcile, and some argue that it raises more questions than it answers. Questions like: What diagnostic tests, if any, should be performed before clinicians can reliably diagnose IBS? Is it really possible to make the diagnosis without any information from diagnostic testing? Or should a basic blood count, chemistry panel, and stool occult blood test, at the very least, be checked in all potential IBS patients? What about testing for celiac sprue, or bacterial overgrowth? Both of these conditions are known to mimic IBS. And so forth.

This uncertainty leads to rampant diagnostic testing in IBS. For example, community-based surveys reveal that up to 50% of IBS patients receive a colonoscopy in the course of diagnostic evaluation.[4] Moreover, studies show that 25% of all colonoscopies performed in the United States are for IBS-type symptoms, and 10% of colonoscopies in patients under 50 years of age are conducted in evaluation of IBS symptoms.[5] Normally, patients under the age of 50 do not need colonoscopy for colon cancer screening, so performing colonoscopy in this group is probably low yield in general unless there are specific signs or symptoms (e.g. blood in the bowel movements, iron deficiency anemia, etc).

Perhaps even more surprising, a recent study from a large managed care organization found that IBS patients are more likely to have their gallbladders, appendices, and uteruses removed compared to matched controls without IBS, despite knowledge that IBS symptoms almost invariably persist following these surgeries.[6] The high rate of excessive abdominal operations in IBS suggests that some surgeries may serve as "diagnostic tests" to evaluate symptom response after removing potential culprit organs – the ultimate exclusionary maneuver in IBS.

To better understand current diagnostic decision making in IBS, we performed a national vignette survey to measure provider beliefs about whether IBS is a diagnosis of exclusion, and sought to measure beliefs about the appropriateness of commonly available diagnostic tests in IBS. We then compared beliefs between a group of 45 recognized experts in IBS and a group of randomly selected community providers. We found that only 8% of IBS experts endorsed IBS as a "diagnosis of exclusion," whereas 72% of community providers shared this belief.[7] We found that providers who believe IBS is a diagnosis of exclusion ordered 1.6 more tests and consumed $364 more in diagnostic testing per patient vignette than those who did not ($p<0.0001$). Using a standardized definition of "appropriateness," we found that experts only rated celiac sprue screening and a complete blood count as generally appropriate first-line routine tests in IBS. In contrast, community providers rated complete blood counts, a full chemistry panel, stool studies for white blood cells, and stool studies for parasites as consistently appropriate. Yet even the experts had extreme variation in their opinion about the appropriateness of many tests, including the need for routine colonoscopy. In short, experts were more likely than non-experts to comply with published guidelines, but both groups demonstrated variations from guidelines and internal inconsistencies in their beliefs about diagnostic testing.



Dr Ademola Adoraju, Dr Joseph Zimmerman, Dr Stephan Weinland, Dr Spencer Dorn, Dr Amanda Yunker, Dr Brennan Spiegel and Dr Douglas Drossman

Why the Disconnect?

Why do providers continue to order tests in IBS, despite data that these tests are generally low yield? That is, why is there mismatch between academic theory and clinical reality? In light of the medical-legal interface in the United States, one possibility is that some clinicians believe that diagnostic testing is a form of inoculation against litigation. But clearly this is a sub-optimal reason to pursue diagnostic testing for any reason, and data from our group and others indicate that the quality of the physician-patient relationship is among the most important determinants of how a patient fares,[8] and is likely a more important predictor of litigation than whether or not a doctor performs tests just for the sake of testing. A second possibility is the belief that even normal diagnostic tests are useful, because they can allay patient concerns about serious illness and provide reassurance. Yet we have shown that a normal colonoscopy, in particular, is not associated with reassurance or improved quality of life in young IBS patients.[9] In fact, we found a non-significant trend towards less reassurance in patients receiving a negative colonoscopy (versus no colonoscopy at all). A third possibility is that IBS patients with multiple aches and pains are sometimes misclassified as having several

underlying medical conditions, and subsequently undergo sequential diagnostic tests to chase the symptoms. In a recent study, we found a strong relationship between the amount of symptoms a patient reports and the amount of diagnostic testing they receive from their doctor.[10] Yet, when there are multiple aches and pains in a patient with IBS, it does not necessarily mean that there are many concurrent conditions. Instead, it is possible that many symptoms are related to a process called "somatization," which is the body's propensity to accentuate certain pains – something that is known to occur in functional gastrointestinal disorders like IBS. Doctors who know this may be more likely to identify the process for what it is, rather than chase down each individual symptom with yet another diagnostic test. There are treatment approaches for somatization that can be promptly started without having to perform endless testing.

Dr Drossman, Dr Spiegel, and Dr Whitehead

But perhaps the most common reason for diagnostic testing in IBS is that the Rome criteria provide a 98% – not 100% – "guarantee" that there are no underlying, lurking conditions. So no matter how strong the evidence that diagnostic testing is low yield, there is always the real (albeit small) possibility of another underlying condition. This is simply not debatable, particularly in light of evolving data that IBS patients are a mixed group with a core of so-called "pure IBS" surrounded by small sub-sets of alternative diagnoses such as celiac sprue, bacterial overgrowth, and other masqueraders. This concept is always sitting in the background, and doctors and their patients simply need to keep it in mind. At the same time, it's important to remember that underlying alterative diagnoses are very rare.

Yet despite this reality, patients and their doctors should keep in mind that time is on their side in IBS. In the absence of alarming features, the IBS masqueraders are typically chronic conditions with slowly evolving natural histories. Moreover, colon cancer is no more common in IBS patients than controls, and patients over 50 years of age should receive colorectal cancer screening regardless of IBS symptoms. Assuming there are no alarming signs or symptoms, clinicians should focus less on diagnostic testing and more on starting targeted therapy for IBS, explaining the disease paradigm of IBS in a manner that is comprehensible, addressing disease-specific fears and concerns, setting mutually acceptable treatment goals and expectations, providing multi-media educational materials (such as those offered by the IFFGD), teaching self-empowerment techniques, and screening for and treating somatization. But ultimately, patients and their doctors should use their judgment, and must reserve the right to investigate further if the IBS doesn't "follow the script," so to speak, either because of a poor response to therapy, worsening of symptoms over time despite treatment, or development of new alarming features like blood in the stool, unintended weight loss, or anemia, among others. Like most things in medicine, diagnostic testing in IBS remains a balance of art and science.

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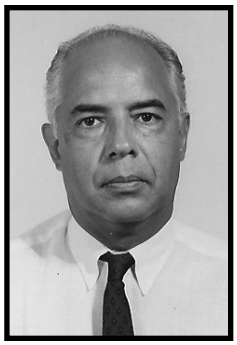
Center Visitor

Carlos F.M. Francisconi , MD
Hosp de Clinicas de Porto, Porto Alegre, BRAZIL



I am the chief of the GI Division of the Hospital de Clínicas de Porto Alegre, the university hospital of the Federal University of Rio Grande do Sul. At the moment I am also president of the Latin American Neurogastroenterology Society and member of the International Liaison Committee of the Rome Foundation. Before attending the last DDW I decided to spend 3 days in Chapel Hill visiting the University of North Carolina Center for Functional GI & Motiliy Disorders. My visit provided me the opportunity to make a reflection about my life path regarding my interest in FBD and the development of the knowledge in this particular field.

I started my GI fellowship training in Chapel Hill 25 years ago. During my medical education and training in Brazil at that time I was very much interested in the GI functional patients. The scientific framework trying to explain our patients' symptoms was a mix of psychosomatic and psychoanalytic theories very much based upon "soft" science. So it did not come exactly as a surprise the fact that during my excellent fellowship GI training, based on very hard science, that there was no room to discussing this kind of medical condition although I was lucky to have the mentorship and the role model of outstanding attendings who provided very warm and compassionate care for their patients.

In the early nineties I went back to UNC and witnessed the development of the center in its early years. I was able to observe an important academic production coming from a crowded place in the old North Carolina Memorial Hospital building. In the same period of time I had the opportunity to invite Doug Drossman to lecture in our Brazilian Congress of Gastroenterology. This was a turning point in Brazil as far the interest in the functional disorders was concerned.

During the last years my center is developing several projects in FBD: we are validating to Brazilian Portuguese language the Rome III questionnaires for Functional Dyspepsia, Health Related Quality of Life and also finalizing a randomized clinical trial on the impact of the eradication of Helicobacter pylori (Hp) in Functional Dyspepsia. As a by product of the later we are developing an important biological material bank (both serum and gastric and duodenal biopsies) to be used in future research. I had two main reasons to visit the center at this time:

- To get in contact with Douglas Morgan, with the perspective to elaborate future scientific protocols in the *Helicobactor pylori* positive population. Knowing his interest with Latin America populations I got in touch with him and I had the feeling that we have a very exciting field to share experiences and to develop collaborative research between our centers ;

- To observe a "real world" clinical practice in Doug's clinic. This was a fantastic experience and I have to thank Doug very much for allowing me to participate in his clinic daily activities. It was also interesting to watch the role of a kind of professional we do not have in Brazil: the Physician Assistant. It was fascinating to observe the quality of the relevant clinical and psychosocial data gathering by Chris Dalton and Lynn Eckert and the positive impact of their presences in relaxing and relieving the patients' behavior regarding their illness. The transcultural differences between patients' expectations, how the symptoms are reported and how they are supported by the UNC infrastructure were also very interesting to be observed.

Looking back I have important feelings that I brought from this visit to the Center: the sense of being a privileged witness of the growing of my alma mater in the FBD field – a truly world reference center- as well as the exciting possibility of sharing future research projects of the center I helped to create in my university with the University of North Carolina Center for Functional GI & Motiliy Disorders.

Visiting Scholar

Freddy Squella, MD
Gastroenterologist, Indisa Clinic, Salvador Hospital, Santiago, Chile

Increasing Ties

It was 3 and half years ago when I had my first visit to North Carolina, accompanied at that time by my wife and daughter (I now have two daughters). This time, unfortunately, my visit to UNC had to be without them. They remember, as I do, all of the beauty of this town. I've used the computer to tell them of my progress and to stay in touch with them.

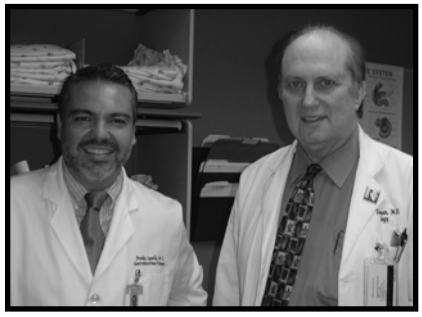
I remember my moments here at UNC with great emotion, because they mean a fundamental change in the form of medicine for me , not just the high technical level but also the human warmth. Every time I care for a patient with difficult problems, I think of all I learned during my first visit to the UNC Center for Functional GI & Motility Disorders, and I use the entire arsenal of what I have learned to treat them properly.

During my visit this June, in addition to learning more about improved management of patients with highly complex functional digestive dysfunctions in Chile, I have been working with Dr. Douglas Morgan and a multicenter team of colleagues in other countries of South America on a Rome III questionnaire translation project. Soon, we will see the first results of that work. For this translation project, I have also worked with Dr. Hector Enriqué, who has similarly been a visitor the Center, in the publication of a book on IBS treatment in an Hispanic version that will be available in libraries this year.

Through continued contacts with the UNC faculty, there arose the idea of a second visit to the Center with the objectives of: (a) further upgrading my knowledge level, (b) meeting with the research team, and (c) accelerating the Rome III Hispanic translation project. This second visit has been as exciting as the first one. I have learned about new therapeutic tools for complex IBS patients and new techniques for the examination of functional patients, such as high resolution manometry, bravo and impedance ph studies.

One of the important objectives of my visit this time was to learn more about the state of the art of biofeedback therapy. I have had the chance to observe a number of biofeedback sessions with Dr. Steve Heymen.

I also need to mention the surprising activity with Dr. Drossman in relation to the Fellows Conference that discussed non-verbal tools for communication with the patients. Likewise, it was very pleasant to share in the Digestive Diseases Division's " End of the year party" where I could meet a new group of GI faculty and fellows. It was a very nice forum to say goodbye to the Gastroenterology Fellows and to socialize with the rest of the faculty.



Dr Squella with Dr Drossman

In summary, I can say all of the objectives I had for my visit have been completed. When I return to my country, some of my purposes are:

- Lead a Functional Digestive Diseases Unit
- Develop a training program in Functional Digestive Diseases for Gastroenterology Fellows
- Develop a line of research with therapeutic biofeedback, specially focused on constipated patients with dysfunction of the pelvic floor that is really needed in Chile
- Maintain close ties with the UNC Center for FGID for future research projects.

I should highlight in this visit the great support of the whole human group at UNC and again I will take with me a beautiful memory of being here, with the hope of applying everything I have learned when I am back in my land. My sincere gratitude to everyone who made possible this a very pleasant visit, and good luck to those who may no longer be in the same place they are in now when I return in the future.

UNC Institute on Aging award

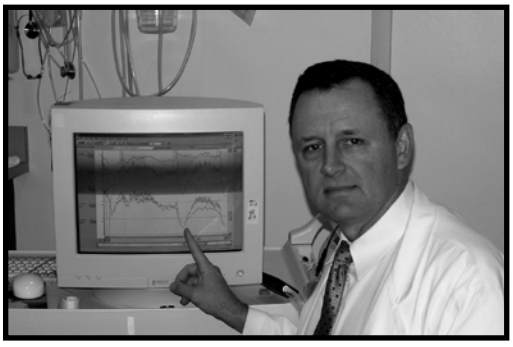
Steve Heymen, PhD
Assistant Professor of Medicine

Dr. Steve Heymen, and co-investigator Jan Busby-Whitehead, MD have been awarded a KO7 pilot grant from the UNC Institute on Aging. The primary aim of this study is to calculate the degree of risk of referral to a nursing home from an acute care hospital that is associated with Fecal Incontinence independently of other health problems. Secondary aims are to compare the risk associated with FI to that of urinary incontinence and to determine whether there are racial or ethnic disparities in referral patterns.

Fecal incontinence (FI) is often said to be a risk factor for nursing home referral. This is supported by our survey of geriatricians' statements about their likelihood of referring a hypothetical patient with or without FI to a nursing home, but data on actual referral decisions are not available. This is an important question because admission to a nursing home is very costly and has a negative impact on quality of life.

This observational, case control study will compare 60 patients discharged from the University of North Carolina Hospital to nursing homes vs. 60 controls matched by age and sex who are discharged to their own homes. Enrollment will be stratified by race to include Caucasians, African Americans, and Hispanics in a ratio of 2:1:1. All subjects will be aged 65 or older.

Methods: The hospital's medical records department will provide lists of patients for whom discharge to a nursing home is planned and lists of other patients expected to be discharged home. Research assistants will select patients from these lists and arrange to interview patients together with family members prior to discharge to identify health status, social support, and other patient characteristics likely to influence referral to a nursing home. For consenting patients, medical charts will be reviewed to abstract data on medications, comorbid illnesses, and reasons for discharge disposition. All patients/families will be surveyed by telephone 6 months later to determine the post-discharge course including nursing home admissions in the control sample.



Dr Heymen in the Biofeedback lab

Knowledge to be gained includes (1) a quantitative estimate of the role of FI in the decision to refer an elderly patient to a nursing home, (2) knowledge of racial and ethnic disparities in decisions to refer to nursing homes, and (3) identification of health status and social support variables that moderate the decision to refer patients to nursing homes, and whether this differs in minorities compared to Caucasians. This knowledge may improve the allocation of health care resources and inform efforts to try to postpone or avoid nursing home admission.

Research Subjects Needed

Causes of Symptoms Studies

Lenore Keck
(919) 966-8329

Genetic and environmental factors that cause or influence IBS. This study involves measuring the relationship between genes, the environment, and various psychological and health factors in men and women with IBS. Individuals who participate will spend one overnight visit in the Clinical and Translational Research Center at UNC Hospital. No additional visits required.

Marsha Turner, MS
(919) 962-9787

Online Study - Diarrhea Prevention (DIP) Study . TThe purpose of the study is to learn about the warning signs and triggers of diarrhea, and if bowel movements consisting of diarrhea can be predicted. The first part of this study involves filling out a diarrhea history questionnaire and other questionnaires about your GI symptoms, quality of life, and factors such as anxiety, depression and stress. This battery of questionnaires will take less than one hour to complete. The second phase of the study will involve keeping track of your bowel symptoms every day for 60 days by logging into a secure website. You will have a unique study ID and password to ensure your responses are anonymous and confidential. There are no visits to UNC required.

Miranda van Tilburg, PhD
(919) 843-0688

Role of Mitochondria in IBS. The purpose of this research study is to learn about the role mitochondria can play in Irritable Bowel Syndrome. Mitochondria are the tiny parts inside the cells of our body that make the energy that we need. Mitochondrial disorders involve the ability of the body to produce sufficient energy. The study will involve 1 phone interview, completion of 1 questionnaire and providing a saliva sample for analysis. There are no visits to UNC required.

Christina Davis
(919) 843-7892

IBS Pocket PC Study with Immodium: Need Subjects with IBS-D and IBS-M. The purpose of this research study is to learn about how bowel symptoms vary throughout the day and in response to specific stresses people encounter. It will study diarrhea-predominant and mixed IBS patients, and will also monitor how symptoms and bowel habits change in response to Immodium.

Ashley Messina
(919) 966-0147

Qualitative Analysis of Episodes of IBS. We are looking for patients with IBS to complete an online survey which allows them to answer open-ended questions regarding their personal symptom experience. By examining these reports, we hope to gain a better understanding of how patient symptoms change over the course of an episode and to identify any patterns in symptom experience.

Kim Meyer
(919) 966-8328

Biomarker Study. Looking for men and women aged 18-70 for a study looking for the discovery of biomarkers associated with IBS. Patients must be officially diagnosed with IBS, have active IBS symptoms for at least 2 days per week in the last 4 weeks, and have no other health issues.

Ashley Messina
(919) 966-0147

IBS Partner Study: Postal Survey. The purpose of the research study is to learn how your Irritable Bowel Syndrome has affected your partner/spouse. We all know that when we are ill, this can have an effect on the people we live with, and we know from patients, that IBS very often affects relationship with their significant other. Interestingly, this has never been studied, and our study aims to specificially explore the effects of the symptoms of IBS on the relationship between you and your spouse or partner, and the various factors that contribute to this dynamic interaction. There are no visits to UNC required.

Research Subjects Needed

Treatment Studies

Christina Davis (919) 843-7892	*Need Men and Women with IBS and Chronic Functional Abdominal Pain*. The purpose of this research study is to try to improve functional bowel disorder symptoms with a combination of Seroquel and anti-depressant medication. Seroquel is an FDA-approved medication that is currently on the market and used in the GI clinic.
Tina Harrelson, RN (919) 843-9755	*Treatment of Fecal Incontinence.* The purpose of this study is to determine if a medical and behavioral treatment program for fecal incontinence needs any changes to make it more effective and easier to use. This treatment has already been used successfully in a previous NIH study.
Albena Halpert, MD www.bmc.org/ibs	*Writing and IBS*. Boston University School of Medicine is doing an online survey about writing and Irritable Bowel Syndrome. For more information, see www.bmc.org/ibs
Jane Tucker, RN (919) 843-4906	*Lubiprostone Effects on Visceral Pain Sensitivity.* Clinical trials of Lubiprostone have shown that this medication decreases clinical pain associated with IBS. This study is to determine how this medication works to decrease pain. It is predicted that it works by decreasing pain sensitivity.
Becky Coble (919) 966-8586	*Mindfulness for Women with IBS.* This study compares the effects of two group treatments for IBS. The first group, a support group, will center on sharing information about successful strategies for coping with and reducing symptoms of IBS. The second, the mindfulness group, combines gentle yoga with a meditation technique. Both programs have shown promise for helping people with long-standing illnesses.
Kim Meyer (919) 966-8328	*Need men and women with IBS.* The purpose of this research study is to provide relief from abdominal pain and discomfort.
Kim Meyer (919) 966-8328	*Need men and women with constipation predominant IBS.* The purpose of this research study is to determine the efficacy of an investigational medication on constipation predominant IBS.
Christina Davis (919) 843-7892	*Narcotic Bowel Syndrome (NBS):* Clinical Features and Prognostic Factors. The purposeof this research study is to characterize the nature of the NBS population and the response to treatment (i.e., detoxification). With a rising prevalence of narcotic use, the number of patients with NBS is expected to increase. A thorough recognition of this syndrome is essential for establishing the optimal therapuetic strategy. This is an observational study consisting of four sets of questionnaires (pre-treatment, post-treatment, 3- and 6-month followups). Research subjects will be compensated $25 for each completed set of questionnaires, for a total of up to $100.
Ashley Messina (919) 966-0147	*An Open Label Study of Seroquel SR® (Quetiapine) for the Treatment of Refractory and Treatment Resistant Functional Bowel Disorders.* The purpose of this study is to determine if the addition of Seroquel® over and above the use of an antidepressant improves clinical response in patients with moderate to severe painful Functional Bowel Disorders. Seroquel® is a psychotropic agent which is approved in doses of 600-800mg by the FDA to treat symptoms of psychotic conditions. However, in this study we are using a low dose (50-100mg) of Seroquel® to reduce abdominal pain and anxiety, improve sleep, and enhance antidepressant effect on painful Functional Bowel Disorders. The study duration is 12 weeks, and subjects are expected to maintain their current antidepressant therapy as well as take Seroquel® once a day for 8 weeks. The study involves 7 visits to UNC Hospitals and compensation totals $350.00.

DDW 2009

Digestive Disease Week
Turning Science into Medicine
May 30-June 4, 2009
McCormick Place, Chicago, Illinois

DDW is the premier research and clinical forum for scientists and clinicians within digestive diseases which includes gastroenterology, liver disease and gastrointestinal surgery. The American Gastroenterology Association (AGA) is the group responsible for the gastroenterologists. The AGA has designated 12 research sections that include functional GI and motility (Neurogastroenterology), Esophageal Diseases, Clinical practice, Inflammatory Bowel Disease, and others. The program is developed annually by the section chairs and co-chairs with the help of section councilors who are elected by the membership. We are fortunate that the UNC Center co-directors have been involved in this process. Dr. Drossman was the Neurgastroenterology co-chair and chair between 2001 and 2006 and Dr. Whitehead is the Neurogastroenterology Councillor for 2006 through 2011. Thus our Center is playing an important role that is spanning this decade in developing the programs that focus on research and education in the FGIDs.

Saturday, May 30, 2009:

Oral Sessions: Postgraduate Course/ Special Sessions

AGA Institute Postgraduate Course General Session
Symposia Title: **Preventing Death from Gastrointestinal Malignancy**
Introduction: *Nicholas J. Shaheen*

Symposia Title: **The Endoscopist's Corner: Ablative Therapy in Barrett's Esophagus: Which Methods and Sp39 Which Patients?**
Presenter: *Nicholas J. Shaheen*

Sunday, May 31, 2009

Oral Sessions: Postgraduate Course/ Special Sessions

AGA Institute Postgraduate Course General Session
Session: **Functional Bowel Disease**
Chair: *Douglas A. Drossman*
Moderator's Summary: *Douglas A. Drossman*

Oral Sessions: Scientific Sessions

AGA Institute Focused Clinical Update Discussions
Symposia Title: **Constipation, Pelvic Floor Dysfunction and Anorectal Motility Disorders**
Presenter: *William E. Whitehead*

AGA Institute Distinguished Abstract Plenary
Symposia Title: **RCT Results of a Family-Based Intervention for Children with Chronic Abdominal Pain**
Presenters: Rona L. Levy, *William E. Whitehead*, Lynn S. Walker, Shelby L. Langer, Joan Romano, Dennis L. Christie, Nader N. Youssef, Andrew D. Feld, Robert W. Jeffery, Sheri A. Ballard, Melissa M. DuPen, Melissa J. Coffey, Melissa Young, Annette Langseder

AGA Institute Topic Forum: Health Sciences Research
Symposia Title: **The Effect of Direct to Consumer Advertisement and Physician Promotion of Tegaserod (Zelnorm) On Physician Visits, Diagnoses, and Prescriptions for Irritable Bowel Syndrome and Constipation**
Presenters: ***Spencer D. Dorn,*** Joel F. Farley, Richard A. Hansen, Nilay Shah, **Robert S. Sandler**

AGA Institute Research Forum: Celiac Disease; Clinical
Symposia Title: **Psychological Factors Are More Important Than Disease Activity in Determining Health Status in Celiac Disease**
Presenters: *Spencer D. Dorn,* Lincoln Hernandez, Maria T. Minaya, *Carolyn B. Morris, Yuming J. Hu, Jane Leserman,* Suzanne K.,Lewis, *Shrikant I. Bangdiwala,* Peter H. Green, *Douglas A. Drossman*

AGA Institute Research Forum: Epigenetics of GI Cancers
Symposia Title: **Gene Expression Profiling Identifies Loss of Fhit Expression Due to Epigenetic Silencing As a Frequent Event in African American (AA) Patients with Colorectal Cancer (CRC)**
Presenters: Ajay Goel, Thuy-Phuong T. Nguyen, Alexander Link, Takeshi Nagasaka, Minoru Koi, Wen Sui, Xiang Jun Shen, Norman E. Sharpless, Joseph A. Galanko, Robert S. Sandler, *Temitope O. Keku,* C. R. Boland

Monday, June 1, 2009

Oral Sessions: Scientific Sessions

AGA Institute Research Forum
Symposia Title: **What Is the Efficacy of High-Dose Acid Suppression in Chronic Cough?: A Randomized, Double-Blind, Placebo-Controlled Trial**
Presenters: *Nicholas J. Shaheen,* Stephanie D. Bright, *Ryan D. Madanick,* Robert A. Buckmire, Marion E. Couch, Evan S. Dellon, Joseph Galanko, Virginia Sharpless, *Douglas Morgan,* Elizabeth E. Carretta, Melissa Spacek, *Paris Heidt,* David C. Henke

DDW 2009

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2009 PRESIDENTIAL PLENARY: CRUCIAL QUESTIONS FOR GASTROENTEROLOGY IN 2009

Endoscopic Ablation in Barrett's: Who Needs It, and What Weapon? *Nicholas J. Shaheen*

ORAL SESSIONS—SCIENTIFIC SESSIONS

DDW Meet-the-Professor Luncheons
Endoscopic Prevention of Esophageal Adenocarcinoma; *Nicholas J. Shaheen*, Julian A. Abrams

MULTIMODALITY DETECTION AND MANAGEMENT OF BARRETT'S AND DYSPLASIA

DDW Combined Clinical Symposium
Burning Barrett's Mucosa, What Can Be Achieved; *Nicholas J. Shaheen*

Tuesday June 2, 2009

ORAL SESSIONS—SCIENTIFIC SESSIONS

The Rome Foundation/AGA Institute Lectureship
Chairs: Lin Chang, *Douglas A. Drossman*
MOTILITY ASSESSMENTS FOR FUNCTIONAL GI DISORDERS: HOW FAR DOES IT GET US?

AGA Institute Research Forum
INTESTINAL MICROBIOTA
Symposia Title: **The Role of the Intestinal Microbiota in Colonic Barrier Dysfunction Induced By Neonatal Stress**
Presenters: Adam J. Moeser*, Anthony T. Blikslager, Susan L. Tonkonogy, *Temitope O. Keku*

AGA Institute Clinical Symposium
Chairs: John E. Pandolfino, *Nicholas J. Shaheen*
CLINICAL CHALLENGES IN UGI DISORDERS

AGA Institute Research Forum
FUNCTIONAL GI DISORDERS: PSYCHOSOCIAL AND PSYCHOTHERAPY
Symposia Title: **Chronic Abdominal Pain Predicts Suicidality in Adolescents Independent of Depression**
Presenters: *Miranda A. Van Tilburg*, Naomi J. Spence, David Goldston, *William E. Whitehead*

Symposia Title: **A History of Sexual Abuse and Catastrophizing Have An Impact On IBS Symptom Severity That Is Unrelated to Psychological Distress**
Presenters: Motoyori Kanazawa*, *Olafur S. Palsson, Miranda A. Van Tilburg, Marsha J. Turner,* Syed Ismail, M. Thiwan, Lisa M. Gangarosa, Denesh K. Chitkara, Shin Fukudo, *Douglas A. Drossman, William E. Whitehead*

AGA Institute Research Forum
Chairs: Andrew T. Chan, *Temitope O. Keku*
GENETIC SUSCEPTIBILITY AND POLYMORPHISMS IN GI CANCERS
AGA Institute Translational Symposium
MULTIMODALITY APPROACH TO DETECTION AND INTERVENTION IN BARRETT'S ESOPHAGUS
Endoscopic Intervention in Barrett's Esophagus; *Nicholas J. Shaheen*

AGA Institute Distinguished Abstract Plenary
Chairs: Philip S. Schoenfeld, *Nicholas J. Shaheen*
CLINICAL PRACTICE DISTINGUISHED ABSTRACT PLENARY

ASGE Topic Forum
DEEP ENTEROSCOPY: OUTCOMES AND THERAPEUTICS
Symposia Title: **Spiral Enteroscopy: Prospective Multicenter U.S. Trial in Patients with Small Bowel Disorders**
Presenters: *Douglas Morgan,* Bennie R. Upchurch, Peter V. Draganov, Kenneth F. Binmoeller, Oleh Haluszka, Sreenivasa S. Jonnalagadda, Patrick I. Okolo III, Ian S. Grimm, Michael V. Chiorean

Wednesday, June 3rd, 2009

ORAL SESSIONS—SCIENTIFIC SESSIONS

AGA Institute Topic Forum
PEDIATRIC FUNCTIONAL AND MOTILITY DISORDERS
Symposia Title: **Feasibility and Efficacy of Pilot Study Investigating a School Nurse Administered Guided Imagery Program for Childhood Functional Abdominal Pain**
Presenters: Nader N. Youssef, *Miranda A. Van Tilburg,* Elias N. Matta, Annette Langseder, *William E. Whitehead*

AGA Institute Research Forum
BARRETT'S ESOPHAGUS: DIAGNOSIS AND MANAGEMENT: METAPLASIA TO DYSPLASIA TO CANCER
Symposia Title: **The Use of FISH in a Multi-Center Blinded Study to Predict Development of Neoplasia in Barrett's Esophagus**
Presenters: Kenneth K. Wang*, Emily Barr Fritcher, Kevin C. Halling, Mark A. Nelson, Achyut K. Bhattacharyya, Yingye Zheng, Jessie Gu, *Nicholas J. Shaheen,* Marcia I. Canto, Jean S. Wang, Herbert C. Wolfsen, Lori S. Lutzke, Yvonne Romero, Stephen J. Meltzer, Ivan Y. Ding, Richard E. Sampliner

DDW 2009

AGA Institute Research Forum
FUNCTIONAL GASTROINTESTINAL DISORDERS: EPIDEMIOLOGY AND SYMPTOMS
Symposia Title: **Reduced Symptoms and Visceral Sensitivity Is Related to Menstrual Cycle Changes in IBS**
Presenters: *Miranda A. Van Tilburg*, Marsha J. Turner, Olafur S. Palsson,* Motoyori Kanazawa, *William E. Whitehead*

AGA Institute Topic Forum
PREBIOTICS AND PROBIOTICS
Symposia Title: **Clinical and Physiological Effects of Yogurt Drink Containing the Probiotic Bacteria Bifidobacterium lactis Bb12 and Prebiotic Inulin in Subjects with Functional Bowel Symptoms.**
Presenters: Tamar Ringel-Kulka*, *Olafur S. Palsson,* Joseph Galanko, Danielle M. Maier, Yehuda . Ringel

POSTER SESSIONS—CLINICAL

AGA Institute Poster Session
DYSPEPSIA
Symposia Title: **Acupuncture Therapy Improves Bloating in Functional Dyspepsia Patients: A Randomized Controlled Trial of Sham vs. Real Acupuncture**
Presenters: *Reuben K. Wong,* Sheng Quan Fang, Tat Leang Lee, Khek Yu Ho

AGA Institute Poster Session
IBS, CONSTIPATION AND OTHER FUNCTIONAL/ MOTILITY DISORDERS OF THE COLON
Symposia Title: **Substance P and Its Mucosal Receptors-Possible Mediators of Inflammation and Noxious Sensation in Irritable Bowel Syndrome**
Presenters; Yehuda Ringel*, Ian M. Carroll, *Olafur S. Palsson,* R. Balfour Sartor

POSTER SESSIONS—COMBINED

AGA Institute Poster Session
EOSINOPHILIC ESOPHAGITIS AND GASTROENTERITIS
Symposia Title: **Esophageal Dilation in Eosinophilic Esophagitis: Safety and Predictors of Clinical Response and Complications**
Presenters: Evan S. Dellon*, Wood B. Gibbs, Tara C. Rubinas, Karen J. Fritchie, John T. Woosley, *Nicholas J. Shaheen*

AGA Institute Poster Session
FUNCTIONAL GASTROINTESTINAL DISORDERS: EPIDEMIOLOGY AND SYMPTOMS
Symposia Title: **Defining Episodes of Diarrhea in Irritable Bowel Syndrome (IBS)**
Presenters*: Olafur S. Palsson*, Marsha J. Turner,* Jeffrey S. Baggish, *William E. Whitehead*

DDW Posters

IBS Patients Show Parasympathetic Dominance in Heart Rate Variability Compared to Healthy Controls

Chloé E. Hill, Olafur S. Palsson, Motoyori Kanazawa, Marsha J. Turner, William E. Whitehead

Background and Aims: Previous studies of heart rate variability (HRV) found differences between patients with irritable bowel syndrome (IBS) and healthy controls suggesting parasympathetic dominance in IBS. Altered autonomic activation may explain differences in gastrointestinal motility or pain sensitivity. Our aims were (1) to replicate findings of greater parasympathetic drive in IBS, and (2) to assess the correlation of HRV to pain threshold and motility measured by the barostat technique.

Methods: Autonomic measurements were collected from 129 IBS patients meeting Rome III criteria (30 IBS-C, 43 IBS-D, 45 IBS-A, 11 IBS-U) and 25 healthy controls during rest, pain testing, sustained rectal distention, and following a high-fat meal. HRV was calculated by frequency domain analysis of 15-minute EKG segments obtained during each condition. Low frequency (LF) and high frequency (HF) bands were analyzed to assess sympathetic and parasympathetic activity, respectively, and the LF/HF ratio was calculated.

Results: Between-subject comparisons — (1) There were no differences in HRV between IBS patients and controls at rest, but IBS patients showed more HF power (parasympathetic activation) and less LF power (sympathetic activation) following the meal (both $p<0.01$). The LF/HF ratio was also less in IBS during sustained intraluminal distention compared to controls ($p<0.01$). (2) There were no differences between IBS-C and IBS-D for any condition. Within-subject comparisons - (3) Each stimulation condition- visceral pain, sustained distention, and eating- significantly increased LF power for both IBS patients and controls, but there were no differences between groups in reactivity to these stimuli. (4) IBS-C patients showed an increase in LF power in response to painful as well as non-painful distention that was not seen in IBS-D ($p<0.01$). Relation of HRV to pain sensitivity and motility - (5) Pain threshold correlated $r= -0.23$ ($p<0.03$) with LF power during sustained distention in IBS patients. (6) Postprandial motility correlated $r= 0.18$ ($p<0.05$) with postprandial LF power in IBS patients). (7) Postprandial change in barostat volume correlated $r=0.49$ ($p<0.02$) to postprandial LF/HF ratio in controls.

Conclusions: These data confirm that IBS patients show greater parasympathetic activation than controls in response to provocative stimuli, and extend these observations by showing greater sympathetic activation in IBS-C compared to IBS-D. Correlations of HRV with pain threshold, phasic motility, and smooth muscle tone are statistically significant but weak. [Supported by R01 DK31369, R24 DK067674, RR00046, and U54RR024383]

DDW Posters

Survey of Geriatricians On the Impact of Fecal Incontinence On Nursing Home Referral

Madhusudan Grover, Jan Busby-Whitehead, Mary H. Palmer, Steve Heymen, Olafur S. Palsson, Patricia S. Goode, Marsha J. Turner, William E. Whitehead

Background: Fecal incontinence (FI) and urinary incontinence (UI) are often said to be a leading cause of nursing home (NH) admission second only to dementia. However, there is little direct evidence for this statement.

Aims: 1) To determine the role of FI, alone and in combination with other patient characteristics, in the health care provider's decision to refer to NH; 2) To compare the impact of FI to UI.

Methods: 2000 geriatricians and other health care providers from the membership of American Geriatric Society frequently involved in the decision to refer an elderly patient to a NH or skilled care facility were invited to participate in the survey. The survey presented providers with a clinical scenario of a 70 year old woman ready for discharge from an acute care hospital and asked them to rate the likelihood of referral to a NH (a) in the absence of incontinence, (b) with addition of UI alone, and (c) with addition of FI. Subsequent questions modified the clinical situation to include other conditions (cognitive decline, mobility restrictions and >2 medical comorbidities) that might affect the decision to refer. The survey was conducted through e-mail and paper questionnaires, and respondents were paid $10 for completion. Significance of differences between scenarios in the relative risk (RR) of referring to NH were tested by Wilcoxon tests.

Results: 716 providers completed the survey (33% response rate). There was broad representation of providers across age groups, sex, years in practice, private vs. academic, and urban vs. rural and suburban practice settings. Only 15% were trainees. In the base clinical scenario, the likelihood of referring to NH was increased by both UI (RR=1.90, $p<0.001$) and FI (RR=4.71, $p<0.001$); however, the RR was higher in the presence of FI compared to UI alone (RR=2.48, $p<0.001$). In the absence of UI or FI, the likelihood of referral to NH was increased by the presence of mobility restrictions (RR=18.58, $p<0.001$), cognitive decline (RR=11.16, $p<0.001$), and multiple medical comorbidities (RR=4.32, $p<0.001$), but in all clinical scenarios, both UI and FI significantly increased the likelihood of NH referral ($p<0.001$ for all), and FI increased the NH referral rate more than UI ($p<0.001$ for all).

Conclusions: (1) FI, either alone or in combination with other health conditions such as cognitive impairment, mobility limitations, and presence of >2 medical comorbidities significantly increases the probability that geriatricians will refer to a NH; (2) FI confers a stronger relative risk of NH referral than does UI. [Supported by grant R24 DK067674 and the UNC Chapel Hill Investments for the Future Initiative]

Defining Episodes of Diarrhea in Irritable Bowel Syndrome (IBS)

Olafur S. Palsson, Marsha J. Turner, Jeffrey S. Baggish, William E. Whitehead

Background/Aims: IBS is characterized by intermittent episodes of diarrhea (D) and/or constipation (C), but there is no consensus on how to define episodes of D and C or whether they have a characteristic length and periodicity. The aims of this study were to identify criteria for the initiation and termination of episodes of D by examining sequential bowel movements, and to describe characteristics of episodes of D.

Methods: In an ongoing diary study, IBS patients (Rome III criteria plus physician diagnosis) describe every bowel movement (BM) in a pocket-sized diary by indicating whether they are having diarrhea and rating stool consistency on the Bristol Stool Scale. Each night, subjects transfer these BM ratings to a secure website. Two alternative definitions of a diarrhea BM (DBM) were compared: Definition A - the subject described the BM as D on the diary, and Definition B - stool consistency was rated 6 or 7 (mushy or watery). To identify starting and stopping rules for D-episodes, we calculated the proportion of all DBMs by each definition that were separated by different numbers of non-DBMs. After selecting rules for defining D-episodes, we assessed the median duration and other characteristics of D-episodes in IBS-D and IBS-M subjects.

Results: Data are reported for the first 94 patients (mean age 35.1 years; 88.3% females; 30.9% IBS-D, 56.4% IBS-M, 12.8% IBS-C) to complete at least 21 consecutive days of diary recordings (mean 43.4 days, range 23-76 days). In 74 subjects with at least 4 DBMs, 45% of self-described DBMs (Definition A) immediately followed another DBM, and 4% were separated from a DBM by no more than one normal BM; after this the median proportion fell to 0. For Definition B, 49% of DBMs immediately followed another DBM and 4% were separated from a DBM by no more than one normal BM. The concordance between Definitions A and B was >70%. The median duration of an episode of diarrhea was 5 BMs (2 days) by both definitions: For Definition A, 19.8% had =1 episode of =10 BMs duration; by Definition B, 16.0% had =1 episode of =10 BMs. Only 15% of self-defined BMs occurred outside episodes defined as above. There was no detectable periodicity to D-episodes.

Conclusions: Most (85%) DBMs occur in episodes of 2 or more consecutive BMs. A D-episode may be defined as a sequence of DBMs separated by no more than one non-DBM. Self-reported DBMs and Bristol ratings of 6 or 7 yield approximately equivalent numbers and characteristics of D-episodes. For increased precision, consecutive BMs rather than consecutive days are recommended for defining Depisodes in therapeutic trials. [Supported by McNeil Consumer Healthcare and R24 DK067674]

DDW Posters

Characterizing Diarrhea in Irritable Bowel Syndrome (IBS)

Olafur S. Palsson, Marsha J. Turner, Jeffrey S. Baggish, William E. Whitehead

Background/Aims: Many IBS patients report diarrhea, but the nature and associated features of this clinical symptom are poorly understood. This study aimed to describe the characteristics of patient-perceived diarrhea in IBS.

Methods: In an ongoing diary study of 200 IBS patients (Rome III criteria plus physician diagnosis and no daily IBS medications), subjects track every bowel movement (BM) for 90 days in a pocket-sized diary. They indicate for each BM whether they are having diarrhea, rate stool consistency on the Bristol Stool Scale and report (yes/no) any associated symptoms of urgency, pain/discomfort, or fecal incontinence. Each night, subjects transfer these BM ratings to a secure website, where they also rate (0-10 scale) their global 24-hour symptoms of abdominal pain, bloating, stress, dissatisfaction with BMs, and life interference from bowel symptoms. Data are reported here for the first 94 patients to complete at least 21 consecutive days of diary recordings (mean 43.4 days, range 23-76 days). These subjects were aged 19-61; mean age 35.1 years; 88.3% females; 30.9% IBS-D, 56.4% IBS-M, 12.8% IBS-C. For analysis purposes, diarrhea was any BM rated as diarrhea by patients.

Results: Overall, 21.2% of BMs were identified by patients as diarrhea. Seven patients (7.4%) had no diarrhea. One or more diarrhea BMs occurred on 21% of days on average. IBS-D and IBS-M patients did not differ significantly in diarrhea frequency (27.4 vs. 21.0 % of BMs, 22.1 vs. 26.9% of days) but IBS-C patients had significantly ($p<0.001$) less diarrhea than the other subtypes (7.4% of BMs, 6.0% of days). 72.3% of BMs self-described as diarrhea were rated by subjects as either 6 ("fluffy pieces with ragged edges, a mushy stool") or 7 ("watery, no solid pieces") on the Bristol scale. Conversely, 71.4% of BMs with a stool consistency of 6 or 7 were called diarrhea. Urgency was reported in 83.6% of diarrhea BMs, pain or discomfort in 78.4%, and soiling or accidental stool loss in 7.8%. Days with =1 diarrhea BM had higher average BM frequency (2.7 vs. 1.5 BMs), greater abdominal pain severity (4.96 vs. 2.81), bloating (4.57 vs. 3.43), dissatisfaction with bowel habits (5.85 vs. 3.65), life interference from symptoms (4.60 vs. 2.25) and life stress (3.92 vs. 3.32), all significant at $p<0.001$.

Conclusions: Patient-defined diarrhea occurs in one-fifth of both days and BMs in IBS. There is over 70% agreement between self-defined diarrhea and Bristol Stool ratings. Diarrhea BMs are generally accompanied by urgency and pain or discomfort. Days with diarrhea have an associated increase in other IBS symptoms and stress.

[Supported by McNeil Consumer Healthcare and R24 DK067674]

The Rome III Functional Constipation Criteria Miss 80% of Clinical Constipation Cases

Olafur S. Palsson, Marsha J. Turner, Rona L. Levy, Andrew D. Feld, Michael Von Korff, William E. Whitehead

Background and Aims: Rome III criteria for functional constipation (FC) require 2 of 6 constipation symptoms plus no loose stools without laxatives in patients who do not meet criteria for irritable bowel syndrome (IBS). It is unknown how well clinical diagnosis of constipation made in general healthcare practice matches the Rome III criteria for FC.

Methods: Adult members of a U.S. health maintenance organization who had at least one clinic visit resulting in a clinical diagnosis of constipation (ICD-9 code 564.0X) in a 4-month period completed a mail survey. Health care utilization in the past year and selected diagnoses in the 5 years prior to enrollment and one year after enrollment were obtained from the electronic medical record.

Results: 676 patients with clinical diagnoses of constipation completed the survey (62% response rate). Excluded from analysis were 67 subjects with IBS and 59 with organic diseases in their record that could explain constipation, leaving 550 cases (mean age 66.4 years, range 18-99 years; 66.7% female). Only 20.0% (n=109) met Rome III FC criteria, but 46.9% met Rome III IBS criteria (19.8% IBS-C, 22.6% IBS-M, 2.6% IBS-D, 1.1% IBS-U). Patients with a clinical diagnosis of constipation who did not meet Rome III FC criteria (Rome-) were clinically indistinguishable from those who did: 89.5% of Rome- patients reported having had trouble with (self-defined) constipation vs. 94.4% of Rome+ patients; 47.3% of Rome- patients reported having a constipation episode within the past 2 weeks vs. 51.0% of Rome+ patients; and Rome- patients averaged 2.0 outpatient visits for gastrointestinal complaints in the past year compared to 1.8 visits for Rome+ patients. In a sensitivity analysis, when absence of loose stools was eliminated from the Rome criteria, the, proportion of the clinical constipation sample meeting the modified Rome FC criteria rose from 20.0% to 33.5%, and when exclusion of IBS was also not required, the correspondence with clinically diagnosed constipation more than doubled to 75.8%.

Conclusions: The Rome III FC criteria fail to capture 4 out of every 5 patients diagnosed with constipation by clinicians. Clinician use of constipation diagnosis seems to differ from the Rome III system by neither requiring the absence of loose stools nor excluding IBS, causing very low correspondence with the Rome III system. These results indicate that broadening of the Rome criteria for FC may be needed in order to match clinical practice.

[Supported by Novartis Pharmaceuticals and R24 DK067674]

DDW Posters

Episodes of Irritable Bowel Syndrome - A Quantitative Examination of IBS-D, C & M Symptoms Using Ecological Momentary Assessment

Stephan R. Weinland, Carolyn B. Morris, Yuming J. Hu, Shrikant I. Bangdiwala, Jane Leserman, Christine B. Dalton, Douglas A. Drossman

Background - Patients with IBS frequently report that their symptoms occur in discrete periods of exacerbation and amelioration over time. These 'episodes' of IBS are difficult to assess because of issues relating to recall bias particularly when using diary cards.

Methods - Using ecological momentary assessment (EMA), a method of time specific assessment using repeated measures, we examined symptoms related to 'episodes' of IBS in a physician diagnosed patient population. Forty six patients, diagnosed with IBS-D (N = 16), IBS-C (N=18), or IBS-M (N=12) rated their symptoms at three random times during the day (morning, midday, evening) as well as four event driven times (wake up, bedtime, pre bowel movement and post bowel movement) for a period of 14 days. Each symptom rating also asked the question "Are you currently experiencing an episode of your IBS?" Symptom ratings were sorted by time highlighting chains of responses where patients endorsed having an 'episode'. Symptoms were rated using a scale from 0 (none) to 10 (severe).

Results - Overall, 93% (n= 43/46) of subjects reported experiencing discrete episodes of symptom exacerbations during the two week observations with only one subject in each group not reporting any 'episodes' of IBS (6.5%, n=3/46). Of 4311 ratings collected, 1572 (36.5%) were rated by patients as being indicative of a rating during an episode of IBS. During an episode, subjects reported significantly higher levels of pain ('y'=3.67 vs. 'n'=1.53, p<.0001), bloating ('y' = 4.42 vs. 'n' = 2.55, p<.0001), stress ('y' = 3.54 vs. 'n' = 2.44, p<.0001) and significantly decreased global well being ('y' = 5.63 vs. 'n'=6.47, p<.0001). Differences between IBS subtypes in symptom experiences during episodes were noted. Mean number of 'episodes' for IBS-D = 9.7, IBS-C = 8.9, IBS-M = 5.9 during the two week period. Subjects with IBS-D had the shortest episodes (9hrs 18mins), followed by IBS-C (15hrs 57mins) and IBS-M (17hrs 48mins).

Conclusion - We report the characterization of 'episodes' of IBS which may be useful in designing treatment trials and assessing treatment efficacy. The findings indicate that episodes occur frequently (6-10 times/2 weeks) and are associated with higher symptom scores. Also there are similarities and differences between subtypes of IBS.

Supported by the NIH Biopsychosocial Research Center Grant R24DK067674 (Whitehead/Drossman) and by Takeda Pharmaceuticals.

Pain and Bloating Symptoms Decrease After Bowel Movements in IBS: A Reaffirmation of ROME Criteria

Stephan R. Weinland, Carolyn B. Morris, Yuming J. Hu, Jane Leserman, Shrikant I. Bangdiwala, Christine B. Dalton, Douglas A. Drossman

Background and Aim - Rome III criteria for Irritable Bowel Syndrome (IBS) requires the presence of abdominal pain or discomfort associated with either improvement with defecation, change in stool frequency or change in stool form. These criteria have undergone relatively little validation using patient data. We attempted to examine the components of the IBS criteria utilizing Ecological Momentary Assessment (EMA) in a population of 46 patients physician diagnosed with Irritable Bowel Syndrome.

Methods - Participants completed event driven ratings of symptoms pre and post bowel movement (BM) for every BM over the course of a two week observation period. Additionally, subjects completed symptom evaluations at three random periods across the day, as well as wake up and bed time ratings. Average daily ratings were compared to pre BM ratings, and pre BM ratings were compared to post BM ratings to look for changes in abdominal discomfort and stool consistency. Differences were also examined between diagnostic categories of IBS D, C and M. Symptom ratings were based on a scale from 0 (none) to 10 (severe) Results - Average daily pain values were significantly lower than Pre BM pain ratings, and post BM ratings of pain were also significantly reduced from pre BM ratings. (Avg Daily Pain = 1.9 vs. Pre-BM Pain = 2.9, p<.0001, Pre-BM Pain = 2.9 vs. Post-BM Pain = 2.1, p<.0001). Bloating scores evidenced a similar pattern with average daily bloating score being significantly reduced from pre BM bloating scores, and post BM bloating scores being significantly reduced from pre-BM bloating scores. (Avg Daily Bloating = 2.8 vs. Pre BM Bloating=3.7, p<.0001, Pre BM Bloating = 3.7 vs. Post BM Bloating = 2.8, p<.0001). No significant differences between IBS D,C or M groups were noted on symptoms of pain or bloating between average and pre BM ratings or across pre to post BM.

Conclusion - These findings highlight that improvement in pain and bloating symptoms is observed across BM in patients diagnosed with IBS - and they support validation of the Rome III criteria for Irritable Bowel Syndrome.

Research was supported by the NIH Biopsychosocial Research Center Grant R24DK067674 (Whitehead/Drossman) and by Takeda Pharmaceuticals.

DDW Posters

Patient Symptom Experiences with IBS-M Are Closer to Those of Patients with IBS-C Than to Those of Patients with IBS-D

Stephan R. Weinland, Carolyn B. Morris, Yuming J. Hu, Jane Leserman, Christine B. Dalton, Douglas A. Drossman

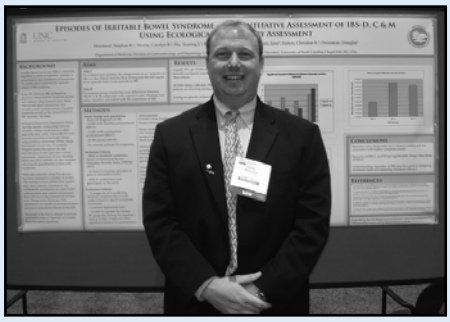
Background - Drossman et al. (Gastroenterology 2007) previously reported that patients frequently transition between IBSM and C categories over the course of one year, thus indicating a close relationship between these two IBS subtypes relative to IBS-D.

Aim - This study utilizes ecological momentary assessment (EMA) in an effort to quantify gastrointestinal symptoms using repeated measures assessed over a two week period. Methods - A total of 46 subjects diagnosed by physicians with IBS D,C or M contributed a total of 4349 ratings of abdominal pain, bloating, stool consistency (Bristol Stool Scale - BSS), straining at bowel movement, urgency at bowel movement, rectal fullness, stress and well being over a two week period using a pocket pc based data collection system.

Results - Participants diagnosed with IBS-M and IBS-C did not differ significantly on any variable except for BSS where subjects with IBS-C reported more constipated stools, Mean BSS (IBSC = 3.42 vs. IBS-M = 4.01, p<.03). This contrasts with significant differences seen between the IBS-D and M groups on variables of pain and bloating where the IBS-M and C groups displayed significantly more severe symptoms on each variable assessed (Scale 0=none, 10=severe): Average Pain (M = 3.1 vs. D=1.67; p<.01, M=3.1 vs. C=2.5, p<.43), Average Bloating (M =4.2 vs. D=2.2; p<.002, M = 4.2 vs. C=3.79, p<.75). Furthermore, when asked what symptoms constituted an 'episode' of IBS, subjects with IBS-M and C highlighted bloating as a prominent symptom at levels significantly higher than seen in IBS-D. During an episode: Bloating (M =5.7, C = 4.8, D = 2.7; p<.0001).

Conclusions - These findings support our earlier work indicating that IBS-M symptoms may be more closely related to IBS-C than to IBS-D. Pharmaceutical treatments for IBS-C may therefore also be applicable to treatment of IBS-M more so than for treatment of symptoms of IBS-D.

Supported by the NIH Biopsychosocial Research Center Grant R24DK067674 (Whitehead/Drossman) and by Takeda Pharmaceuticals.



Dr Stephan Weinland at DDW 2009

Are Functional Constipation (FC) and Constipation Subtype Irritable Bowel Syndrome (IBS-C) Different Entities When Diagnosed By ROME III Criteria?

Reuben K. Wong, Olafur S. Palsson, Marsha J. Turner, Rona L. Levy, Andrew D. Feld, Michael Von Korff, William E. Whitehead

Background and Aims: It is controversial whether FC and IBS-C are distinct diagnoses, as required by the Rome III criteria. We tested this in two ways: by examining the overlap between FC and IBS-C, and by examining whether patients switch between these diagnoses over 12 months. If these are distinct disorders, one would expect that over time, subjects would either recover or retain their original diagnosis.

Methods: Adult members of a US Health Maintenance Organization completed a mail survey, including the Rome III criteria for IBS and FC 12 months apart.

Results: 1615 patients completed the survey. Respondents (mean age 66 years, 68% females), included 12.4% (201) who met the Rome III diagnostic criteria for IBS-C and 14.5% (231) who met criteria for FC. At enrollment, 97.5% of IBS-C patients met the criteria for FC, and if the criteria were modified to allow for overlap, 45.9% of all FC patients (n=427) would fulfill criteria for IBS. The table shows the outcome of the subjects over a 12 month period. For patients who remained symptomatic, 22.4% (26/116) of FC switched to IBS-C and 8.6% (10) to IBS-M; 30.5% (36/118) of IBS-C switched to FC and 19.5% (23) to IBS-M. When the FC and IBS-C groups were compared at baseline, IBS-C had significantly more chronic constipation symptoms, 3.76 vs. 3.21, p <0.001. Similarly, IBS-C patients had significantly worse PAQ-QOL scores (48.5 vs. 30.9), BSI-General Severity Index scores (52.3 vs. 48.8) and SF-12 Mental Composite scores (48.9 vs. 52.4) compared to FC patients at baseline (p<0.001). IBS-C subjects also reported significantly more abdominal pain or discomfort at baseline. Over the 12 month survey, they also had significantly higher GI healthcare costs USD$841 compared with FC subjects USD$391 (p=0.04).

Conclusions: The overlap in symptoms between FC and IBS-C and the tendency to alternate between diagnoses over 12 months suggest that the Rome III criteria for FC and IBS-C may not identify etiologically distinct groups of patients. Patients meeting IBS-C have greater symptom severity but qualitatively similar symptoms. Physiologic tests of motility or transit might distinguish FC from IBS-C with better precision.

[Supported by Novartis Pharmaceuticals and R24 DK067674]

IFFGD 2009

8th International Symposium on Functional Gastrointestinal Disorders
April 17 - 19, 2009; Milwaukee, Wisconsin

The International Foundation for Functional Gastrointestinal Disorders (IFFGD) along with the University of Wisconsin School of Medicine and Public Health held the 8th International Symposium on Functional Gastrointestinal Disorders in Milwaukee, Wisconsin designed to meet the needs of clinicians and other health care professionals who are looking to enhance their knowledge and skills for the care of their patients with functional gastrointestinal disorders.

Our Center continues to play in important part in this conference. Both Co-Directors, Douglas Drossman, MD chaired the symposium and William Whitehead, PhD was a member of the Planning Committee. We also were well represented in the Program with six of the Faculty being from our Center.

Friday, April 17, 2009

Plenary - Clinical Approach
Moderator: *Douglas A. Drossman, MD*

Symposia Title: **Integrated Approach to FGID**
Presenter: *Douglas A. Drossman, MD*

Epidemiology
Symposia Title: **Childhood Factors**
Presenter: *Miranda A.L. van Tilburg, PhD*

Saturday, April 18, 2009

Plenary - Basic Principles
Symposia Title: **Physiologic Testing in FGID**
Presenter: *William E. Whitehead, PhD*

Mini Symposia
Symposia Title: **Challenging Cases at the Referral Centers**
Presenters: Arnold Wald, MD; Lin Chang, MD; William D. Chey, MD; *Douglas A. Drossman, MD*

Symposia Title: **Proof of Concept and Study Mechanisms in Drug Development**
Presenters: Michael Camilleri, MD; Gary Mawe, PhD; *William E. Whitehead, PhD*

Workshops
Symposia Title: **Interview Techniques and Communication Skills**
Presenters: *Douglas A. Drossman, MD; Christine B. Dalton, PA-C;* Albena Halpert, MD

Symposia Title: **Pediatric (Pain, Early Influences on Symptoms...)**
Presenters: Rona L. Levy, MSW, PhD, MPH, FACG; Denesh Chitkara, MD, *Miranda van Tilburg, PhD;* Lynn S. Walker, PhD

Symposia Title: **Psychological Assessment: Pearls for the Clinician at the Bedside**
Presenters: Kevin W. Olden, MD; Jeffrey M. Lackner, PsyD; *Jane Leserman, PhD*

Symposia Title: **Fecal Incontinence**
Presenter: *Williams E. Whitehead;* Adi E. Bharucha; MD, Frank A. Hamilton, MD, MPH; Ann C. Lowry, MD, FACS; Jeannette Tries, PhD, OTR

Sunday, April 19, 2009

Mini Symposia - Constipation: New Insights into Etiology and Treatment
Symposia Title: **Biofeedback Treatment of Dyssynergic Defecation**
Presenter: *Steve Heymen, PhD*

Plenary - Art and Science of Patient Care
Symposia Title: **Narcotic Bowel Syndrome**
Presenter: *Douglas A. Drossman, MD*
Closing Remarks: Nancy J Norton, *Douglas A. Drossman, MD*

On The Planning Committee
- *Douglas A. Drossman, MD*, Chair
- *William E. Whitehead, PhD*

Center Faculty represented
- *Christine B. Dalton, PA-C*
- *Douglas A. Drossman, MD*
- *Steve Heymen, PhD*
- *Jane Leserman, PhD*
- *Miranda A.L. van Tilburg, PhD*
- *William E. Whitehead, PhD*

AGS 2009

American Geriatrics Society Conference Annual Scientific Meeting
April 29 - May 03, 2009; Chicago, Illinois

PHYSICIAN ATTRIBUTES THAT INFLUENCE THE DECISION TO REFER A PATIENT WITH FECAL INCONTINENCE TO A NURSING HOME

K. A. Nyrop[1], M. Grover[2], J. Busby-Whitehead[1], O. S. Palsson[1], S. Heymen[1], M. H. Palmer[1], P. S. Goode[3], M. Turner[1], W. E. Whitehead;[1] [1]University of North Carolina, Chapel Hill, NC, USA, [2]Michigan State University, East Lansing, MI, USA, [3]University of Alabama, Birmingham, AL, USA.

Aims: This study aimed to assess physician beliefs and characteristics that influence the disposition to refer an older adult patient with fecal incontinence (FI) to a nursing home or skilled care facility (NH/SCF).

Methods: Members of the American Geriatrics Society were invited to complete a survey in which they were presented with the clinical scenario of a 70-year-old Caucasian female, hospitalized in an acute care hospital for community acquired pneumonia, who has a history of FI. Respondents were asked whether they would refer this patient to a NH/SCF (5-point scale: "definitely not" to "definitely yes"). The survey also asked about prior experience and practice with managing FI, and perspectives on NH/SCF care for FI.

Results: 606 physicians (31.4%) completed the survey, of which 10.1% would probably or definitely refer this patient with FI to a NH/SCF. 31.2% reported that nursing homes do not take good care of patients' FI problems; 32.4% believe NH/SCFs lack proper expertise to care for patients with FI; and 25.5% believe NH/SCFs have patient care conditions that exacerbate FI. Significantly more male (40.2%) than female (27.3%) respondents believe nursing homes lack proper expertise to care for patients with FI. Respondents who believe that NH/SCF care exacerbates a patient's FI are significantly less likely to refer to a NH/SCF. 89.1% believe FI has a significant negative effect on patient quality of life and 59.3% believe FI can be managed conservatively. Those who believe FI can be managed conservatively are less likely to refer to a NH/SCF. 54.1% report that they screen for FI most of the time. 21% believe their patients are comfortable talking about their FI and 73.8% document FI in their patients' charts. Those who often document FI are more likely to refer to a NH/SCF. 66.5% investigate the cause of FI in their patients. 74.7% expressed the need for more education about FI. Respondents who are younger (25-45 years) and have fewer years of practice (0-5 years) are significantly more likely to refer to a NH/SCF.

Conclusions: Physicians who believe FI can be managed conservatively and have more years of practice are less likely to refer to a NH/SCF when an older adult patient has FI.

Supported by the UNC Chapel Hill Investments for the Future Initiative and R24 DK067674

SOCIAL CIRCUMSTANCES INFLUENCE THE DECISION TO REFER AN ELDERLY PATIENT WITH FECAL INCONTINENCE TO A NURSING HOME

J. Busby-Whitehead[1], M. Grover[2], M. H. Palmer[1], S. Heymen[1], O. S. Palsson[1], P. S. Goode[3], M. Turner[1], W. E. Whitehead[1]

[1]University of North Carolina, Chapel Hill, NC, USA; [2]University of Michigan, East Lansing, MI, USA, [3]University of Alabama, Birmingham, AL, USA.

Aims: 1) Determine the impact of fecal incontinence (FI) on the decision to refer a patient to a nursing home or skilled care facility (NH), and 2) assess the impact of the patient's social support network on the decision to refer.

Methods: 2000 members of the American Geriatrics Society were invited to complete a survey by email, postal questionnaire, or questionnaire distributed at the annual meeting. The survey presented a clinical scenario of a 70 year old woman with a two year history of FI who was ready for discharge from an acute care hospital and asked respondents to rate the likelihood of referral to a NH. Subsequent questions modified the clinical situation to address the effects of patient social circumstances. Significance of differences between scenarios in the relative risk (RR) of referring to a NH was determined by Wilcoxon tests. Respondents received $10 for completing the survey.

Results: 685 providers completed the survey (31% response rate). There was broad representation of providers across age groups, gender, years in practice, private vs. academic, and urban vs. rural and suburban practice settings. Only 15% were trainees. In the base clinical scenario (FI of unspecified severity for the past 2 years), the likelihood of referring to NH was 10.4%, and increased to 35.2% if FI occurred weekly and consisted occasionally of large volumes. If the patient did not have a family member living nearby, the disposition to refer increased from 10.4% to 54.0% (RR=5.19), and if the caregiver was unwilling to help, the disposition to refer was 80.2% (RR=7.71). Patients with a prior NH admission were more likely to be referred (28.3%, RR=2.72), and patients with inadequate insurance coverage were more likely to be referred (26.3%, RR=2.53). All associations were significant at $p<0.001$.

Conclusions: (1) FI increases the likelihood of referral to a NH in proportion to its severity, and (2) availability of caregivers who are willing to assist in management reduce the risk of NH referral while inadequate health insurance and a previous NH stay increase the disposition to refer.

Supported by R24 DK067674 and the UNC Chapel Hill Investments for the Future Initiative

Online Chat Series Returns

Olafur S. Palsson, PsyD
Associate Professor of Medicine

Between the years 2002 and 2005, our Center operated popular recurring internet chatroom meetings for patients with functional GI disorders and other interested individuals. It was a two-hour text-based discussion evening meeting, titled "Evening with the Experts", where an expert on a selected topic of interest first presented information on that topic through typed text chat while simultaneously showing information on slides, followed by open discussion where the audience who had joined in from home could have their questions answered. I acted as the moderator in these meetings, which where often quite lively. Audience participation frequently resulted in very informative educational discussions that provided insights to everybody participating far beyond the initial formal presentation. Our topics included bloating, GERD and heartburn, fecal incontinence, probiotics, psychological treatments for functional GI disorders, recurrent abdominal pain in children, and many others.

A lot of patients from all over the U.S. and Canada, as well as some from locations as far away as India, Japan and Australia, participated in these sessions. As many as a hundred individuals participated simultaneously in these chat meetings. Our presenting experts were not only our own Center's GI experts, but also experts from other top national and international institutions in functional GI disorders. Over the years, we received numerous messages from the participants telling us how much they enjoyed these online meetings. Eventually, however, as we had covered a wide range of areas in these meetings and began to run out of fresh topics, we decreased the frequency of these events from monthly to quarterly, and eventually felt that it was time to give this education method a break for a while.

We have now decided to once again provide this unique opportunity for patients to learn first-hand from our GI experts. We launched the first session of our new "Evening with the Experts" series on July 7, where Dr. Drossman presented on IBS and the functional GI disorders. This time, the sessions will be presented using improved technology that we hope will make them even more exciting and informative than before. We will start each meeting with a 15-20 minute streaming video presentation by our featured expert on the selected topic, followed by general interactive question and answer discussion for the rest of the two-hour time period. The meetings will be held on Tuesday nights at **8 PM EST** on a once-a-month schedule, at least to begin with.

Participating in these sessions is fun and easy. All you need to do is visit our Center's homepage, **http://www.med.unc.edu/ibs** just before the scheduled chat time, and click on the link right there on the front page that will take you to the chat page. There you will first watch the presentation, and then you can interact directly with the presenter and ask questions related to the topic to your heart's content. This is a unique opportunity to get answers to questions about specific gastrointestinal issues of interest to you, so we strongly encourage you, and cordially invite you to attend. See you there!

Chat Sessions are held on the first Tuesday of each month.

Upcoming chat session speakers:
November: *Douglas Drossman, MD*
December: *Miranda van Tilburg, PhD*
January: *Olafur Palsson, PsyD*
February: *Spencer Dorn, MD, MPH*

Center News

Spencer Dorn, MD, MPH was appointed to the UNC School of Medicine Gastroenterology faculty

Douglas A. Drossman, MD was named in the Who's Who in Medicine and in USA, was appointed for a second time to the Institute of Medicine Committee of the Health Effects of Gulf War Veterans, and was the keynote speaker at the NGM conference in Lucern, Switzerland

Hollie Edwards has left the Center to pursue a medical degree at East Carolina University

Temitope O. Keku, MD served on the NCI special emphasis panel/guest speaker at AACR Cancer Prevention meeting

Ryan A. Madanick, MD was appointed to direct the second year medical program

Douglas R. Morgan, MD was appointed to the UNC delegation at the University of Nicaragua

Ann Selph has left the Center and became an accountant in the UNC Division of Gastroenterology and Hepatology.

Miranda van Tilburg, PhD was awarded the 2009 Rome Foundation Research Grant

William E. Whitehead, PhD was appointed to the Scientific Advisory Committee of the NIDDK Managing Abdominal and Pelvic Pain Research Network

Seed Grant Award Winners

Steve Heymen, PhD
Central Pain Dysregulation in Patients with Irritable Bowel Syndrome

Reuben Wong, MD
Persistence of Gastrointestinal Symptoms after a Food-Borne Infection

Ryan D. Madanick, MD
Home Hypnotherapy forRefractory Functional Chest Pain: A Pilot Study

Spencer Dorn, MD, MPH
Patient Satisfaction with Care for Functional Gastrointestinal Disorders

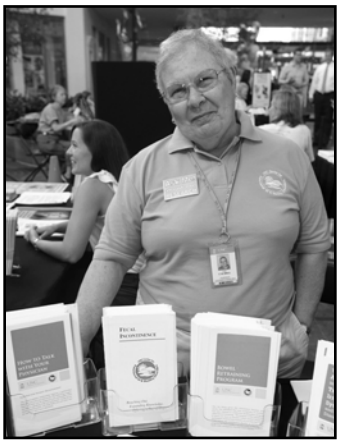
Center News

UNC Women's Health Fair

Gae Caudill

The annual "Women's Check Up Day" was held on Thursday, April 14, 2009 at The Streets at Southpoint Mall in the Center Court. This event is usually held at the Women's Hospital in Chapel Hill on the Monday following Mother's Day, however, this year we moved out of the hospital lobby into the community.

The UNC Center for Functional GI & Motility Disorders provided an information table with brochures on various gastrointestinal subjects as well as a listing of our current research projects including name and phone numbers of contacts for those interested in specific research programs, such as our Yogurt Study, IBS Studies and on-line studies. This is an excellent opportunity to provide information and support to the community at large and is always well attended. In addition, information tables were available from other UNC departments such as Family Violence, Diabetes, Breast and other Cancers, Mammography and Women's Reproductive Mood Disorders. Cholesterol Screening as well as Heart Healthy Screening were also present and tremendously popular. Although the event lasted for only a short period of time (2 hours) it was such a success we are hoping to extend the time next year.



In Other News

Spencer Dorn, MD, MPH was mentioned in the Raleigh News and Observer June 1, 2009 about his study which gauges the effects of drugmakers' ads. Spencer mentioned there were *"positives and negatives" to the advertising strategies by the maker of Zelnorm. "On the plus side."* he said, *"the commercials raised awareness about a bowel condition that causes much discomfort and prompted many sufferers to seek help. At the same time, however, too many people may have gotten prescriptions for a drug with dubious benefit and potential risks,"* he said. Zelnorm has since been pulled from the market because of safety concerns but not before an ad blitz made irritable bowel syndrome a household term, with ads featuring people raising their shirts to reveal messages drawn on their bellies. To read the full article, please go to **http://www.newsobserver.com/news/health_science/story/1550225.html.**

Gastroenterology posted Top 10 cited articles: Three articles cited from Rome III edited by Center Co-Directors**: Dr Douglas A. Drossman** for authoring The Functional Gastrointestinal Disorders and the Rome III Process, and **Dr William E. Whitehead** as a contributing editor of Rome III.

Welcome to the Center

Stefanie Jeremiah is a research assistant for Dr. Heymen working on a pilot study looking at patient characteristics that predict discharge to nursing homes. She is involved in many aspects of coordinating the study, such as consenting and interviewing patients, helping with data entry and data management, and helping PI's wherever needed. She graduated with a degree in Psychology from North Carolina State University.

Amie Rodgers is a clinical research assistant for Dr. Drossman. She is working on investigator initiated studies such as the IBS Partner study and the Narcotic Bowel Syndrome Study. She graduated with a B.S. with Honors in Toxicology from UC Berkeley in 2006. She has previously worked in computational toxicology at both the US FDA and Emiliem, Inc., a startup cancer therapeutic company in Emeryville CA. She earned an M.S. degree in Toxicology at UNC Chapel Hill in the spring of 2009. Her future plans include applying to P.A. schools in the area, and becoming a P.A. specializing in women's health.

Christina Davis recently graduated from UNC-CH in May 2009 with a bachelor's in Biology. As a clinical research assistant for Dr. Drossman, she will be involved with recruitment, clinical visits, data collection, and administrative activities for numerous ongoing and developing studies. She plans to attend graduate school in the future and in her spare time enjoys playing the piano and making jewelry.

Congratulations!

Shannon Adams graduated from Elon University May 21st 2009 with a Masters in Business Administration (MBA) with honors.

Linda Miller graduated from Shaw University May 9, 2009 with a Bachelor of Arts degree in Public Administration with highest honors.

Center for Functional GI & Motility Disorders: Research Day 2009

Biopsychosocial Research at THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

September 25-26, 2009

Research Day 2009 was a non-CME event for faculty, investigators and students at UNC and other universities in North Carolina focused on GI-related biopsychosocial research at UNC. This 2 day program featured renowned speakers from the UNC faculty as well as around the world. Highlights included:

Key Note Address:

Nicholas J. Talley, MD, PhD; Mayo Clinic College of Medicine
Functional Dyspepsia - Then and Now

Five Topic Sessions:

Hypnosis & CBT

Peter Whorwell, MD, PhD; Wythenshawe Hospital, Manchester UK
STATE OF THE ART: "Hypnotherapy for Functional Gastrointestinal Disorders"

Olafur Palsson, PsyD; UNC School of Medicine
"Nationwide Effectiveness of Hypnosis for IBS "
"Hypnosis for Functional Heartburn"

Emilee Colella, MD; UNC School of Medicine
"Guided Imagery Treatment of Pediatric IBD"

Rona Levy, MPH, PhD; University of Washington, Seattle
"An investigation of social learning and CBT in the treatment of functional abdominal pain in children"

Basic & Translational

William Whitehead, PhD; UNC School of Medicine
STATE OF THE ART: "Overview of Basic and Translational Research at UNC Center for FGIMD"

Reuben Wong, MD; National University Hospital, Singapore
"Genetics of PI-IBS"

Miranda van Tilburg, PhD; UNC School of Medicine
"Maternally inherited mtDNA sequence variants and Irritable Bowel Syndrome"

Kimberly Brownley, PhD; UNC School of Medicine
"Ghrelin in FD"

Abdominal and Pelvic Floor Disorders

Peter Whorwell, MD, PhD; Wythenshawe Hospital, Manchester UK
STATE OF THE ART: "Bloating"

Motoyori Kanazawa, MD, PhD; Sendai, Miyagi, Japan
"Visceral hypersensitivity and its modulation in Irritable Bowel Syndrome"

Yehuda Ringel, MD; UNC School of Medicine
"Probiotic and Antibiotic Treatment of IBS"
"Fecal Microbiota"

William Whitehead, PhD; UNC School of Medicine
"NHANES Study of Stool Consistency & Frequency"

Reuben Wong, MD; National University Hospital, Singapore
"Rectal Exam Study"

Steve Heymen, PhD; UNC School of Medicine
"DNIC in Irritable Bowel Syndrome"

Denniz Zolnoun, MD, MPH; UNC School of Medicine
"Overlap between IBS and Vulvodynia"

Severity & Outcome Assessment

Douglas Drossman, MD; UNC School of Medicine
STATE OF THE ART: "Beyond Tricyclics"
"Understanding Severity in Irritable Bowel Syndrome"

Spencer Dorn, MD, MPH; UNC School of Medicine
"Development of a Satisfaction Scale"
"Outcomes Project in Functional GI Clinic"
"Celiac Disease - Final Report"

Reuben Wong, MD; National University Hospital, Singapore
"Partner Study"

Joseph Zimmerman, MD; Hadassah- Hebrew University Medical Center, Jerusalem, Israel
"Narcotic Bowel Syndrome"

Jane Lesserman, PhD; UNC School of Medicine
"What Predicts a Responder - Results From the NIH Treatment Trial"

Cross-Cultural and Epidemiological Studies

Ami Sperber, MD; Tel-Aviv Medical Center, Ben-Gurion University of the Negev
STATE OF THE ART: "The methodology of translating research instruments into other languages for cross-cultural research"
"Sleep and Irritable Bowel Syndrome"

Douglas Morgan MD, MPH; UNC School of Medicine
"Epidemiology of the FGIDs and IBS in Nicaragua"

Olafur Palsson, PsyD; UNC School of Medicine
"Natural History of IBS Symptom Episodes"

For more information about UNC Research Day 2009, please visit www.med.unc.edu/ibs

Opportunity to Support

Contact Information

Name

Street Address

Primary Phone

Secondary Phone

City

State / Province

Email

Postal / Zip Code

I would like to make a donation to the Center. Enclosed is my donation in the amount of:

- ☐ $1,000 and above
- ☐ $500
- ☐ $100
- ☐ $50
- ☐ $ _____

Please send me more information on the following:

- ☐ Functional GI and Motility Disorders
- ☐ Irritable Bowel Syndrome (IBS)
- ☐ Psychological Services
- ☐ Research Studies
- ☐ Constipation
- ☐ Fecal Incontinence
- ☐ Other _____

☐ Check here if your contribution is designated for the Alan Wayne Ducoff Memorial Fund

☐ Check here if you do NOT want to be publicly acknowledged for your contribution to the Center

Send your contribution to:
UNC Center for
Functional GI & Motility Disorders
CB 7080, Bioinformatics Bldg
Chapel Hill, NC 27599-7080

Phone: (919) 966-0144
Fax: (919) 966-8929
www.med.unc.edu/ibs

Make your check payable to:
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OR: Include the following credit card information

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Credit card #

Expiration date

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Contributions from individual donors and grants from foundations and corporations are essential to enhancing and expanding the Center's comprehensive and multi-disciplinary approach to clinical care, research, training and education in functional GI and motility disorders.

Memorial Research Fund
The Alan Wayne Ducoff Memorial Fund provides an opportunity for families and friends to remember and honor their loved ones by making a designated contribution to the Center's research program. To make a donation to the Alan Wayne Ducoff Memorial Fund, please check off the appropriate box on the donation form.