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IS MOVING **QUICKER** A GOOD THING?

Experts debate total pancreatectomy for patients with chronic pancreatitis — first-line treatment or last resort?

Articles by Jeffrey B. Matthews, MD, FACS, Sydne Muratore, MD, and Gregory J. Beilman, MD

In this issue

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PAGE 4



Mobile Health Apps: E-Wave of the Future

Brennan Spiegel, MD, MSHS, AGAF, FAGC **10**

Pancreatic Cancer Screening: Where Are We Now?

Douglas G. Adler, MD, FAGC, AGAF, FASGE **12**

No One Left Behind: The Road to 80 Percent by 2018

Suzanne P. Lagarde, MD, MBA, FACP **14**

Fluid Resuscitation in Acute Pancreatitis

Timothy B. Gardner, MD, MSc **16**

How We Leveled the CRC Screening Playing Field

Blair Lewis, MD, and Adam Henick **17**

Pancreatic Cysts: Surveillance and Resection of Side Branch IPMN

Carlos Fernández-Del Castillo, MD **19**

An Insider's Perspective to Finding and Creating Your Own Fellowship

Milli Gupta, MD, FRCPC **21**

Endoscopic and Surgical Management of Pancreatic Necrosis in Latin America

Jaqueline Gobelet and Claudio G. Navarrete **22**

AGA PERSPECTIVES DEPARTMENTS

Classifieds **23**

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Note From the Editor



This issue of *AGA Perspectives* addresses many important, practical questions related to pancreatic diseases: what is the best method to screen for pancreatic cancer or to monitor side branch intra-pancreatic mucinous neoplasia (IPMN)? Is fluid resuscitation always necessary and what is the best solution to be used to support patients with acute pancreatitis? These are all relevant questions encountered by practicing gastroenterologists. Pancreatitis is among the top 15 indications for emergency department visits in both males (2.8 percent of ED visits) and females (1.7 percent of ED visits) and over 70 percent of these patients are hospitalized for treatment (PMID: 23857475). Indeed, the principal discharge diagnosis from hospital admissions for gastrointestinal diseases and hepatology in 2009 was acute pancreatitis and the aggregate costs reached \$2.6 billion (PMID: 22885331).

Our point-counterpoint discusses the role of pancreatectomy in patients with chronic pancreatitis. Dr. Jeffrey B. Matthews argues that total pancreatectomy should not be offered early in the course of chronic pancreatitis, while Drs. Sydne Muratore and Gregory J. Beilman explain why total pancreatectomy should be offered early on.

We hope you'll enjoy the commentary by Dr. Timothy Gardner, which addresses questions about fluid resuscitation and the need for further prospective randomized trials to address unanswered questions. The management of pancreatic necrosis or collections developed by roughly 20 percent of patients with acute pancreatitis is discussed by experts from Latin America, Drs. Jaqueline Gobelet and Claudio G. Navarrete.

The incidence of pancreatic cancer in 2009 was 12.7/100,000 per year, with approximately 85 percent mortality at 1 year (PMID: 22885331). Clearly, optimization of screening of cancer and managing side branch IPMNs are essential, as addressed by Dr. Douglas G. Adler and Dr. Carlos Fernandez-Del Castillo.

In an interesting discussion on technology and mobile health apps, Dr. Brennan Spiegel explains the impact mHealth apps will have in the future on patient care. In our recurring Fellows Corner, Dr. Milli Gupta discusses how fellows can design and create their own fellowship with a little motivation and creativity.

AGA has embraced imperative to establish effective screening programs for colorectal cancer; Dr. Suzanne P. Lagarde discusses strategies to achieve the goal of 80 percent population screening by 2018, and Dr. Blair Lewis and Adam Henick describe how they achieved almost zero no-show rate for colonoscopy in charitable care patients.

I am confident you will enjoy these short, clinically relevant articles.

Michael Camilleri, MD, AGAF
INTERIM EDITOR

We welcome member feedback on all of the perspectives presented in this issue. Send your letters and comments to communications@gastro.org and include "AGA Perspectives" in the subject line.

TAKE THE DISCUSSION ONLINE

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A close-up photograph of a brown rabbit and a tortoise. The rabbit is in the foreground, looking towards the right. The tortoise is in the lower foreground, also looking towards the right. The background is solid black.

IS MOVING QUICKER A GOOD THING?

Experts debate total pancreatectomy for patients with chronic pancreatitis — first-line treatment or last resort?



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Total Pancreatectomy Should Be Offered Early in the Course of Chronic Pancreatitis

Chronic pancreatitis (CP) is a debilitating disease process with an estimated incidence of seven to 10 per 100,000 persons in the U.S. per year. Despite its widely variable presentation, it is progressive and irreversible. Intractable pain, malnutrition, inability to pursue work or school, depression, countless hospitalizations, and enormous financial burden are known sequela of this refractory condition. Patients are subjected to countless tests, medications, hospital stays and procedures in an effort to ameliorate the morbidity of this disease. Total pancreatectomy with islet autotransplantation (TPIAT) was first described in 1977 at the University of Minnesota as a surgical solution to this difficult disease process. Multiple other centers have subsequently utilized TPIAT for treatment of CP with positive results. The addition of IAT after removal of the pancreas helps preserve beta cell function to avoid the development of brittle diabetes. Given the irreversibility of TPIAT, rigorous diagnostic workup with a multidisciplinary approach is employed prior to consideration for surgery. Once criteria for surgery have been met, early consideration must be given for undergoing TPIAT to ameliorate suffering and circumnavigate ineffective and potentially harmful therapies.¹

Why wait? TPIAT is highly effective for pain relief. In the Minnesota experience, both health-related quality of life (HRQOL) and pain assessment demonstrated significant improvement in patients undergoing TPIAT. Ninety-four percent of patients reported improvement in pain at one year, and sustained improvement demonstrated out to 10 years after TPIAT.² Waiting, on the other hand, has significant deleterious

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Total Pancreatectomy Should Not Be Offered Early in the Course of Chronic Pancreatitis

Total pancreatectomy with islet autotransplantation (TPIAT) is effective for highly selected patients who are otherwise incapacitated by symptoms of chronic or recurrent acute pancreatitis.¹ I enthusiastically perform this procedure for severely affected individuals who have no conventional surgical or endoscopic alternative, who have failed prior interventions, or who have certain genetic syndromes. TPIAT offers the potential for significant pain relief and improved quality of life. Postpancreatectomy diabetes can be mitigated and occasionally prevented.

Given its success, should TPIAT be offered to patients “early” in the course of chronic pancreatitis? I readily concede that there are some patients in whom TPIAT should be offered earlier in the course of their disease. There are instances where proper treatment is inappropriately delayed by excessive attempts at endotherapy or nerve blocks in a patient who otherwise meets indications for TPIAT. But enthusiasm should be tempered by careful consideration of the significant risks and uncertain outcome of such radical and irreversible treatment. I am reminded of “A Tale of Two Cities” (1859), in which Charles Dickens described the guillotine as “the best cure for headache.” A cure, perhaps; unfortunately, there are side effects. Total pancreatectomy may indeed be a cure for pancreatitis, but the metabolic and digestive consequences of complete extirpation of the pancreas should not be underestimated.

“Early” chronic pancreatitis is not a term recognized by consensus nomenclature. I suppose it may refer to disease of shorter duration, milder symptoms, less organ

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The focus needs to shift from delaying surgery as long as possible until all else has failed, to early identification of appropriate patients.

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effects. Central sensitization and refractory hyperalgesia are increasingly implicated in maintenance of the chronic pain state in patients with CP. Research has shown increasing severity of CP correlates with worsening central sensitization and hyperalgesia. Reducing the amount of time patients are exposed to chronic inflammation likely mitigates reduction in postoperative pain and a chronic pain state. In addition, shorter duration of narcotic exposure helps minimize development of narcotic bowel syndrome, opioid induced hyperalgesia and opioid tolerance. Opioid weaning and postoperative pain management are also more successful with shorter duration of prior use.³

In addition to the complications associated with long-term opioid use, chronic pain itself has been shown to have neurodegenerative properties. It has been demonstrated in multiple studies that chronic pain can result in decreased gray matter density, especially in the prefrontal cortex and thalamus, as seen on MRI. In addition, a study of chronic pain patients with CP demonstrated significant reduction in memory, psycho-motor and executive function testing. Duration of pain correlates with worsening scores. This suggests that the longer our patients are exposed to pain, the more irreversible neurologic changes they may be subjected to. In addition, chronic pain propagates depression, sleep disturbances, addiction and numerous psycho-social problems

resulting in innumerable hours of lost work and study.⁴

Allowing years or even decades of unsuccessful management of CP subjects islet cells to the damage of constant inflammation and fibrosis. It has been demonstrated that islet cell yield is worse with longer duration of CP. In a study of CP patients with PRSS1 and CFTR mutations, each year of pancreatitis was independently associated with lower islet cell yield. In addition, higher pancreatic fibrosis scores correlate with lower islet cell yield.² Finally, lower islet yields are procured when patients have undergone prior pancreatic surgery (Puestow 1883 IE/kg versus distal pancreatectomy 1973 IE/kg versus 3795 IE/kg if no prior surgery. $p < 0.01$.)¹ Insulin independence, C-peptide positivity and goal glycemic control are more consistently achieved in those recipients with a moderate to high islet mass transplanted. It is important to the success of therapy to treat CP patients while they still have beta cell mass worth preserving.¹

Actual timing of TPIAT has been much deliberated, largely due to the variable presentations of each subset of this disease process. Large duct disease is more amenable to endoscopic and surgical drainage procedures. Unfortunately, small duct disease is poorly responsive to these therapies. Given that islet cell yield is lower in patients having undergone previous drainage surgeries or resection, it is the

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destruction, or clinical situations where imaging criteria for the diagnosis of chronic pancreatitis have not been met. Who are these patients with “early” chronic pancreatitis for which TPIAT might be contemplated? Three situations come to mind.

First, for the patient who has a conventional surgical alternative, should they instead skip directly to TPIAT? No. In patients with large-duct disease or head-predominant disease, duct decompression or pancreatic head resection durably relieves pain in approximately 80 percent of patients.^{2,3} Patients with persistent or recurrent symptoms can subsequently undergo TPIAT as salvage therapy if necessary. While the chance of insulin-independence may be lower than if TPIAT were offered at the outset, most

patients can still achieve excellent glycemic control with standard insulin therapy. I agree that TPIAT is more effective if performed prior to the development of excessive organ fibrosis and prior to nociceptive pathway remodeling.¹ It must be remembered, however, that the significant majority of patients with large duct disease treated conventionally will never reach the point of needing TPIAT, and that even if TPIAT were performed as initial therapy, 50 percent of those patients would still require insulin postoperatively.

Second, for the patient with small duct chronic pancreatitis without a conventional alternative, is TPIAT better than the best medical management? In patients truly incapacitated by their symptoms, yes, but for others is the treatment is worse than the disease?

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Total pancreatectomy may indeed be a cure for pancreatitis, but the metabolic and digestive consequences of complete extirpation of the pancreas should not be underestimated.



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University of Minnesota (UMN) paradigm to perform endoscopic drainage procedures only on indicated patients in this group. If this fails to provide relief, TPIAT should be offered to appropriate candidates. Additionally, if the patient is already diabetic, there is little reason not to proceed. Similarly, patients with minimal change disease are often a difficult group to diagnose, thus treat effectively. Severity of pain poorly correlates with radiographic and pathologic findings, thus it is the practice of UMN to offer TPIAT to CP patients meeting diagnostic criteria¹ at initiation of chronic opiate therapy.⁶

Reduction in cancer risk is yet another potential advantage of early TPIAT in selected patients. Patients with hereditary pancreatitis (HP) have been shown to harbor up to a 44 percent risk of pancreatic adenocarcinoma when carrying the PRSS1 mutation over time.⁵ This risk is even higher if through paternal inheritance or a current smoker. In the Minnesota series of patients undergoing TPIAT due to HP, we have not identified any cases

of pancreatic cancer. This includes 61 patients with known PRSS1 mutation out of 484 TPIAT patients with 2,936 person years of follow-up.²

... early TPIAT is appropriate in patients that have been carefully evaluated in a multidisciplinary center with significant experience with this problem.

The reluctance to proceed with TPIAT frequently stems from the fear of loss of endocrine and exocrine function associated with pancreatectomy. However, beta cell function shows complete or partial preservation in 65 percent of the Minnesota cohort of 484 patients. As discussed above, this percentage could potentially improve if intervention was initiated prior to other futile surgical interventions or irreversible damage to islet cells. Additionally, even without pancreatic surgery, progression to exocrine and endocrine insufficiency is common.

Roughly one-third of HP patients have endocrine and exocrine insufficiency by their fourth decade of life.² This concern involves the pediatric population as well. Despite the predilection to delay surgery until a child has gotten older, our center has shown that outcomes are better in children than in their adult counterparts. In addition, preadolescents (younger than 13 years) are more likely to be insulin-independent than adolescents (13 to 18 years) 68 percent versus 38 percent.¹

In conclusion, early TPIAT is appropriate in patients that have been carefully evaluated in a multidisciplinary center with significant experience with this problem. Patients with hereditary or structural causes of pancreatitis may benefit the most from early consideration of TPIAT. The focus needs to shift from delaying surgery as long as possible until all else has failed, to early identification of appropriate patients, thus preventing prolonged delay to treatment resulting in the complications of chronic pain, chronic opioid use, ineffective islet cells, and years of lost quality of life and productivity. ■

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Cessation of alcohol and tobacco use, optimization of pancreatic enzyme therapy, judicious use of non-narcotic pharmacological alternatives, and psycho-social supportive care may reduce reflexive dependence on opiates. Progression to end-stage organ destruction, diabetes or symptomatic incapacitation is unpredictable and far from inevitable. Committing the patient to lifelong exocrine insufficiency and a strong likelihood of eventual diabetes may be a poor tradeoff compared to the symptoms of "early" small duct pancreatitis. Some patients with normal ducts and chronic pancreatic-type pain have nondiagnostic imaging and are sometimes labeled as "minimal-change" disease. In some instances, the pancreas may not, in fact, be the source of the pain.⁴ There is an uncomfortably ambiguous overlap with visceral hyperalgesia and functional abdominal pain syndromes. TPIAT is

ill-advised in these patients due to the significant potential for persistent pain and recidivism.

Third, for the patient with an elevated risk of progression to pancreatic cancer, is TPIAT warranted to eliminate this risk? In some instances, perhaps, but generally, no. Even for hereditary pancreatitis associated with PRSS1 gene mutations, the cancer risk, while clearly elevated, has probably been overstated, and some well-studied families have no members affected by pancreatic cancer.⁵ The risk of cancer in hereditary pancreatitis is strikingly higher in smokers (an easily modifiable risk factor), and cancer is uncommon before age 40. The potential for increased cancer risk alone should not be used to unduly accelerate the decision for total pancreatectomy, particularly in young patients who are otherwise symptomatically controlled.

TPIAT for the right patient is a good option. But TPIAT comes at a cost,

and it bears repeating that we are trading one disease (painful chronic pancreatitis) for another (diabetes and malabsorption). The critical factor in the decision for total pancreatectomy should be the extent of the pain, not the desire to get a better islet yield. It is important to set realistic expectations for life after TPIAT.¹ The fact is that total pancreatectomy is irreversible. There are perioperative risks that are potentially serious. A significant minority of patients will have persistent or recurrent pain. Even in the best centers, many patients will be diabetic postoperatively or develop diabetes over time. Pancreatic insufficiency and postsurgical disturbances of motility can be the source of substantial morbidity. Finally, patients who undergo TPIAT forgo the potential for future advances in islet preservation, new medical therapies and cancer screening modalities.¹ Premature extension of TPIAT to patients with early chronic pancreatitis is simply not yet justified. ■

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Mobile Health Apps: E-Wave of the Future



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Dr. Spiegel received a grant from Ironwood Pharmaceuticals to develop "My GI Health."

A Renaissance in Mobile Computing

It was only seven years ago when Apple released its first iPhone. Little did we know that Apple's product launch would catalyze a renaissance in mobile computing, transform how we conduct business, impact our everyday lives and even alter the way we deliver health care. Now it's all happening, and happening fast. With Apple's recent announcement of "HealthKit," developers can employ a single platform to allow health and fitness applications (apps) to exchange data with each other and with electronic health records (EHRs). Advances like HealthKit and Google's "Fit" will further accelerate development of mobile health (mHealth) apps, both for GI patients and beyond.

Current State of mHealth Apps

As of late 2013, there was a dizzying array of over 44,000 mHealth apps available on the Apple iTunes store.¹ Most of these apps fall within the "health and wellness" category, allowing users to monitor mood, diet, sleep, energy levels and other quality of life attributes. Some apps allow patients to find doctors, others offer health information, and still others attempt to make diagnoses.

For a consumer reviewing the mHealth marketplace, there is little guidance regarding which of these apps are best, which are supported by data or which provide true value. The IMS Institute for Healthcare Informatics evaluated each of the apps on the market and concluded that well over 90 percent were of low quality.¹ Within the limited group of quality apps, only a small sub-group was supported by peer-reviewed data of any kind, much less randomized controlled trials. In short, although enthusiasm for mHealth is boiling over, the level of evidence does not match the level of excitement.

A multinational working group recently published recommendations for how to move the mHealth field from mere curiosity to serious science.² The group emphasized that before mHealth apps can truly impact population health, developers must address the high attrition rate of users, the persistent "digital divide" between younger versus older patients, and the reality that an app is unlikely, unto itself, to alter health behavior in a sustained and clinically meaningful way without clinical support and tailored guidance. The Agency for Healthcare Research and Quality (AHRQ) also published guidance on how to develop mHealth apps.³ AHRQ emphasizes that apps should be developed by multidisciplinary experts in cognitive science, computer science and social science; be continuously tested in partnership with patients; and fit specific needs of end users — not perceived needs presupposed by developers and academicians. All too often, teams unaware of the conceptual frameworks underlying app development hastily develop their products and rush to market. Sometimes academicians predetermine what patients want without first checking,

or create user experiences without diligently consulting the users themselves. This "just get it out" mentality has undermined the field.

Examples of High Quality mHealth Apps

In its landscape review of mHealth, IMS identified several apps that met its predefined criteria for high quality.¹ In the category of diagnostic apps, IMS points to iTriage as a model for evaluation. iTriage collects signs and symptoms, crunches the input through algorithms, yields a differential diagnosis, and suggests an action plan and list of appropriate local providers. "Virtual visit" apps like HealthTap, Teladoc, American Well and MDLive go a step further by offering patients direct and immediate access to a physician through their smartphone or tablet device. For \$49 on average, physicians can conduct a virtual face-to-face interview, make a diagnosis and even send prescriptions. The app "Pager" goes yet a step further. Founded by the team that developed Uber — the wildly successful car service app — Pager allows patients to select among a panel of doctors and obtain rapid house calls for \$199. Insurance is now starting to cover some of the virtual visits and app-generated house calls. These disruptive e-consult apps physically disintermediate patients and providers, allowing care to occur outside the physical walls of health-care facilities. Now we need rigorous data to learn whether these apps improve outcomes, reduce cost and ultimately provide value.

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Enthusiasm for mHealth is boiling over, but the level of evidence does not match the level of excitement.

GI mHealth Apps

Despite the high prevalence of GI disorders, there are relatively few mHealth apps to support our patients. Most of the available GI apps offer information or symptom tracking, such as the “GI Buddy” by the Crohn’s and Colitis Foundation of America, “GI Bodyguard” from the Canadian Digestive Health Foundation, “Gut Tracker” by the Digestive Disorder Foundation, or the International Foundation for Functional GI Disorders mobile app, among others. Our teams at Cedars-Sinai partnered with the University of Michigan to develop an app called “My GI Health”⁴ that allows patients to rate their own symptoms using e-scores we developed for NIH,⁵ ties the scores to a tailored online “education prescription,” and allows patients to convert their symptoms into a full narrative history of presenting illness (HPI)⁶ that can be uploaded to an EHR. We are now collaborating with EHR vendors to evaluate how the app might integrate with health records to improve processes and outcomes of care, and are conducting an NIH-supported trial of the app in GI clinics.

Conclusions

Although mHealth apps are pervasive and here to stay, there remains substantial work to determine which apps to use, how to use them and whether they will truly impact outcomes of care in GI and beyond. To advance the field, we need rigorous research, partnership with patients and multidisciplinary teamwork. GI societies should fund this work to expand the offerings for our patients while ensuring high-quality products. Time will tell whether the current enthusiasm is justified, or whether this “e-wave of the future” has crashed. ■



Pancreatic Cancer Screening: Where Are We Now?



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Pancreatic adenocarcinoma has been, and remains, a devastating diagnosis. Almost all patients diagnosed with the disease will ultimately succumb to it, with a five-year survival rate around 5 percent. I find it particularly amazing that as better imaging studies to help diagnose it (in the form of endoscopic ultrasound and modern CT and MRI scans) have become available, new medications to treat pancreatic cancer (such as gemcitabine) have been approved by the FDA, and as better surgical techniques (including venous reconstructions for patients with portal vein involvement) have been developed, the overall survival rate for patients with pancreatic cancer has not appreciably improved.

When I was a gastroenterology fellow at the Mayo Clinic in Rochester, MN, I asked several of the pancreatologists why we were not screening all patients for pancreatic cancer. I was told that no available screening test was applicable for the general population, and that performing CT or MRI scans on everyone would be too costly. Now, more than 15 years later, I find myself giving a similar answer when my fellows ask me the same question.

Pancreatic cancer typically remains asymptomatic until advanced disease is present. Patients with tumors in the pancreatic head may manifest earlier in their course if they develop jaundice from biliary obstruction. We know

that some factors, such as tobacco use, diabetes, obesity and the presence of chronic pancreatitis can increase the risk of developing pancreatic cancer. The greatest non-modifiable risk factor for pancreatic cancer is age, with patients over the age of about 50 having a greater risk of developing the disease. High-risk populations include patients with Peutz-Jeghers syndrome, hereditary pancreatitis (usually due to PRSS1 gene mutations), patients with hereditary nonpolyposis colon cancer syndrome, Familial Atypical Multiple Mole Melanoma Syndrome patients, and patients with BRCA mutations. Familial pancreatic cancer kindreds are relatively rare, but typically include patients with multiple first-degree relatives who have developed pancreatic cancer.

An ideal screening test would be noninvasive, inexpensive, safe, and would have a high sensitivity and specificity for the disease — a set of descriptors that does not apply to our available screening modalities. In 2014, what tools do we have in our toolbox to potentially identify early (and thus resectable) pancreatic cancer? Serum carbohydrate-antigen 19-9 (CA19-9) has been studied for decades, but has not been found to be useful as a screening test in and of itself. CT scans, while noninvasive, involve radiation exposure and are relatively poor tools for detecting small (<1cm) lesions. MRI scans, which are also noninvasive, provide better images of the pancreatic duct and may be



Figure 1: A small (1.5cm) solid mass in the head of the pancreas detected by EUS. FNA revealed adenocarcinoma.

superior to CT in most patients with regard to detecting small lesions, but not all patients can undergo an MRI. CT and MRI scans are also quite expensive. Endoscopic ultrasound (EUS) offers excellent imaging of the pancreatic parenchyma, the pancreatic duct, and any relevant peripancreatic adenopathy. EUS is able to easily identify subcentimeter lesions, and allows for simultaneous tissue acquisition via fine needle aspiration (FNA). The downsides of EUS include its costs, the fact that it is invasive (compared to cross sectional imaging), the risk of adverse events (from the procedure itself and from sedation), and significant variations in inter-operator reliability. Another significant problem with all of our available tests is that the appropriate screening intervals for their use remain largely unknown.

An ideal screening test would be noninvasive, inexpensive, safe, and would have a high sensitivity and specificity for the disease — a set of descriptors that does not apply to our available screening modalities.

So, how do I screen patients in my clinic for pancreatic cancer? The first question I like to ask is whether or not the patient is really high-risk. Many patients will ask for screening based on a single affected family member's history, and this person may not be a first-degree relative. Thus, patients may perceive themselves to be at high risk when, in fact, they are not. Of note, some relatively low-risk patients will still insist on screening. For patients with significant family history or known genetic syndromes that place them at high risk, I often work in concert with a genetic counselor for comprehensive assessment of family tree and to see if they are at increased risk for any other malignancies beyond pancreatic cancer. In general, I offer patients EUS with FNA of any suspicious lesions, often combined with serum CA 19-9 testing every one to two years with adjustments made based on findings at endoscopy or for the presence of established genetic syndromes that place them at increased risk overall. For patients who do not want EUS or who are poor candidates for EUS (usually due to antecedent roux-en-Y gastric bypass), I offer MRI scans every one to two years, also often combined with serum CA 19-9 testing. Downsides of screening include identifying lesions that are of questionable significance, which may warrant additional and/or costly investigations and the chance that the patient undergoes a pancreatic resection that they may not actually need.

I would emphasize that this strategy is largely experimental, has not been proven to detect all pancreatic cancers, and that there is certainly the possibility of missed lesions. We also still do not know the optimal intervals between screening exams. Pancreatic cancer screening is still in development, and we are all hoping for better screening modalities in the near future. ■



No One Left Behind:

THE ROAD TO 80% BY 2018



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Dr. Lagarde has no conflicts to disclose.

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Despite widespread availability of colorectal cancer screening techniques that are proven to reduce both incidence and mortality of CRC, colon cancer remains the second leading cause of cancer deaths in the U.S. As reported by the CDC in November 2013, only 65 percent of Americans are up-to-date on CRC screening, although rates of CRC screening among uninsured or underinsured people are significantly lower:¹

The CDC has announced a goal of “80% by 2018” — an ambitious plan to which AGA has signed on, because a majority of patients not screened are minority, low-income and historically uninsured. With the arrival of the Affordable Care Act containing provisions for universal coverage of preventive screenings, some current barriers may be reduced,² but numerous studies have underscored nonfinancial barriers to screening, including factors such as lack of trust, language barriers and health illiteracy, that continue to play important roles in keeping screening rates at unacceptably low levels.

A growing body of published data supports the role of patient navigation in improving CRC screening rates.³ What has not been widely reported is what constitutes best practice in the field of CRC patient navigation.

Lessons Learned: Building a Patient Navigation Program

In Connecticut, over the past five years we conducted a successful statewide screening program through the Connecticut Department of Public Health, as well as a smaller program in a single, 10-partner gastroenterology practice in New Haven, both of which used lay patient navigators.

In private gastroenterology practice engaged in the free screening program, operational inefficiencies and problems were quickly identified. Not surprisingly, it became clear that the single event that most threatened the viability of the program were no-shows, which

were (often mistakenly) interpreted by participating gastroenterologists to be indicative of “failure” of the open-access, heavily navigated program. When systems were carefully scrutinized to identify factors that contributed to a no-show, it became clear that three factors were the most impactful contributors to the no-show rate:

1. Length of time between initial face-to-face visit with navigator and date of scheduled colonoscopy.
2. The number of contacts, either face-to-face visits or phone calls, between navigator and patient.
3. Lack of contact in the week preceding the scheduled colonoscopy.

Best Practices

On the basis of our experiences with the no-cost colonoscopy program for screening of uninsured Connecticut patients, we would offer the following recommendations for sites considering the adoption of a similar program. The recommendations run across three broad categories: provider engagement, guidelines and navigator training.

1. Engagement of providers. To engage providers, one must demonstrate that the financial impact on their individual practices is minimal and the gain in CRC prevention is substantial. Continued participation in the program by providers required close attention to factors that contributed to poor patient compliance: no-shows and poor bowel preparations. We quickly determined that when open lines of communication between providers and navigators were maintained, we were able to resolve problems when they arose. Providers need to understand that patient navigators are an integral part of the medical team.

THE ROAD TO - CONTINUED ON PAGE 15

Table 1. Key Features Essential to a Successful Program of CRC Screening in an Underserved Population

Event	Comments
 Referral by PCP to PN	<ul style="list-style-type: none"> • History and physical, diagnoses, medication list provided by PCP
 Face-to-face with PN	<ul style="list-style-type: none"> • PN confirms patient meets screening guidelines • PN discusses reason for procedure with patient; provides written literature in patient's native language • PN makes appointment that MUST be <5 weeks away from visit • PN confirms contact information for person providing transportation • PN reviews bowel prep with patient, ideally in native language; provides written instructions for bowel prep in patient's native language • Ideally, PN provides bowel prep. (There are now several effective bowel preps available for less than \$10. We strongly recommend that programs either partner with pharmaceutical companies to provide prep or purchase a supply of prep to remove need for patient purchase.) • PN reviews and provides written instructions for medication schedule the day before and the day of procedure. If patient is on important medications (insulin, aspirin, anticoagulants), there must be written instructions from the referring physician regarding management. • Patient informed that phone contact with PN 7–10 days before scheduled appointment is essential, and that failure to make contact results in automatic cancellation of procedure.
 Phone calls	<ul style="list-style-type: none"> • 7–10 days before procedure. Failure to connect with patient results in cancellation. Review medication schedule. • 1 day before procedure. Review importance of split-dose prep, increased fluid consumption. Address any concerns.

THE ROAD TO - CONTINUED FROM PAGE 14

2. Guidelines. Table 1 lists key features essential to a successful program of CRC screening in an underserved population. Guidelines are reinforced by use of checklists.

3. Navigator training. PNs must be trained and supervised closely by a physician champion. We have created a CRC screening module that reviews topics such as CRC, bowel preps and checklists (available on request by the author).

The Road Ahead

What lies ahead will very much depend on the speed with which health-care reimbursement shifts from fee-for-service to value-based payment. Although the model put forth in this article has been shown to be effective, we believe that its scalability will be favorably impacted when payors incorporate value into reimbursement.

Clearly, factors other than reimbursement rates impact the ease that underserved populations

gain access to screening colonoscopy. Patient navigation provides the value to overcome procedural barriers, such as inadequate bowel preparation and completion of appointments.

Unfortunately, services provided by patient navigators are not reimbursed in most states. However, it is clear that with rigorous patient navigation, uninsured patients from lower socio-economic backgrounds can be motivated to accept the importance of CRC screening and be successfully supported throughout the multistage and difficult process of colonoscopy preparation and procedure.

We have learned that the biggest threat to sustaining a CRC screening program for underserved populations is a no-show. It is critical to put in place measures that maximize the likelihood that a patient referred for screening colonoscopy will in fact keep the appointment.

Using checklists and trained patient navigators who have ongoing supervision appears to be

critical for a successful program to deliver needed services.

As health care in the U.S. evolves into a more cost-effective and higher-quality delivery system, population health management and payment methodologies will change in ways that will challenge traditional gastroenterology practices. It falls to us to ensure that our patients receive the quality care that we believe should be a fundamental human right irrespective of social status. The current goal of 80 percent by 2018 CRC screening is achievable if, and only if, we can engage significant numbers of low-income, underserved patients to understand the lifesaving impact of CRC screening and help them navigate the significant barriers to successful preventive care. Engaging a cadre of well-trained, highly supervised, accountable patient navigators in the effort will bring us closer to our vision. ■

Fluid Resuscitation in Acute Pancreatitis



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Dr. Gardner has no conflicts to disclose.

Acute pancreatitis (AP) is a common medical condition with extensive morbidity and mortality. Approximately 210,000 Americans are hospitalized each year; and 5 percent of patients with AP will die. It is also an expensive condition costing 2.6 billion dollars in 2009 alone. Moreover, the incidence is increasing — the National Hospital Discharge Survey showed hospitalizations increased from 78 per 100k in 2007 to 90 per 100k just three years later in 2010. There is no treatment or cure targeted to the underlying etiology of the disease, and the bulk of management has been largely supportive with IV fluids, bowel rest and pain control.

The focus of this review will be on the use of fluid resuscitation in AP. While there is some evidence that fluid resuscitation is an important intervention in reducing morbidity and mortality, many questions about its use remain. While in recent years, two prospective studies have been performed specifically targeting these questions, their results came to divergent conclusions. We will review important questions and discuss the evidence and recommendations behind each intervention.

The rationale behind fluid resuscitation is that acute pancreatitis is an inflammatory state leading to capillary vasodilation, cytokine release and subsequent capillary leak syndrome. Fluid resuscitation in acute pancreatitis is theorized to support the effective circulating volume and therefore maintain vascular perfusion to the pancreas. By proving vascular support, hemodynamic stability is theoretically maintained.

Prior to five years ago, recommendations for fluid resuscitation were based on expert opinion only. More recently, several cohort studies have been performed to evaluate the role of aggressive fluid resuscitation; they have come to different conclusions about its effectiveness. Much of this discrepancy can be attributed to the inherent biases of cohort studies

and the lack of standardized clinical outcomes targeted in their results.

Only two prospective, randomized studies have been published that specifically address the issue of fluid resuscitation in AP. The first was from China and found increased rates of mortality and sepsis in more than 100 patients with severe acute pancreatitis when hematocrit was targeted to be under 35 percent in the first 24 hours compared with 35 percent or greater over 72 hours using crystalloid.¹ While the study can be criticized for a somewhat unusual treatment approach, it did give pause to clinicians who recommended very aggressive fluid resuscitation in the first days of admission.

The rationale behind fluid resuscitation is that acute pancreatitis is an inflammatory state leading to capillary vasodilation, cytokine release and subsequent capillary leak syndrome.

The second study included 40 patients with AP who were randomized to either receive normal saline or lactated Ringer's solution in standard goal-directed volumes.² The authors found that patients given lactated Ringer's solution had lower rates of the systemic inflammatory response syndrome and C-reactive protein levels compared to those who received normal saline. This study has been criticized for the small number of patients included in the analysis.

Given the paucity of evidence related to fluid resuscitation in acute pancreatitis, it is difficult to give evidence-based recommendations as to the proper type, timing and volume of fluid in AP. However, current recommendations can best be summarized below.

What type of fluid should be used for resuscitation? While the evidence is scant, we believe that lactated Ringer's should likely be the

choice for fluid resuscitation in AP. This is based on the Wu study in 40 patients with AP. Lactated Ringer's probably exerts its beneficial effect compared to normal saline through its ability to modulate intracellular lactate concentration and thus modulate intracellular pH, although the exact effect is unknown.

What volume of fluid should be initiated? This is the most controversial question dealing with fluid resuscitation. While it is clear that the volume of fluids needs to be adequate enough to support effective circulating volume, it is unclear how often over-aggressive fluid resuscitation leads to adverse outcomes such as intra-abdominal compartment syndrome or respiratory failure. We recommend hydration with a bolus of 1-2 L or crystalloid while still in the emergency department and maintenance rates between 250-300ml/hr or enough to produce 0.5ml/kg/hr urine output. Of course, caution must be exercised in any patient with renal failure, heart failure or pulmonary edema. A randomized clinical trial is desperately needed to provide evidence-based answers to this question.

How should the effectiveness of fluid resuscitation be monitored? Hematocrit and BUN can be followed as measures of hemodilution in addition to urine output. Monitoring for signs of fluid overload, particularly hypoxia, is necessary. Central venous pressure measurements may be helpful in these patients where delicate fluid balance is needed. These numbers should be tailored to the patient to ensure that vitals are adequately maintained.

In conclusion, fluid resuscitation is one of the few interventions that has demonstrated effectiveness in treating acute pancreatitis. However, several questions in regard to the intricacy of its use remain and need to be addressed by prospective, randomized controlled trials. Until that time, resuscitation guidelines will be based on limited controlled trial data and expert opinion only. ■

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HOW WE LEVELED THE CRC SCREENING PLAYING FIELD



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Drs. Henick and Lewis have no conflicts to disclose.

At DDW® last May, Howard Koh, MD, MPH, the assistant secretary of health for the U.S. Department of Health and Human Services gave a luncheon. He talked about access and equality of care. Though the Affordable Care Act (ACA) has led to many uninsured obtaining health-care insurance, there remains a great divide between the haves and the have-nots. New York City has been on a quest to improve access and equality to care especially when it comes to colon cancer screening. In 2003, the Department of Health (DOH) created a public-private task force called Citywide Colon Cancer Control Coalition (C5). At its inception, New York City's colon cancer screening rate was 42 percent, and there were significant ethnic and racial screening disparities. Through the coalition's efforts, the screening rates have risen to 69 percent in 2012. Racial and ethnic screening disparities have been eliminated [Figure 1]. The story of our endoscopy center is but one part of a successful endeavor to level the playing field, bringing screening exams to everyone, regardless of their socioeconomic or ethnic background.

When Carnegie Hill Endoscopy (CHE) opened its doors in March of 2012, it had been three years in the making. A 15,000 square-foot center with five procedure rooms, 15 recovery bays, the largest commercial blanket warmer available and 22 doctors performing 13,000 procedures

a year. Located on the Upper East Side of Manhattan, CHE immediately became one of the busiest endoscopy ambulatory surgery centers in the northeastern U.S.

The no-show rate for charitable care patients is almost zero.

All of the founding physicians came from private practices with office-based endoscopy suites. In the State of New York, DOH had mandated that all offices that provided moderate to deep sedation be accredited by JCAHO, AAAASF or AAAHC. However, the state legislature declined a request from the medical society to mandate increased third-party reimbursement for offices that fulfilled these requirements. The cost to maintain accreditation coupled with the lack of improved reimbursement ultimately led to the demise of office-based endoscopy in New York. At the same time, DOH had become more open to granting ASC licenses, referred to as Article 28s in New York. Historically, ASC licensure in the state was in perpetuity. Richard Daines, MD, DOH commissioner in 2009, loosened the approval process for ASCs, placing a limited life on the licenses for five years.

HOW WE LEVELED - CONTINUED ON PAGE 18

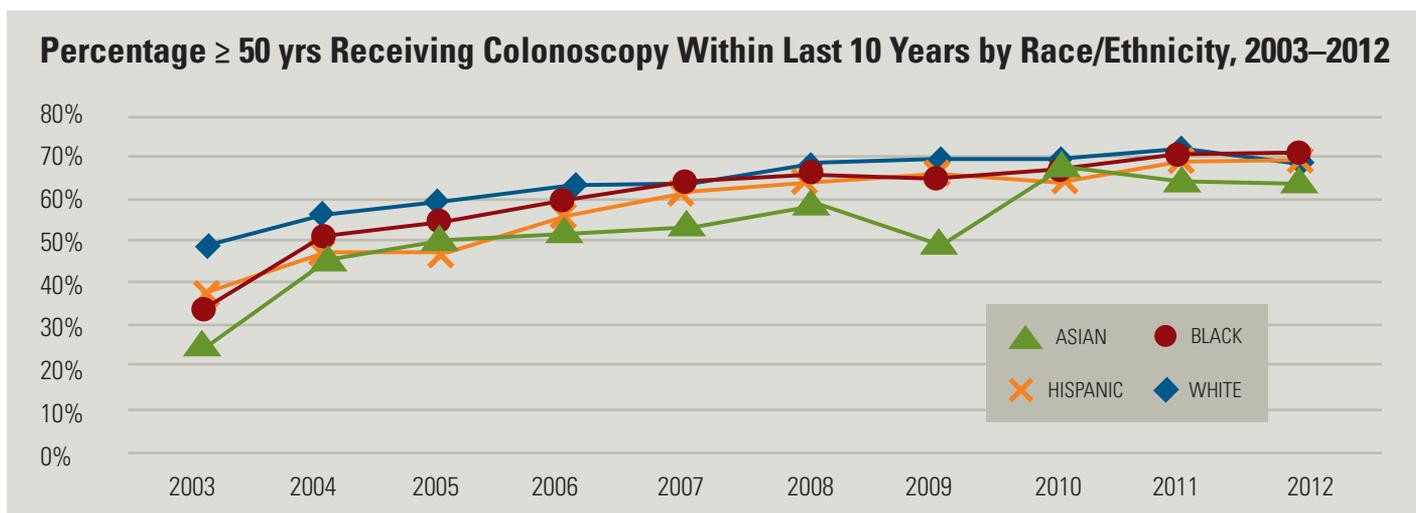


Figure 1: New York City colon cancer screening rates by race. Courtesy of the New York City Department of Health.

ASCs were now required to provide DOH their payor mix, level of charity care and Medicaid, adverse events, and nosocomial infection rates in order to renew their licenses. DOH wanted to encourage charitable care and Medicaid as part of its goals to eliminate all barriers to health care, and take a more active role in monitoring quality of non-hospital based endoscopy procedures.

Prior to applying for Article 28 status, the partners at CHE developed a relationship with a local federally qualified health center (FQHC) promising to provide free screening colonoscopies to their clients. The facility fee and the professional fees (GI and anesthesiology) would all be waived. Our affiliated hospital, Beth Israel Medical Center (BIMC), agreed to provide free pathology services as part of its charitable mission. BIMC was also amenable that any charitable patient requiring hospitalization following the procedure due to a complication or a finding on the procedure could be admitted to the facility. With this arrangement and despite the objections of other nearby hospitals, Carnegie was granted its initial license.

Many times in life, the greatest failures are born from good intentions. We were committed not to allow this to happen to our charity-care program at CHE. What on the surface seemed like a very easy program to initiate, presented many layers of small nuanced steps to insure success. Educating the FQHC physicians to refer patients for screening required the development of tools to describe the preparation, which were translated into several languages. Industry partners were asked to provide free preparation kits for the patients.

The FQHC needed a system to directly refer patients and properly relay all medical histories to avoid inappropriate screenings at the center. We adopted the direct referral form created by the New York City DOH for their C5 project. CHE's medical directors review all histories and approve the exams. We also had to create methods for (1) getting reports back to the FQHC, (2) immediately notifying them of any significant findings, and (3) establishing the appropriate recall interval. In addition, we assigned one of our

own administrative staff to be a navigator to answer any questions concerning the exam and the preparation to the patient.

The process began two years ago. It started as a mandatory task/burden created by DOH to allow us to maintain our license, yet it has now become fully integrated as part of CHE's mission. It is among the leading agenda items at our monthly board meetings. Charitable-care patients in our community are, for the most part, just another classification for the working poor. They work very hard to house, feed and clothe their families. These individuals do not make enough to afford health care, and their employers do not provide health insurance. They may also not be legal immigrants and thus are not covered under ACA. But as a group, they are responsible, very respectful and thankful for the care we provide.

Charitable care patients in our community are, for the most part, just another classification for the working poor. As a group, they are responsible, very respectful and thankful for the care we provide.

We have set aside one half-day block in one room every week for these cases. The no-show rate for this group is almost zero. The support staff and physicians at CHE have come to embrace this program as an important part of who we are. Doctors volunteer their time to provide care on a rotating basis, and has never been a problem getting coverage. The nursing staff, technicians and administrative staff all take great pride in our community service and responsibility. It has become one of the important elements that provide CHE with an *esprit de corps*, reminding us why we became health-care professionals. Our success has led DOH to develop the Community Cares Project to encourage other centers to have charitable arms, and several other endoscopy centers have adopted our program. We would like to extend our thanks to the New York State Department of Health for providing us with an opportunity to become re-grounded. ■

Pancreatic Cysts:

SURVEILLANCE

AND RESECTION

of Side Branch IPMN



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Dr. Fernández-Del Castillo has no conflicts to disclose.

The story I'm about to tell is likely a familiar one for gastroenterologists and gastrointestinal surgeons. A patient, perhaps a woman in her seventies, comes to the office with a high level of anxiety. Her spouse and children are with her, and they have a stack of printed materials that were downloaded from the Internet. The reason for the consultation is a pancreatic cyst that was incidentally discovered during a CT scan performed for an unrelated problem. The patient discloses that a close friend was recently diagnosed with pancreatic cancer that was already spread to the liver and died within six months; she hopes this will not be her fate.

You carefully read the radiology report and review the images. She indeed has a 1.2 cm cyst in the mid body of the pancreas. You agree with the interpretation that states that the cyst "likely represents a side branch intraductal papillary mucinous neoplasms (IPMN) but other neoplastic cysts or a pancreatic pseudocyst cannot be excluded." The radiologist goes on to say that

"MRI with MRCP and/or endoscopic ultrasound may be warranted for further evaluation." The patient's primary care physician in fact ordered the MRI — which shows the same cyst, a pancreatic duct of normal caliber and appearance, and two additional cysts measuring a few millimeters located in the head of the pancreas that seem to connect with the main duct. The impression in the MRI report is "multifocal branch duct IPMN," and once again, you agree.

Endoscopic ultrasound plays an important role in the management of patients with pancreatic cysts, although it is not a test for all.

The patient has read that IPMN is a precursor of pancreatic cancer, and one of the sons brings out an article that states the surveillance for branch duct IPMNs is not safe because even small cysts can harbor

cancer. Everyone is looking at you for direction, but at the same time, they are asking how much of the pancreas will need to come out and if the patient will become a diabetic.

This scenario (actually taken from a recent office encounter), or variations of it, is happening with alarming frequency in our practices. Studies with both MRI and CT show that the prevalence of pancreatic cysts in the adult population is about 2.5 percent and that this figure increases with age, to the point that 10 percent of individuals age 70 or older have one. In the U.S. alone, this percentage represents over 3.2 million individuals.

For sure, pancreatic cancer is a dire disease, and identifying and treating a precursor lesion would be an enormous benefit akin to what we do with surveillance colonoscopy and polypectomy. However, the vast majority of these cysts clearly have no consequence, and removing all of them would be irresponsible: in fact, doing so would cause more

PANCREATIC CYSTS - CONTINUED ON PAGE 20



PANCREATIC CYSTS - CONTINUED FROM PAGE 19

deaths than those from pancreatic cancer, since the mortality of pancreatic surgery is at least 2 percent. On the other hand, some of these cysts do harbor cancer or will develop it with time, and because of this concern surveillance is warranted.

The International Association of Pancreatology (IAP) guidelines, originally drafted in Sendai, Japan, and recently revised, have provided a framework for the management of these patients. They recognize that in asymptomatic individuals with cysts < 3 cm without a solid component and without duct dilation the risk of malignancy is very low, and therefore expectant management is safe. When the clinical and radiological diagnosis is that of a branch duct IPMN and any of the above features is present, resection is recommended. These guidelines have been evaluated by many centers and, with the exception of two studies that indicate otherwise, have been found to be very safe, with practically no cancers missed in absence of worrisome features, although in patients who

do undergo resection because these features are present, the frequency of carcinoma in-situ (which is now referred to as high-grade dysplasia) or invasive cancer is only about 25 percent; this shows a poor positive predictive value. Ideally, we would like to have tools that help us identify within this group those who have low-grade lesions that can still continue to be managed with observation, since many of these patients are elderly.

We need a test that early on will determine if a given cyst has potential for progression so that the patient can be reassured and surveillance avoided.

Endoscopic ultrasound plays an important role in the management of patients with pancreatic cysts, although it is not a test for all. The revised guidelines recommend that it be used for patients with cysts between 2 and 3 cm, as well as in those with cysts larger than 3 cm

when ongoing expectant management is being contemplated. EUS definitely helps differentiate side branch IPMNs from other cystic lesions and can sometimes identify high-grade lesions. The hope is that one day we will have a cyst fluid marker that reliably separates high- and low-grade lesions, but that technology is still not available. In what the patient previously described, and in fact in the majority of patients with pancreatic cysts, EUS with fine needle aspiration is not indicated.

In my opinion, the biggest challenge is what to do with the hundreds of thousands of individuals who, like the patient described above, will go on surveillance. They typically get an MRI with MRCP on a regular basis, which is what was recommended in this case. This process is laden with anxiety and the financial cost is not trivial. The current IAP guidelines do not give an endpoint to surveillance, although the soon-to-be-published AGA guidelines suggest stopping at five years. Ultimately, the goal is to find a test that early on will determine if a given cyst has potential for progression so that the patient can be reassured and surveillance avoided. ■

An Insider's Perspective to FINDING AND CREATING YOUR OWN FELLOWSHIP



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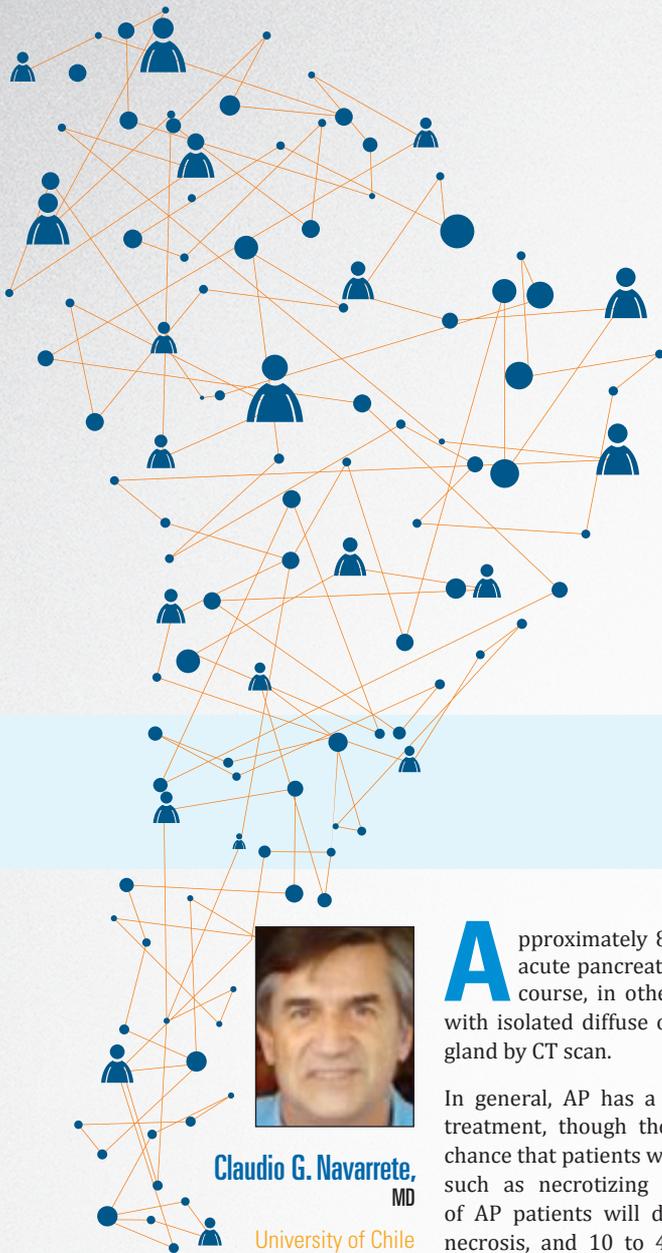
I am now two years out of my advanced esophageal fellowship at Mayo Clinic, but it feels just like yesterday that I was in my last year of GI fellowship trying to figure out what my next plan would be. The future seemed shaky: after all, at the end of my GI fellowship, I was used to having a preset pathway for training. If I were interested in GI subspecialties such as IBD or hepatology, I would have continued the path until I got a job. However, I had an interest in esophageal diseases and Barrett's esophagus, for which a roadmap did not exist. So, with the help of key mentors, networking and a little creativity, I tailored a program that fulfills my career goals.

A chance meeting with Dr. Amy Oxentenko at a non-scientific luncheon brought my ideas to reality. We discussed various aspects of GI training, and in particular, opportunities to fashion a fellowship suited to my interests. Being the program director of gastroenterology at Mayo Clinic Rochester, she put me in touch with the fellowship directors of GI oncology and general esophagus at her institution. Both program directors and I collaborated on how to create a blend of the two programs. What we ended up with was a fellowship tailored to my interests, but with the skill set to implement in the real world. We created

a 12-month program that incorporated the basics of esophageal function and motility with endoscopic skills for the management of Barrett's esophagus (and early esophageal cancer). I could not have asked for a better program or group of mentors to learn from. I spent six months in the esophageal lab learning to perform and read pH/impedance and manometries. I saw patients in a dedicated esophageal diseases clinic as well. I spent the remaining six months in the endoscopy suite learning endoscopic mucosal resection, cryotherapy and radio frequency ablation. In the background, I did research with amazing mentors that have shaped the nature of my practice.

My mentors' willingness to push the boundaries and provide such an experience has left me with a deep appreciation for them and Amy. It's a testament to our profession that I could create a unique fellowship focused on what I wanted. I now have a job doing what my career passions are — managing patients with Barrett's and general esophageal diseases. With the support of my current division, I created a Barrett's treatment program for our region, and provide dedicated clinics for general esophageal diseases. I did not expect my vision would become a reality, but it did, thanks to my mentors and their support. ■





Endoscopic and Surgical Management of PANCREATIC NECROSIS in Latin America



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Drs. Gobelet and Navarrete have no conflicts to disclose.

Approximately 80 percent of patients with acute pancreatitis (AP) will have a benign course, in other words, mild pancreatitis with isolated diffuse or focal enlargement of the gland by CT scan.

In general, AP has a good response to medical treatment, though there is a 15 to 20 percent chance that patients will develop a severe disease, such as necrotizing pancreatitis. Fifty percent of AP patients will develop infected pancreatic necrosis, and 10 to 40 percent of patients can develop sepsis and multi-organ failure with high morbidity and mortality. The early mortality is determined by the sepsis and multi-organ failure; on the other hand, the late mortality is determined by the infected pancreatic necrosis, peripancreatic fluid collections, pseudocyst and infected necrotic collections, or walled-off pancreatic necrosis, typically after four weeks of illness.

When is it appropriate to perform an endoscopic treatment? We recommend intervention in two instances: (1) when choledocholithiasis is present with bile duct obstruction, warranting an ERCP; (2) in the setting of infected peripancreatic or pancreatic necrosis.

The current focus is in the presence of pancreatic necrosis, thus, the following categories will be recognized:

- Acute peripancreatic fluid collections — fluid collections without necrosis, less than four week after the onset of AP.
- Pseudocyst — fluid collections without necrosis, more than four week after the onset of AP.
- Acute necrotic collections — collections after post-necrotizing pancreatitis, which can be infected or not, less than four weeks after the onset of AP.
- Walled-off necrosis — an encapsulating wall surrounding an area of necrotizing pancreatitis occurring four weeks after the onset of AP.

So, how do we know if the collections are infected or not? Infection is strongly suspected when there is gas in the necrotic area documented by abdominal imaging, when the patient develops deterioration of his clinical status with sepsis or systemic inflammatory response syndrome. Infection may be proven by culture and/or Gram stain of tissue or fluid by imaging-guided aspiration, preferably trans-abdominally by CT

or EUS. EUS-fine needle aspiration is a nonsterile technique, and it will lead to false positive results.

But, what do we mean when we speak of complicated? For us, it is a pancreatic or peripancreatic collection that needs urgent drainage or debridement because the patient's condition is deteriorating, which may lead to death.

Different options are available for an endoscopic approach:

1. Transmural puncture with nasocystic catheter placement.
2. Pseudocyst drainage (cystogastrostomy) performed via transmural technique with placement of one or multiple stents between the pseudocyst and the stomach or duodenum.
3. Endoscopic necrosectomy with a cystogastrostomy and using different endoscopic tools (snare, Roth nets, baskets, etc.) to clean the necrotic material usually with placement of a nasocystic tube and frequent lavage with sterile saline and/or antibiotics with plans for reintervention usually.
4. Percutaneous drainage by interventional radiology.

When the endoscopic drainage is confirmed, we ask the following question: is the pancreatography necessary?

The response depends on:

- If the patient has chronic pancreatitis, the pancreatic duct and peripancreatic or retrogastric collection are almost always connected (usually more than 90 percent of the cases).
- Conversely, in acute pancreatitis, this situation is seen in a small percentage of patients (4 to 5 percent).

We recommend performing a pancreatography when treating patients with chronic pancreatitis to evaluate if a pancreatic fistula is present. In this case, a pancreatic stent should be considered.

If the drainage is in the setting of acute pancreatitis, we treat the collection and then, if the collection recurs, we perform the pancreatography. If a fistula is diagnosed, we recommend pancreatic stent placement.

A multidisciplinary team must be involved in all decisions in this complex group of patients.

In the last two years, we have developed, in our unit, a combined endoscopic-percutaneous approach to solve this problem. The minimally invasive retroperitoneal approach to the necrotic material requires a lumbar percutaneous catheter placement by interventional radiology. A day later, a guidewire is introduced into the retroperitoneal collection through the percutaneous drainage. The drain placed by interventional radiology is removed from the retroperitoneal space, the fistulous tract is dilated with a wire-guided balloon to 1 cm, and then we place an expandable fully covered esophageal stent. The stent facilitates dilating the tract to almost 3 cm, allowing us to insert an endoscope for percutaneous access into the retroperitoneum, avoiding contamination of the abdominal cavity.

At the present, we have treated 15 patients with no fatal outcomes. The advantages of this technique include: that it is a minimally invasive approach; it avoids the abdominal cavity reducing the infection risk; it allows us to enter the retroperitoneal space repetitively with minimal sedation; and, furthermore, we have not needed to do an open necrosectomy since we started using this approach.

To conclude, it is indispensable that a multidisciplinary team is involved in all decisions in this complex group of patients. ■

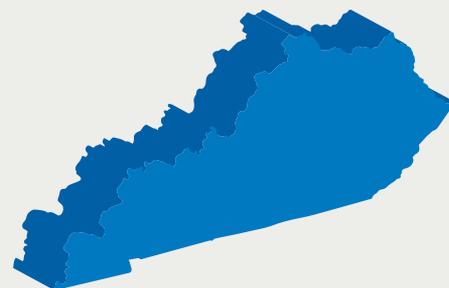
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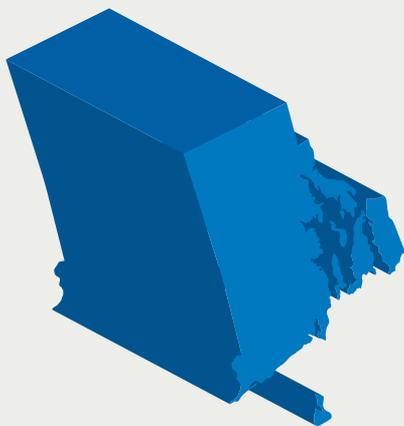
Our medical group is seeking to add another partner to our practice. We are located in San Luis Obispo County, California, a coastal community near Pismo Beach, Avila Beach, and Paso Robles. The area has a moderate climate, offers a unique array of outdoor/cultural activities, and is recognized as a premier wine growing area in the country.

We are interested in a gastroenterologist with excellent endoscopic/clinical skills, proficiency in ERCP, and development of a EUS capability is being considered. Please mail CV to CCGMG, Attn: Dr. Vance Rodgers, [1551 Bishop Street, Suite 230, San Luis Obispo, CA 93401](#).



KENTUCKY

The Division of Gastroenterology, Hepatology and Nutrition at the University of Louisville School of Medicine is recruiting a board certified hepatologist/gastroenterologist for our liver transplant program. There is considerable support for clinical/translation research and excellent collaboration. The University of Louisville is an equal opportunity affirmative action employer. Interested candidates are invited to submit a curriculum vitae. Contact Kristine Krueger, MD, Professor and Chief, Academic and Clinical Affairs, Division of Gastroenterology, Hepatology and Nutrition, University of Louisville School of Medicine, Louisville, KY 40292. Email: gimed@louisville.edu



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