TITLE: ONCOLOGY RESEARCH: SUCCESS AND CHALLENGES

Speaker: Zeina Nahleh, MD, FACP, Associate Professor of Medicine and Biomedical Sciences, Chief, Division of Hematology-Oncology, Department of Internal Medicine, TTUHSC Paul L. Foster School of Medicine, El Paso, Texas

Introduction: Cancer is much too common. Physicians in virtually every medical specialty will continue to encounter and care for patients with cancer. Thanks to research, millions of people are now cured or surviving for years beyond a cancer diagnosis. More needs to be done

Objectives:
- Discuss the progress made in cancer research and its impact on patient outcomes
- Discuss some of the challenges facing cancer research and how to address them

Discussion: It is evident that since the national cancer act was signed in 1971, therapy has changed and lives have been saved. Progress in the fight against cancer is facing many challenges today. It is important to spread the message about advances in cancer research in order to keep the momentum. Despite the challenges facing health care today, it is vital to continue to support and be active participants in cancer research, an integral part of any successful cancer program

Conclusions/take home points:
- Tangible benefits of cancer research are a reduction in cancer mortality and improvement in the quality of life of our patients.
- Cancer is not always curable. Advances have been and will only be possible through properly conducted research.
- Clinical trials are an essential component of cancer programs. The benefits include:
  - Improved health and quality of life of cancer patients.
  - Provision of more options available through participation in clinical research.
  - Development of novel investigational medications and processes that can play an important role in the advancement of medicine therapy.
- Many challenges face clinical research. The historical lengthy and costly approach to cancer clinical trials design should change. New paradigms in trial design should be implemented, as well as more collaboration among scientists, clinicians, pharmaceutical, federal, and funding agencies.

- At Texas Tech University Health Sciences Center El Paso and the Paul L. Foster School of Medicine we will continue to participate in the global campaign against cancer but more importantly, we will:
  - Be proactive locally to develop vitally important clinical research, patient education, and advocacy programs that benefit our community today and create new hope for the future.
  - Stand among the most passionate organizations working today to live up to our mission of providing the best quality care and cutting edge research by supporting and activating local cancer research programs.

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TITLE: ENDOSCOPIC ULTRASONOGRAPHY (EUS), THE NEW FRONTIER IN GASTROENTEROLOGY

Speaker: Mohamed Othman, Assistant Professor of Medicine, Department of Internal Medicine, TTUHSC Paul L. Foster School of Medicine, El Paso, Texas

Introduction: Endoscopic ultrasonography has emerged to be a cornerstone in the diagnosis and treatment of many gastrointestinal disorders

Objective: Identify the use of EUS in the diagnosis and management of various disorders that relate but are not necessarily a part of the gastrointestinal tract.

Discussion: In the chest, EUS can provide accurate staging of non-small cell lung cancer through regional lymph node sampling. EUS can differentiate mediastinal cysts (bronchogenic or duplication cysts) from mediastinal masses. It can also accurately distinguish between tumors limited to the mucosa and tumors invading into deeper layers, a critical finding, since lesions confined to the mucosa can be treated endoscopically either by endoscopic mucosal resection or endoscopic mucosal dissection. In comparison to a dynamic CT scan EUS is more accurate in staging nodal metastasis.

EUS is useful in differentiating submucosal lesions from extraluminal structures or pathology compressing against the wall of the gastrointestinal tract and can further differentiate between

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different types of submucosal lesions based on the layer of origin and the echo pattern. For example, the presence of a well-circumscribed hyperechoic submucosal lesion is diagnostic of lipoma. In contrast, the finding of a hypoechoic mass arising from the muscularis propria most likely represents a gastrointestinal stromal tumor (GIST). While lipomas are benign lesions and require no further intervention in most cases, up to 30% of GIST can be malignant at the time of diagnosis and require follow-up or resection in certain circumstances.

The ability to perform ultrasound guided fine needle aspiration of the pancreatic cyst content resulted in using EUS in routine management of pancreatic cysts. Measurement of intracystic carcinoembryonic antigen (CEA) can differentiate mucinous from non-mucinous pancreatic cysts. Future use of DNA mutational analysis of aspirated cyst fluid may distinguish benign from malignant pancreatic cysts. EUS is a non-invasive diagnostic modality for chronic pancreatitis that has a high inter-observer agreement. EUS with FNA of the pancreatic tumor is another common indication for EUS. EUS is more accurate than a CT scan in staging pancreatic cancer and predicting resectability of the tumor.

Application of anorectal ultrasound varies from staging rectal cancers to diagnosing fistula and anal sphincter defects and is also useful in restaging rectal cancer following neoadjuvant therapy. In the last 15 years, EUS has evolved from being a purely diagnostic modality to become a corner stone therapeutic intervention. EUS-guided celiac plexus neurolysis can alleviate pain in patients with pancreatic cancer and chronic pancreatitis. Other uses include EUS-guided pseudocyst drainage and EUS-guided injection of botulinum toxins for achalasia.

Conclusions/take home points
- The combination of EUS and Endobronchial ultrasound serve as an alternative to mediastinoscopy in staging of lung cancer.
- EUS has accuracy of 71% to 87% in T staging of esophageal and stomach cancer which is higher than other modalities such as CT scan.
- EUS can differentiate between different types of submucosal tumors and guide further treatment.
- EUS with FNA of pancreatic lesions is one of the most common indications of diagnostic EUS.
- EUS is useful in diagnosing chronic pancreatitis and in differentiating between different types of cysts.
- Therapeutic applications of EUS include EUS celiac plexus block and neurolysis, EUS guided pseudocyst drainage and EUS guided injection of botulinum toxins.

TITLE: HEMOGLOBIN A1C

Speaker: Dale Quest, PhD, BSN, Associate Professor of Pharmacology, Department of Medical Education, Paul L. Foster School of Medicine, El Paso, Texas

Introduction: Current standards for the medical care of patients with diabetes mellitus call for the use of a glycosylated protein, hemoglobin A1c (HbA1c), in the diagnosis and management of this disease. About 40 million US adults have diabetes and as many as 40% are undiagnosed. Because of the epidemic proportions of this disease a thorough understanding of the nature and utility of this test is warranted.

Objectives:
- Critically appraise the diagnostic and treatment utilities of HbA1c in relation to other glyemic markers
- Evaluate the clinical implications of international initiatives to standardize HbA1c

Discussion:
Nature: Glucose reacts non-enzymatically with specific amino groups of plasma proteins to form stable glycosylated adducts such as HbA1c. The rate that HbA1c forms is time and glucose concentration dependent. Glycation of hemoglobin does not harm or interfere with erythrocyte function or lifespan, but HbA1c is an accessible early marker for more harmful glycation of other functional and structural proteins, particularly of the microvasculature, that culminate in target tissue damage and manifest as retinopathy, nephropathy, neuropathies, and vasculopathies. Erythrocyte turnover is normally 95-120 days. Thus, HbA1c provides a time-weighted estimate of glycemic control over the previous 8 week period. This estimate is somewhat biased by hyperglycemia in the prior 30-day period and is relatively insensitive to blood glucose fluctuations during the previous 10 days.

Utility: Large-scale studies have established a relationship between HbA1c and risk for long-term diabetic complications. Earlier diagnosis of the large number of adults with undiagnosed diabetes (the lag from onset to diagnosis averages 7 years) could reduce life style and medical complications to include the devastating and costly microvascular complications. In 2010, the American Diabetes Assoc. added HbA1c > 6.5% to the previous FPG and 2-hr PG diagnostic criteria. Relative to FPG and OGTT, HbA1c is a specific but insensitive method for diagnostic screening purposes. HbA1c will detect substantially fewer cases unless it is utilized far more widely than FPG and OGTT have been used to screen the undiagnosed diabetic population. In theory, greater convenience (no need to fast or time specimens) could lead to more screening.

Conclusions/take home points
- HbA1c provides a time-weighted estimate of glycemic control over the previous 8 week period.
- HbA1c provides a valuable basis for optimizing treatment to prevent or delay long-term diabetic complications.
- Since HbA1c is the least sensitive and most expensive of the three diagnostic tests, obtaining HbA1c as a confirmatory test only if FPG > 100 mg/dL would seem a reasonable approach.

TITLE: DEVELOPMENT OF A NUTRITION SUPPORT TEAM AT THE UNIVERSITY MEDICAL CENTER OF EL PASO

Speaker: Brian Tobin, Ph.D. Professor of Medical Education, TTUHSC Paul L. Foster School of Medicine, El Paso, Texas

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Introduction: With the transition, growth, and recognition of the University Medical Center of El Paso (UMCPE) as part of an academic health science referral center, the Department of Medicine at the Paul L. Foster School of Medicine in conjunction with nutrition expertise at UMCP is developing a Nutrition Support Team. This initiative is based upon a convergence of need, multidisciplinary expertise, and specific interest to enhance the capacity, quality, and efficiency within UMCP to respond to medical patients needing complex nutritional support.

Objectives:
- Describe how to request a consultation from the Nutrition Support Team
- Identify two types of patients that may benefit from a Nutrition Support Team consultation.

Discussion: The purpose of the Nutrition Support Team is to enhance the clinical referral, quality care, and practice-based teaching relating to nutrition at UMCP as well as to provide opportunities for research within the academic medical center structure. It is anticipated that the Nutrition Support Team will reduce costs and readmission rates, and improve the patient’s overall quality of life.

Conclusions/take home points
- The Nutrition Support Team is a joint effort of the TTUHSC Paul L. Foster School of Medicine, and the University Medical Center of El Paso.
- The Nutrition Support Team is a multidisciplinary initiative, which includes Physicians, Internal Medicine Residents, Gastroenterology Fellows, Dietitians, Nurses, Basic Scientists, and Pharmacists.
- The team aims to translate new knowledge and technology into practice and will perpetuate a culture of achievement and a commitment to high-quality patient care in nutrition support.
- Through multidisciplinary cooperation, the nutrition support team will manage that group of complicated patients, including the geriatric population, who require sophisticated care. The team will focus their initial efforts in the UMCP Medical ICU to address patients in need of complex nutrition support.

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TITLE: THE SCHEME INDUCTIVE MODEL: HOW DOES IT AFFECT THE WAY I TEACH?

Speaker: Gordon Woods, MD, MHPE, College Master, Associate Professor of Medicine, Department of Medical Education, TTUHSC Paul L. Foster School of Medicine, El Paso, Texas

Introduction: The Paul L. Foster School of Medicine curriculum is centered around clinical algorithms or schemes that are based on the clinical presentation of patients. It uses a scheme inductive reasoning approach that provides a framework for educating students so that they can readily apply their developing knowledge base to the clinical environment. The purpose of this discussion is to examine how this approach compares with the more traditional approaches to learning medicine.

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TITLE: THE IMPACT AND CAUSE OF MEDICAL ERROR: A REVIEW

Speaker: Veronica Mallett, MD, Professor and Founding Chair, Department of Obstetrics and Gynecology, TTUHSC Paul L. Foster School of Medicine, El Paso, Texas

Introduction: It has been estimated that 100,000 people die each year in the United States due to medical error with an average of one medical error per patient per day in US hospitals. Malpractice awards cost over $100,000,000.00 annually. One of the key results of these errors is the loss of public trust. What can be done to...
address this critical issue?

Objectives:
- Discuss the history of teamwork behaviors in aviation and its relationship to medicine
- Describe a model of team structure and function in labor and delivery in hospitals
- List culture changes and process skills for managing resistance
- Describe the impact and causes of medical error
- Describe a model of team structure and function in Labor and Delivery
- Provide an overview of key communication skills for teams
- Describe new quality outcomes measures in Obstetrics

Discussion: Contributing causes to errors include workload fluctuations, interruptions, and many other problems. The Institute of Medicine pointed out the nature of humans to make mistakes in 1999. Although no one makes errors on purpose and they are usually not the result of misconduct, education per se has been shown to be the least effective means for improving safety. Teamwork, on the other hand, has been shown to be an important corrective mechanism for achieving patient safety. Teamwork is clearly effective in providing safe and efficient patient care. The development of a teamwork culture is a continuous process that requires leadership to overcome resistance, train needed coaches, and sustain the culture change.

Conclusions/take home points:
- Teams that perform well:
  o Hold shared mental models
  o Have clear roles and responsibilities
  o Have clear, valued, and shared vision
  o Optimize resources
  o Have strong team leadership
  o Engage in a regular discipline of feedback
  o Develop a strong sense of collective trust and confidence
  o Create mechanisms to cooperate and coordinate
  o Manage and optimize performance outcomes
- Team training in communication improves patient safety and outcomes and makes the hospital a better place to work

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**TITLE: UPDATE ON IRRITABLE BOWEL SYNDROME**

**Speaker:** Richard McCallum, MD, Professor of Medicine and Chairman, Department of Internal Medicine, TTUHSC Paul Foster School of Medicine, El Paso, Texas

**Introduction:** The Irritable Bowel Syndrome (IBS) affects up to 10% of the general population and 15% of the female population. It should be considered if abdominal discomfort or pain associated with bowel dysfunction is present. The 3 main clinical presentations of IBS are: diarrhea dominant, constipation dominant or alternating stool patterns.

**Objectives:**
- Review the clinical spectrum of IBS
- Discuss advances regarding the pathophysiology of IBS
- Describe current diagnostic approaches to and treatment of IBS

**Discussion:** The current consensus-based criteria used to assist in the diagnosis of IBS and other functional gastrointestinal disorders, the Rome III criteria, call for a diagnosis of IBS in patients with recurrent abdominal pain or discomfort at least 3 days per month in the past 3 months associated with 2 or more of the following: (1) Improvement with defecation. (2) Onset with change in frequency of stool. (3) Onset associated with a change in the form and appearance of stool. These criteria must be fulfilled for at least the past 3 months with symptom onset at least 6 months before diagnosis. Additional important supporting criteria are: (a) Lack of symptoms at night; (b) Symptoms are meal driven; (c) Exacerbation by stress; (d) Passage of mucus with the stool; (e) Abdominal bloating and distention (gas). Other clinical clues are the association of IBS with migraine headaches, fibromyalgia and interstitial cystitis. Our understanding of the pathophysiology of IBS is evolving. Current concepts include:
- An altered or upregulated brain-gut axis with exaggerated pain sensations (visceral hypersensitivity) and altered bowel patterns that are partly serotonin mediated.
- Post-infectious IBS with symptoms that are dated back to gastroenteritis (food poisoning event).
- The role of small bowel bacterial overgrowth explaining the gas and bloating and ongoing chronicity of symptoms.
- Psychological causes including childhood and early life experiences such as physical and/or sexual abuse.
- Contributions from food constituents (food allergy).

The diagnosis of IBS is based on a classical history and associated clinical setting. Extra testing is minimized to address only "red flag" issues such as anemia, guaiac positive stool, the patient over 50, a family history of colon cancer, or excessive weight loss.

Treatment is focused on the predominant symptom pattern. For post-prandial abdominal pain related to the post-prandial gastrocolic reflex anti-cholinergics are recommended. When diarrhea is the dominant feature, in addition to fiber one should consider loperamide and cholestyramine to bind bile salts. When constipation is dominant the OTC laxatives, particularly bisacodyl and miladate can be used initially. If required, the prescription agent lubiprostone (Amitiz) can be used to enhance fluid secretion in the small bowel through activation of chloride channels. New treatment algorithms include the measurement of breath H2 and CH4 after drinking glucose or lactulose to detect small bowel bacterial overgrowth. If present, antibiotics can be employed initially followed by probiotics to replenish beneficial intestinal bacterial flora.

**Conclusions/take home points:**
- IBS is a problematic functional gastrointestinal disorder that can be found in all clinical practice settings.
- It can profoundly impact quality of life, lead to excessive diagnostic testing and procedures and result in many patient referrals.
- The essence of the care of IBS is recognition and treatment.
- Physician/patient rapport is essential in the management of IBS.