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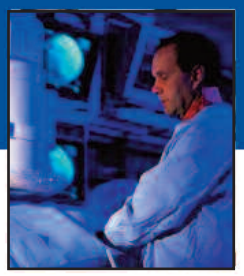
A DEPARTMENT OF MEDICINE BULLETIN

UF UNIVERSITY of FLORIDA
College of Medicine
Jacksonville

CHAIRMAN'S MESSAGE

Dear colleagues:

For academic medical centers, July is an especially busy and exciting month. It is when a new budgetary cycle starts and a new crop of trainees arrive. These young and bright physicians bring with them a new sense of hope for our future and are an inspiration for all of us on the faculty to stay up-to-date with our knowledge. It is the presence of these young trainees who are constantly looking up to the faculty that makes us better physicians and more caring and circumspect individuals. It is thus not surprising that the excellence of the faculty in the department was recognized this year again with 14 faculty members receiving the 2012 University of Florida College of Medicine's Exemplary Teachers Award. This award is given in recognition of outstanding teaching contributions of individual faculty member.

The faculty and the trainees presented their research papers on May 17. More than 38 percent of platform and poster presentations of fellows and residents were made by the members of the department.

I am especially proud of our Medical Jeopardy Team, which had an exceptional year. The team achieved regional championship and reached semi-finals at the national competition held April 20 in New Orleans.

As we embark on a new academic year, we are confident we will build on our past success and achieve new levels of excellence in scholarly productivity.

Arshag D. Mooradian, MD
Professor of Medicine
Chairman, Department of Medicine

Hammad Bhatti, MD, James Cury, MD and Faisal Usman, MD

Division of Pulmonary, Critical Care & Sleep Medicine

University of Florida College of Medicine–Jacksonville

Approach to Acute Exacerbation of Interstitial Pulmonary Fibrosis (IPF)

Interstitial pulmonary fibrosis (IPF) is a progressive, irreversible chronic lung disease. It usually presents with progressive dyspnea, reduced lung volumes, bilateral lower lobe reticular opacities and the usual interstitial pneumonitits (UIP) pattern on histology. There is no definitive treatment and median survival is close to three years [1,2].The natural history of IPF was thought to be a steady decline in lung function, but recent literature has demonstrated that the decline in lung function may be more step wise and often accompanied by acute exacerbations hastening the fibrosing process and ultimately resulting in death [3].

There is no consensus on an established definition of acute exacerbation of interstitial pulmonary fibrosis (AE-IPF). Most of the studies define AE-IPF as a combination of symptoms, radiographic findings, blood gas parameters and an exclusion of any alternative causes of this clinical scenario. Collard et al. in 2007 proposed the following definition: "An unexplained new or worsening shortness of breath within the past 30 days, along with new lung infiltrates and exclusion of any reversible and recognizable etiology causing lung injury" [4]. AE-IPF is now identified as a life-threatening complication. It presents as worsening dyspnea with new ground glass opacities superimposed upon a radiographic UIP pattern. Diagnostic strategies include computerized tomographic angiogram (CTA) coupled with high resolution computerized tomography (HRCT) imaging of the chest, bronchoalveolar lavage (BAL) and echocardiogram with bubble study to rule out any reversible etiology for an acute decomposition of a previously stable IPF patient. Prognosis of AE-IPF is poor and treatment strategies lack standardization. Preventing risk factors, identifying antecedent underlying causes and supportive care are the mainstays of treatment.

Akira and colleagues were able to show that the appearance of new extensive ground glass abnormalities on HRCT against a background of basilar honeycombing is a telltale sign of AE-IPF. They demonstrated three distinct radiographic patterns of AE-IPF in their study of 58 patients including peripheral, diffuse and multifocal patterns of new ground glass infiltrates. The peripheral pattern was by far the most common pattern, but worse survival was associated with the diffuse pattern [7]. Histologic findings from lung biopsy in AE-IPF not only shows the typical UIP pattern, but also shows diffuse alveolar damage with or without hyaline membranes, numerous fibroblastic foci, organizing pneumonia, and hemorrhage with capillaritis [11].

Most of the time, the clinician is faced with a patient with known IPF who has a rapid deterioration without an obvious cause. There is no definitive long-term treatment proven effective for IPF. Most investigators have used pulse corticosteroid therapy at a dose of 500 to 1,000 mg

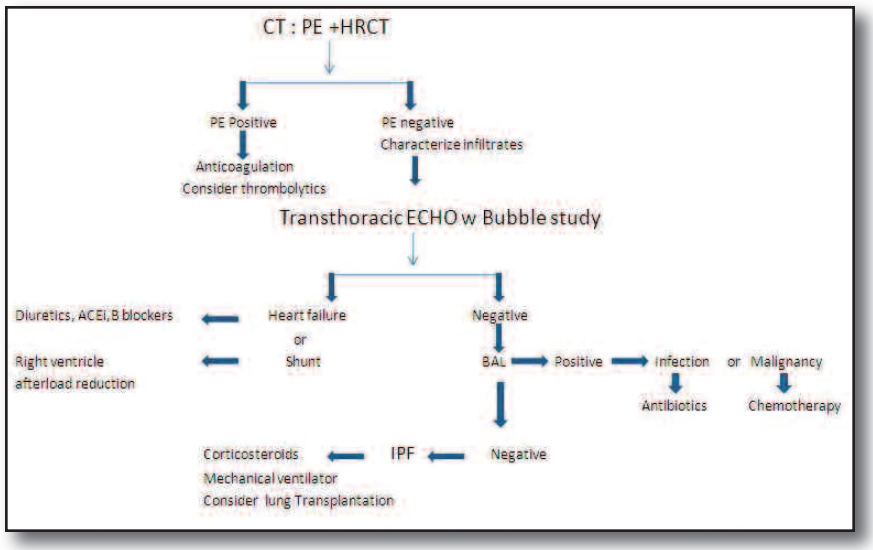


Figure 1: Algorithm: approach to Acute exacerbation of Idiopathic Pulmonary Fibrosis. CT- computed tomography chest; PE-pulmonary embolism; HRCT-high resolution computed tomography chest; ECHO-Echocardiogram; BAL-Bronchoalveolar Lavage; IPF-Idiopathic Pulmonary Fibrosis

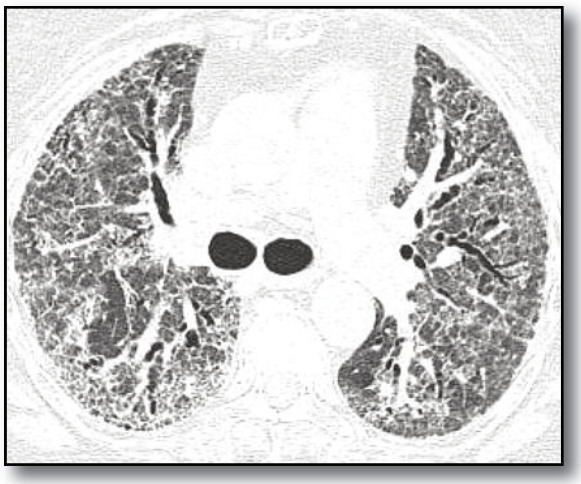


Fig.2 HRCT showing coarse reticular opacities, subpleural honeycombing and traction bronchiectasis in a patient with AE-IPF. Superimposed ground-glass opacities are seen in both lung fields.

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Focus continued from Page 2

of methylprednisolone per day for three days (the same dose regimen used to treat idiopathic ARDS) [8,9]. However there is a single study that shows a decreased incidence of AE-IPF in patients treated with pirfenidone. This study was a double-blind, randomized, placebo-controlled trial of pirfenidone in the treatment of IPF. The study demonstrated a reduction in AE-IPF as a secondary end point [5].Of the 107 patients who were placed on pirfenidone and followed for six months, only five developed AE-IPF. All AE-IPF cases were in the placebo group, favoring the preventive role of this antifibrotic medication. Despite this, pirfenidone is not accepted as an effective therapy of IPF. Most physicians treat patients with AE-IPF with high-flow supplemental oxygen and corticosteroids. Mechanical ventilation is instituted earlier rather than later in the disease course. Low tidal volumes (6 ml/kg) have been shown to reduce the sheer stress in patients with ARDS [10]. In patients with AE-IPF, the same principles would hold true as there are areas of diffuse damage to the alveolar structures. Providing large tidal volumes (10 ml/kg) may lead to over inflation of the more compliant normal lung parenchyma with further respiratory compromise. Lung transplantation seems to be the only viable option, however transplantation is both very costly and not uniformly available [6].

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GME CORNER

Jeffrey House, DO

Associate Professor of Medicine, Division of General Internal Medicine

Program Director, Internal Medicine Residency

Just what is the Next Accreditation System (NAS)?

With the 2012-2013 academic year upon us, we will begin a new phase of monitoring and evaluation of residency and fellowship training programs around the country. The Accreditation Council for Graduate Medical Education (ACGME) has announced the rollout of its Next Accreditation System (NAS) for all graduate medical education (residency and fellowship) programs that hold ACGME accreditation. This will significantly transform the existing accreditation system into a more outcomes-focused process. This is a major shift from the emphasis in having programs state in their Program Information Forms (PIF) what they will teach trainees to do to requiring programs demonstrate that their trainees have actually achieved competence in those areas. The PIF's replacement will be a "self-study" or "self-evaluation" to be completed before the 10-year site visit. The end result will place greater responsibility of the sponsoring institution for the quality and safety of the teaching and patient-care environment.

Beginning July 2013 the NAS will be implemented to all internal medicine training programs as well as its subspecialties. Five other programs will also start during this year, including emergency medicine, neurologic surgery, orthopaedic surgery, pediatrics, diagnostic radiology and urology. The remaining programs will begin the following year. Although this system may officially be underway next year, it is anticipated that data collection will begin this academic year. Parameters to be looked at include a milestone data set, resident and faculty surveys and operative and case-log data. It is anticipated that programs will eventually submit composite milestone data every six months in conjunction with the resident semiannual evaluations. The ACGME will update the

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accreditation status of each program yearly based on trends in key performance parameters. Due to the more frequent self-evaluation reports, all medicine programs on this campus will not have a site visit until 2018 (except rheumatology because it is a new program).

Although there is much still to be decided before the NAS can reach its full potential, it is clear that the upcoming years in the world of graduate medical education will look vastly different. Gone will be the "process-based" accreditation system, whose foundation was PIFs and episodic site visits. The future system will be more outcomes based, with more regular reporting and will incorporate educational milestones, which are the next phase of the original six competencies. The ACGME trusts that this new system will enhance resident education in quality, patient safety and the new milestone-driven competencies.

For more information regarding the NAS, please see Dr. Nasca's report from this February's New England Journal of Medicine: NEJM (366;11,1051-56:2012).

A CLINICAL CASE

University of Florida College of Medicine – Jacksonville Department of Medicine, Division of Hematology & Medical Oncology

Louise Zhou, MD, Cristian Landa, MD, Robert Zaiden, MD

Malignant Duodenal Melanoma Presenting as Iron Deficiency Anemia

Reprinted with some editing from Clinical Advances in Hematology & Oncology, Volume 10, Issue 1 January 2012.

Introduction

Myeloid sarcoma (MS) is an aggressive tumor of immature myeloid cells that is believed to be a variant of acute myelogenous leukemia (AML). Most cases of MS progress to AML. Involvement of multiple anatomic sites is rare.

Case Report

A 54-year-old caucasian female was admitted for fevers, night sweats, decreased appetite, weight loss of 20 pounds in one month, diffuse rash, and purpuric lesions on her lower extremities. Physical examination revealed a diffuse maculopapular rash on the anterior chest and trunk and a palpable, 1-cm, inguinal lymph node.

Initial laboratory studies revealed hemoglobin of 9.1 g/dL, hematocrit of 28.4 percent, white blood count of 10.6 × 10^3/µL, platelet count of 486,000/µL, C-reactive protein of 224.3 mg/L, erythrocyte sedimentation rate of 88 mm/hr, and serum lactate dehydrogenase of 257 U/L. Computed tomography (CT) with contrast of the chest, abdomen, and pelvis revealed extensive mediastinal, retroperitoneal, periaortic, pelvic, and inguinal lymphadenopathy. An inguinal lymph node biopsy and bone marrow biopsy showed no evidence of lymphoma. The right inguinal lymph node biopsy revealed granulomatous inflammation and caseating necrosis. The bone marrow biopsy revealed mildly hypercellular bone marrow with trilinear hematopoiesis; no granulomas or tumors were seen. Acid-fast bacillus and silver fungus stains were negative. The patient's rash resolved with prednisone and she was discharged home.

One month later, the patient was readmitted for fever, chills, and a three-day history of leg pain. Physical examination showed a new palpable left supraclavicular lymph node and right lower extremity edema with calf tenderness. Doppler ultrasound of the lower extremities revealed a right deep vein thrombosis and prominent bilateral groin lymph nodes, the largest measuring 4 × 2 cm. Repeat bone marrow biopsy was again negative for malignancy. A second lymph node biopsy was never performed due to unacceptable operative risk. The patient was discharged after receiving therapeutic anticoagulation for the deep vein thrombosis.

One week after being discharged, the patient presented with acute renal failure, progressing to septic shock and multi-organ failure. CT of the abdomen and pelvis showed worsening of the intra- and extra-peritoneal lymphadenopathy with encasement of the retroperitoneal vasculature and severe compression of the intra-abdominal inferior vena cava (Figure 1). The patient died on the fourth day of her hospital course.

Autopsy revealed MS with extensive involvement of the retroperitoneum, mediastinum, and axillary lymph nodes. The skin, spleen, soft tissue, and pleural space were also notably infiltrated by immature myeloid cells. Diagnosis was made by immunohistochemistry with staining, including CD45 (Figure 2).

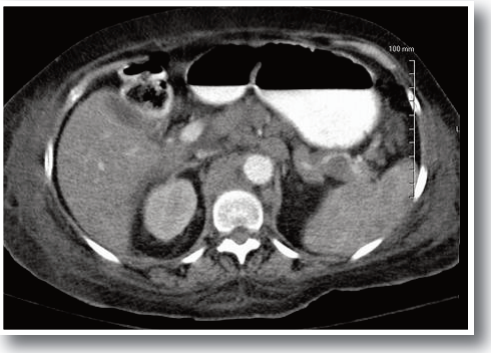

Figure 1: This computed tomography scan of the abdomen shows worsening of the lymphadenopathy with mass effect and compression of the intra-abdominal inferior vena cava.

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A Clinical Case continued from Page 4

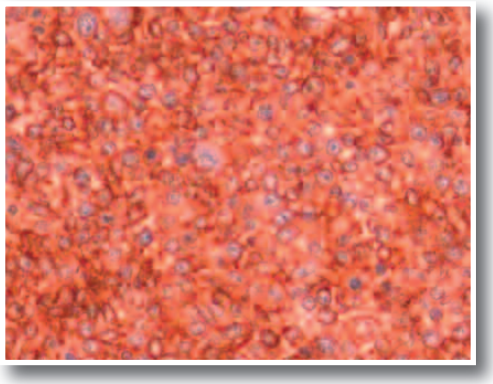

Figure 2: A definitive diagnosis of myeloid sarcoma is by immunohistochemistry. This stain with CD45 of the lymph nodes shows myeloblasts.

The bone marrow was found to be aplastic, with no evidence of acute leukemia. Bilateral pulmonary emboli secondary to hypercoagulability from malignancy was identified as the cause of death.

Discussion

MS is a tumor of myeloblasts or immature myeloid cells occurring in the bone marrow or extramedullary sites. It was first described by Burns in 1811 and was initially called a chloroma by King in 1853, owing to its green appearance due to myeloperoxidase enzymes in the myeloblasts [(1)]. It can occur in any anatomic site, but commonly involves the bone marrow, lymph nodes, periosteum, soft tissue and skin. Involvement of multiple anatomic sites—as was seen in this patient—is very rare. Infiltration of skin with neoplastic cells, known as leukemia cutis, is a harbinger of poor prognosis and indicates an aggressive course, with death occurring within six to seven and a half months [(2)]. The clinical presentation can be very variable. It is now believed that this condition is a tissue variant of AML and its diagnosis is equivalent to a diagnosis of AML. The incidence of this disease in AML is 3 to 5 percent.

Misdiagnosis as non-Hodgkin lymphoma (NHL) can occur due to histologic similarities of the blasts to large-cell NHL, which is especially true in poorly differentiated MS. Definitive diagnosis is based on immunohisto chemistry, including stains for myeloperoxidase, lysozyme, CD45, CD43 and CD68 [(4)]. Cytomorphology via fine needle aspiration of palpable masses or bone marrow biopsy can also be used to aid in the diagnosis.

Paradoxically, the presence of a normal bone marrow biopsy, as was seen in our patient, generally correlates with a worse outcome [(3)]. Given the rarity of this disease, there are limited studies and currently no consensus on the treatment of myeloid sarcoma, whether it is isolated or accompanied by a hematologic malignancy. Treatment is the same as that for AML, even for isolated tumors without hematologic involvement. Currently, it is believed that systemic chemotherapy should be given to all patients. Additionally, surgical removal of the tumor and/or radiation is indicated if the tumor is massive or if there is spinal cord compression. Patients treated with surgery and/or local radiotherapy generally have a shorter survival as compared to those treated with systemic chemotherapy [(5)]. Although steroids are not standard therapy, they have been shown to reduce the size of the lymphadenopathy and the number of blasts in the bone marrow. Survival appears to be slightly higher in patients who have undergone an autologous or allogeneic bone marrow transplant, although studies are limited [(3)].

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RX UPDATES

By: Rachel O'Geen, PharmD, Toxicology Fellow

Antiemetics and the QT Interval: No Perfect Option

Reprinted from Drug Update Volume 28, Number 5; November-December 2011, with permission.

The FDA has recently issued a safety announcement regarding risk of QT interval prolongation caused by the 5-HT3 receptor antagonist ondansetron (Zofran®). This new FDA safety advisory was based on several reports. The Arizona Center for Education and Research on Therapeutics (Arizona CERT) website lists ondansetron as a "Drug with a Possible Risk of Torsade de Point (TdP)" and cites that while QT prolongation has been noted, substantial evidence regarding the potential for inducing TdP is not available. In addition to ondansetron, the risk of QT prolongation is present with several other antiemetics including prochlorperazine (Compazine®), droperidol (Inapsine®) and other 5-HT3 receptor antagonists. Therefore, it may be reasonable to avoid these medications in patients at risk for QT prolongation.

Which antiemetics do not have warnings for pro-longed QT interval in their package inserts?

Antiemetics that currently do NOT carry a warning regarding QT prolongation in their package inserts include promethazine (Phenergan®), metoclopramide (Reglan®) and trimethobenzamide (Tigan®). None of these

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medications are listed on the Arizona CERT website as potential causes of QT prolongation or TdP. However, two reports of QT prolongation and TdP exist with metoclopramide use in patients with renal insufficiency and/or existing heart problems. Despite the lack of FDA warnings, QT prolongation has also been reported rarely with promethazine and one report of TdP has been suggested in a Japanese patient who was also taking levomepromazine (similar to chlorpromazine). Promethazine is noted to have "quinidine-like" local anesthetic effects and anticholinergic actions that may produce cardiac effects and EKG changes. Additional EKG monitoring may be reasonable in patients receiving promethazine who have preexisting QT prolongation or risk factors for development of TdP or other arrhythmias.

Are there differences in efficacy or safety among antiemetics that may have a lower risk of QT prolongation or TdP?

There are no head-to-head trials comparing promethazine, metoclopramide and trimethobenzamide; however, promethazine appears to have the most data supporting its efficacy as an antiemetic. At higher doses, promethazine is known to cause sedation. Metoclopramide was not associated with benefits as an antiemetic in the emergency department in one review article, except for treatment of migraine- or gastroparesis-induced nausea. Extrapyramidal effects may occur, especially if given in higher doses, and in certain populations (young or renally impaired). Doses should be reduced by 50 percent for CrCL < 40 mL/min. Trimethobenzamide's mechanism of action is similar to metoclopramide, but it is less potent. In a meta-analysis of several antiemetics for the treatment of gastroenteritis, trimethobenzamide was found to provide no improvement in nausea/vomiting compared to placebo. Of note, the FDA removed trimethobenzamide rectal suppositories from the market in 2007 due to a lack of clinical efficacy in the treatment of nausea/vomiting.

What are the necessary monitoring parameters in patients receiving ondansetron or promethazine?

Patients susceptible to QT prolongation include those with electrolyte abnormalities (e.g., hypokalemia or hypomagnesemia), congestive heart failure, bradydysrhythmias, or patients taking other medications that prolong the QT interval. The FDA recommends EKG monitoring in these patients when using ondansetron. Ondansetron should be avoided in patients known to have congenital long QT syndrome. Recommendations from the Shands Jacksonville P&T Committee indicate that telemetry monitoring may be appropriate for hospitalized patients at high risk for QT prolongation who are receiving ondansetron. Electrolyte imbalances should be corrected. The Committee also acknowledges that while the FDA did not provide specific recommendations, the risk may be greater in patients who receive the medication long term (i.e., oncology patients). A baseline EKG with scheduled follow-ups every few weeks is recommended when ondansetron is used chronically.

When using promethazine in patients at increased risk of QT prolongation, EKG monitoring may be prudent due to its potential for QT prolongation; however, this effect has not been shown to be torsadogenic in patients without baseline risk factors. Other common adverse effects

include drowsiness or sedation. Promethazine is contraindicated in patients less than 2 years of age due to a risk of fatal respiratory depression. In 2006, the Institute for Safe Medication Practices alerted prescribers that IV promethazine is associated with severe tissue damage in some cases requiring surgical intervention. Subcutaneous injection is contraindicated and concentrations above 25 mg/mL should not be used for IV injection. When given IV, promethazine should be administered through a large-bore vein with a free-flowing IV into the port furthest from the patient. It is recommended that the medication be diluted with normal saline to at least 10 mL and given at a rate not to exceed 25 mg over one minute. Use of extravasation and phlebitis precautions is suggested.

In summary , several antiemetics increase the risk of QT prolongation and/or TdP. This provides significant challenges for the practitioner treating patients with nausea and vomiting. Recent FDA warnings regarding the use of ondansetron advise increased monitoring, especially in patients at risk for QT prolongation. Promethazine, despite some risk for QT prolongation may have less risk for TdP, although other safety concerns exist with this agent. Limited evidence supports the antiemetic efficacy of metoclopramide and trimethobenzamide. As a result, practitioners are encouraged to weigh efficacy and safety information and select therapy on a patient-specific basis. Close monitoring should be considered for patients with risk factors for QT prolongation.

A Successful Research Day

The department of medicine once again this year had an exceptionally successful presence at the Research Day on May 17.

More than 38 percent of platform and poster presentations of fellows and residents were made by the members of the department. Of the platform presentations, **Dr. Ryan Wilson** was the first-place winner, and **Dr. Rohan Samson** won second place. In addition, among the poster presentations, **Dr. Lacie Brenner** was the first-place winner, **Dr. Michael Babcock** won fourth place, and **Dr. Anna Szafran-Swietlik** won fifth place.

We are also pleased to announce that **Dr. Charles W. Heilig**, professor of medicine and chief of the division of nephrology and hypertension was the recipient of the 2012 Robert C. Nuss Researcher/Scholar Award.

We are very happy to see that the research productivity of our house staff remains excellent.

Please join us in congratulating all the participants, especially the top-prize winners.

Special Recognition for Excellence in Teaching

We are pleased to announce that the following members of the Department of Medicine have been recognized by the Department of Medicine Committee on Medical Education and Dr. Robert Hromas (Chairman of the Department of Medicine in Gainesville) for excellence in teaching.

Dr. Jeffrey House, Associate Professor of Medicine, Internal Medicine Residency Program Director

Dr. Ghania Masri, Assistant Professor of Medicine, Division of General Internal Medicine

Dr. Justin Federico, Chief Medical Resident, Department of Medicine

Drs. House, Masri and Federico were honored at Medical Grand Rounds in Gainesville on June 21.

Please join me in congratulating them on this honor.

MEET YOUR COLLEAGUES

Emily Eid, MD, Assistant Professor of Medicine
Division of Gastroenterology

Dr. Eid earned her medical degree, with distinction, from the American University of Beirut in Beirut, Lebanon. She completed her residency in internal medicine at Indiana University in Indianapolis, Ind., and her fellowship in gastroenterology at the University of Texas-Southwestern Medical Center in Dallas, Texas. Dr. Eid is a member of numerous professional organizations, including the American Society of Gastrointestinal Endoscopy, American Gastroenterological Association and the Lebanese Order of Physicians.

Cristian Landa, MD, Assistant Professor of Medicine
Division of General Internal Medicine

Dr. Landa earned his medical degree from Ross University School of medicine in Dominica, WI. He completed his residency in internal medicine at the University of Florida College of Medicine–Jacksonville. Dr. Landa was the recipient of an Outstanding Resident Educator Award and is a member of the American College of Physicians and the American Medical Association.

Syed Hammad Jafri, MD, Assistant Professor of Medicine
Division of General Internal Medicine

Dr. Jafri earned his medical degree from D.J. Sindh Government Science College in Karachi, Pakistan. He completed his residency in internal medicine and served as chief medical resident at the University of Florida College of Medicine–Jacksonville. Dr. Jafri was presented with the Young Trainee Research Award by the American Federation for Medical Research and is a member of the American Medical Association and the American Federation for Medical Research.

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MEET OUR CHIEF MEDICAL RESIDENTS

Emily M. Christman, MD - Chief Medical Resident 2012-2013

Dr. Christman is a 2004 graduate of Georgetown University School of Medicine. She then served in the U.S. Navy as a flight surgeon from June 2006 to June 2009. She was deployed for two tours during Operation Iraqi Freedom and received the Navy and Marine Corps Commendation Medal.

Dr. Christman began her internal medicine residency at the University of Florida College of Medicine–Jacksonville. With a strong interest in gastroenterology, she became engaged in research efforts early on, presenting two posters at the American College of Gastroenterology meeting during the start of her second year. She subsequently has had presentations at other state and national meetings, including the Florida Chapter of the American College of Physicians and Digestive Disease Week in 2011. She has served on several committees including the Resident Graduate Medical Education Committee, to which she was elected chair for the 2011-12 academic year and was the recipient of the Ann Harwood-Nuss Residency Advocacy Award in 2012.

Ryan E. Wilson, MD - Chief Medical Resident 2012-2013

During his time at Ross University School of Medicine, Dr. Wilson was active in volunteering with the Salabyia Mission Project and was involved in student government as the elected president of the Honor Council. He completed clinical rotations throughout the United States and graduated with highest honors in June 2009.

Dr. Wilson began his internal medicine training at the University of Florida College of Medicine–Jacksonville. During his intern year, he got involved in several research projects with faculty from the internal medicine and cardiology divisions which led to several posters at conferences in Tampa, Miami and Atlanta. He also won the UF College of Medicine–Jacksonville Research Day oral platform presentations two years in a row, was presented with the Malcolm T. Foster Jr. Outstanding Intern Award and Malcolm T. Foster Jr. Scholarship Award. Ryan was also active within the internal medicine program and was elected by his peers to sit on the Housestaff Council.