Abstracts

1 Early Detection of Prostate Cancer

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Prostate cancer (PCa) remains a major health problem in the United States. Virtually all men will develop histological evidence of benign prostatic hyperplasia by age 70. It is estimated that 1 in 4 men over 30 years of age may harbor a small focus of PCa in his prostate gland and 1 in 9 will be diagnosed with clinically significant disease, but only fewer than 4% will die of this disease. Since the etiology of this disease is unknown, it is difficult to develop a logical basis for detection, prevention, and cure

Prostate-specific antigen (PSA), a tissue-specific marker and not a tumor-associated marker, is now widely used for PCa screening. PSA specificity is limited in detecting organ-confined disease when PCa is curable. In this presentation the limitation of the utility of PSA in the early detection of PCa is discussed. PCa is not very common in Chinese men. It will be interesting to learn whether other factors besides genetic makeup – such as environment, diet or lifestyle – play a role in this malignancy.

2 Ancient Trephining of the Skull: History of Medicine

M. Ashraf Sheikh, MD

Objective: To describe the operation of trephining of the skull performed by traditional tribal surgeons.

Design: A movie presentation.

This is a personal movie the author made in 1969, describing the operation of trephining of the skull. The operation of making holes in the head is 'secretly' performed by Gusii tribal surgeons in the deep interior highlands of Lake Victoria in Kenya. The movie could only be made after significant effort at gaining the confidence of the parties involved and after procuring the permission of Government authorities.

Indications are several, the commonest being a long-standing post-traumatic headache, e.g. following blow on the head with a club

No anesthetic substance of any kind is employed. Complications following upon surgery are not uncommon and can indeed be disastrous.

The procedure is fairly common within ethnic tribal groups. The trade of trephining is passed from father to son. Professional fee payments are traditionally settled by way of sheep and cattle and other livestock.

3 Sternal Stabilization for Chest Wall Reconstruction with Plate Fixation

Khalique Zahir MD, FACS

Objective: Mediastinitis and sternal dehiscence after cardiac surgery have become more prevalent because of the comorbid patient health issues. Appropriate stabilization is necessary to decrease pain, instability, and morbidity associated with the unstable chest wall.

Design: The purpose of the study was to find the utility of 2.4 mm plating system combined with muscle flap coverage in secondary surgery for chest wall stabilization.

Material and Methods: Seven patients were selected for sternal stabilization with the 2.4 mm plating system. Five patients had previous osteomyelitis, one had sternal nonunion, and one had a sternotomy dehiscence, which required initial pectoralis muscle flap coverage. Patients were operated on within the previous 2 years but had significant sternal pain, clicking, and subsequent need for sternal stabilization.

Results: After treating patients with appropriate antibiotic coverage, the patients were treated by a combination of one or two pectoralis muscle flaps. Subsequently, the patients selected for sternal stabilization had symptoms of continued pain and the inability to have a productive quality of life, which led to the use of sternal stabilization with the 2.4 mm titanium plating system at four levels. The plate fixation and screws used were fixed to the remaining

sternum and rib cage when brought together with rig approximators. Stabilization was sought from the manubrium to above the xiphoid process. All seven patients had completely successful bony adherence with subsequent bone union. Drains were placed in all patients, and no postoperative fluid collections were noted. The hospital stay ranged from 3 to 8, days with one patient having a postoperative deep vein thrombosis of the leg.

Conclusions: Most sternal wounds that presented with sternal dehiscence or osteomyelitis are identified by their wound cultures that were most often coag-negative Staphylococcus, MRSA, or gram-negative rods. There have been reports of the use of the Synthes plate fixation system; however, using this technique as a secondary reconstructive method for chest wall stabilization is helpful from the standpoints of quality of life issues, pain, decreasing "dead space" and increasing chest wall adherence. In addition, the use of the pectoralis muscle for coverage may be continued in secondary chest reconstruction and not necessary in the initial cardiac reconstruction whose avoidance may then decrease morbidity. The greatest advantage of the plate fixation system is that it allows for the performance of emergency surgery of the chest merely by removing a centrally placed pin, linking the 2.4 mm-plates together. I believe that this will be the future of chest wall stabilization in many patients after sternal destabilization challenges.

4 Update on Kidney/Pancreas Transplantation: An Emphasis on One Institution's Experience

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Objectives:

1. To understand the historical and current status of the longest solid organ transplant in human beings.

2. To understand the role of pancreatic transplant in the management of diabetes mellitus.

The renal transplant, both live donor and cadaveric, has matured beyond its first 50-plus years. Recent advances in immunosuppression and clinical management of immediate and long-term complications have significantly improved the patient and graft survival. The pancreatic transplant represents a newer experience, but is rapidly resulting in better patient and graft outcome. It is done in patients where renal failure is the result of diabetic nephropathy. Currently most pancreatic transplants are done in association with renal transplants, though a fair number are placed subsequent to well-established renal transplants with much smaller numbers being done in diabetic patients with functioning kidneys.

In this presentation, the renal and pancreatic transplant outcomes in a community-based tertiary care hospital will be discussed.

5 Three Stooges of the Gastrointestinal Tract: Gas, Belching, and Flatus

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The problem of gas is very prevalent in the field of gastroenterology. Most of the patients seen in our gastrointestinal (GI) clinic have either gas, belching, or excessive flatus with or without abdominal pain. These three symptoms constitute a spectrum of a broader disorder, irritable bowel syndrome. Patients with these symptoms are hypersensitive to minor quantities of physiological gases like oxygen, hydrogen, nitrogen, methane, and others. These patients also have different symptoms including migraine headaches, chronic fatigue syndrome, noncardiac chest pain, and generalized anxiety.

Even though these patients have a variety of symptoms, treatment is very simple and effective. Reassurance, simple dietary instructions, regular follow up, and symptomatic treatment of their symptoms on a regular basis are needed to improve their overall well-being.

The pathophysiology, symptomatology, diagnostic work-up, and effective treatment of these patients will be presented. Data will be also presented to be distinguish the red signals associated with this complex from other seri-

ous gastrointestinal disorders.

6 Neurologic and Neuropsychiatric Complications of Crohn's Disease

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The literature contains sporadic accounts of neurologic complications occurring in patients with Crohn's disease (CD). The pathogenesis of these is unknown, and little has been reported about their incidence. Our review of the medical records of 253 patients with confirmed CD showed that neurologic and neuropsychiatric complications were evident in 84 of the patients, an incidence of 33.2%. In some, the association could be incidental, but in others the incidence of such complications was higher than that in the general population, suggesting a direct relationship with CD in 19.3%. Our study revealed a variety of neurologic and neuropsychiatric events, such as seizure disorder, cerebrovascular accident, headache, peripheral neuropathy, myopathy, and major depression. We believe that an autoimmune phenomenon affecting the small vessels of the central and peripheral nerves may cause the most common neurologic complications of CD.

7 Preventing Gastrointestinal Complications of Nonsteroidal Anti-Inflammatory Drug Use

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Objectives:

1. To discuss the gastrointestinal (GI) side effects induced by nonsteroidal anti-inflammatory drugs (NSAIDs) and their prevention.

2. To discuss the factors defining the patients at high risk for GI complications.

3. To discuss whether cyclooxygenase (COX)-2 selective inhibitors are safer for the GI tract than nonselective (NS)-NSAIDs.

4. To discuss whether gastro protective agents such as Proton Pump Inhibitors (PPIs) protect against upper GI injuries from NS-NSAIDs.

Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most commonly used medications in the world, taken by an estimated 30 million people daily. This class of drugs includes the COX-2 selective inhibitors and the NS-NSAIDs, which include aspirin, ibuprofen and diclofenac. About 15-30% of people who use NS-NSAIDs regularly are likely to develop endoscopically detectable gastroduodenal ulcers with potential to bleed. Estimates suggest that more than 100,000 people are hospitalized each year in the United States because of GI events associated with NS-NSAID use, and between 7,500 and 16,500 die.

Three classes of adverse effects are associated with NS-NSAID use, growing in clinical importance from nuisance symptoms such as heartburn to nausea to mucosal lesions such as ulcers seen on endoscopy to serious complications such as perforated ulcers and catastrophic bleeding. An essential part of NSAID mechanism of action is the inhibition of COX, an enzyme involved in the transmission and response to pain. Investigators discovered that two isoforms of COX exist, each with distinct biological purposes. COX–1 isoform is largely a constitutive housekeeping enzyme, responsible for maintenance of, among other things, the GI mucosa and platelet aggregation. The COX-2 isoform is largely inducible and is activated centrally and peripherally in response to injury, stimulating production of prostaglandins that help to mediate pain and inflammation.

The preponderance of evidence shows that use of NS-NSAID, even at over the counter (OTC) doses, creates a substantially higher risk of a recurrent peptic ulcer disease or GI bleed than the use of COX-2 selective inhibitors. However, neither treatment can completely eliminate the risk of recurrent ulcer complications, particularly for high-risk patients. Although PPIs may not offer protection in the small bowel and colon for high-risk patients, the concomitant use of PPIs may help to minimize the risk of

upper GI injury and promote healing.

8 Cancer Pain Management Workshop

Khalid Laeequr Rehman, MD, FACP
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Objective: To increase the awareness and knowledge about chronic pain management in general and management of pain in cancer patients in particular among physicians and other healthcare providers. The need for better pain control is high on the agenda of the World Health Organization. It is one of the core standards for accreditation by the Joint Commission on Accreditation of Health Care Organization in the United States. Besides the lack of knowledge, there is lack of availability of pain-relieving medicines in the poor and underdeveloped countries worldwide.

The basic pathophysiology of cancer pain, the pharmacology of pain medications, and the stepladder approach to the use of pain relieving medications will be discussed. The presentation will also explore the barriers to adequate pain control such as lack of awareness, lack of adequate pain assessment, lack of knowledge about pain-relieving medications, the myths about the use of opioids, cultural, religious and social attitudes, lack of availability, governmental controls, and policies about narcotics.

The case study part of the workshop will provide an interactive opportunity to the participants in managing hypothetical cases with various type of cancer-related pain.

9 Cultural-Appropriate Care is Patient-Centered Care

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Changing demographics is the force driving medical schools, residency training programs, and continuing medical education programs to incorporate "cultural competence" as part of their curricula. Cultural competence must include more than an acknowledgement of our diverse population and more than an understanding of the nature of such diversity. Cultural competence means behavior, attitudes, and skills that a practitioner not only acquires, but also incorporates into his/her practice to meet the needs of his/her patients. This incorporation necessitates that all personnel in the practice interact with the patients in a culturally sensitive manner. This is part of our guiding principle in patient-centered care.

Cases will be presented that demonstrate adverse outcome or patient dissatisfaction with providers who lack cultural sensitivity. Recommendations will be presented that providers can incorporate in their practices to provide culturally appropriate care.

10 Advances in Treatment of Non-Small Cell Lung Cancer

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Objectives:

1. To present the current state of the art treatment of non-small cell lung cancer.
2. To discuss the role of preoperative and postoperative chemotherapy and concurrent radiation and chemotherapy.
3. To provide information on new directions in the treatment of lung cancer based on the targeted therapies.

Whereas in the last two decades we have seen development of many new cancer chemotherapy drugs, the real revolution has been within the last few years. The era of proteomics and genomics has opened the doors for molecularly targeted therapies. Today we have the technology to analyze DNA and the gene mutation in the cells taken from lung cancer and design a biologically active drug for that cancer. Such drugs, which are developed based on the molecular pathology, not only have a curative potential, but are also less toxic compared with the standard chemotherapy drugs and in fact improve quality of life of the patients.

It is the opinion of many leaders in the field of oncology that the days of multiagent, dose dense,

and dose intense chemotherapy are now limited. The recent advances in genomics, proteomics, and epigenetics will very soon make it possible to determine the DNA fingerprint of the cancer in an individual patient and then custom design a molecularly targeted drug for that specific cancer in that particular individual patient.

The data from the published trials of non-small cell lung cancer treatment (nonsurgical), along with the new targeted therapies, using small molecules such as gefitinib and erlotinib will be reviewed. The future research in this new field of targeted therapies will be discussed. The pathophysiology and the activation of epidermal growth factors, downstream cascade of enzymatic activity, and its effect on cell proliferation, cell division, migration, and apoptosis, will also be briefly presented.

Al-Razi Lecture

11 Minimally Invasive Spine Surgery: Historical Review and Innovative Applications

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Objectives: To review the history and evolution of minimum invasive spinal surgery.

To present an innovative approach to the resection of intradural spinal cord tumors.

Spinal surgery is a common procedure that typically requires the compromise of normal anatomy to achieve adequate surgical exposure. Minimum access spine technology (MAST) has become increasingly popular in the last few years primarily as a result of the refinement of surgical instrumentation and a better understanding of spine pathology. This new technique has significantly improved outcomes by minimizing tissue disruption while maintaining adequate ability to address the pathology. It is now applied to many aspects of the surgical management of spine disease be it degenerative, traumatic or, more recently, tumors.

Spinal schwannomas are intradural tumors with a variety of presentations. They are seen on gadolinium-enhanced MRI as homogeneous masses that occupy the intradural space, and an extradural component is often seen (e.g., dumbbell lesion).

Surgery remains the definitive treatment. The standard, conventional approach to an intradural schwannoma necessitates a wide surgical field to insure adequate exposure of the tumor and adjacent vessels.

Minimally invasive techniques provide attractive alternative methods to tumor removal while enhancing rapid recovery, decreased length of stay, and less morbidity; however, an improved outcome depends on several factors, including the location of the tumor and the surgeon's experience.

Conclusion: Minimally invasive spine surgery has evolved significantly in the last decade. It has been proven safe and has a low rate of complications and a short recovery period. However, these techniques have a steep learning curve and require meticulous training and a thorough understanding of the limitations.

Long-term studies can help delineate the limits of such techniques, as well as their long-term viability and efficacy when compared with conventional, open surgery.

12 Stem Cell Research – Prospects and Ethics: An Islamic Perspective

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Objectives:

1. To describe the nature and sources of stem cells now available.

2. To discuss briefly their potential uses both in research and therapy.

3. To discuss the ethical considerations, specifically from an Islamic perspective.

Stem cells (SC) are pluripotent cells that retain the ability to develop into all cell types. This characteristic made them appealing for use in research with view of therapeutic use, especially in "Regenerative Medicine." Available sources of stem cells now are:

1. Embryonic stem cells (ESC):

The main source of stem cells is the inner cell mass of developing embryos, ESC. Human embryonic stem cells (hESCs) can be obtained from supernumerary fresh or cryopreserved embryos produced during the course of reproductive in vitro fertilization (IVF) or from IVF cycles specifically performed for research. While at present there are only few human ESC that are available for research, there are several Murine ESC that are produced and have been extensively used in research:

a. They were induced to differentiate into different types of cells and implanted in vivo in experimental animals e.g. in cardiac and neuronal tissue and found to produce a therapeutic result. It is hoped that this research can be applied to the treatment of human disease. It appears to be especially promising in neurogenerative diseases and spinal cord injury.

b. To develop novel drugs which can be tested in vitro for safety, prediction of potential toxicity and studying embryotoxic properties.

c. Can be also used to correct genetic defects.

2. Adult stem cells (ASC):

The second source of stem cells is adult tissues, the best known of which is the hematopoeitic cells of the bone marrow. These have been used clinically with good results in the treatment of leukemias.

3. Cord blood:

Cord blood is another source of "adult" hematopeoitic stem cells. Cord blood is collected at the time of delivery, frozen and stored at a cord blood bank, either private or public, and can probably be used for several years.

4. Therapeutic cloning:

Therapeutic cloning utilizes nuclear transfer techniques to produce pluripotent SC with the genome of the nucleus of origin. These cells can be induced to differentiate into replacement cells for transplantation into the individual from whom the original cell was obtained, thus eliminating the requirement of immune suppression.

The use of ASC should not raise concerns from the ethical point of view other than the general ethical principles of privacy, consent and handling the cells with dignity. However, using nuclear transfer technology or ESC raises the additional concern of dealing with a "human embryo". Islamically, it is probably permissible except that it is prohibited to create embryos only for the specific purpose of using them in research. Therapeutic cloning will be Islamically acceptable when the intent is to create tissue/organ from an individual who needs it, the procedure is feasible, and the result is expected to be good.

13 Medical Management of Hair Loss

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Objective: Inform membership on a topic of concern to many patients.

Design, Material, and Methods: Hair loss is an important problem that has significant social and psychological implications. This presentation will discuss:

1. The embryology, anatomy, and physiology of hair,
2. The difference in hair at different sites, such as scalp, face, chest, axilla, pubic area, and extremities,
3. The role of hair in biologic evolution,
4. The hair cycle – anagen, catagen, and telogen phase – and factors that affect/influence each phase,
5. Normal range of daily hair loss,
6. Cause of hair loss – disease states, hair cycle changes and physiologic,
7. Role of genetic factors in hair loss,
8. Objective criteria to assess hair loss,
9. Medical treatment options – Minoxidil and Propecia – dose frequency and side effects,
10. Indications for surgery,
11. Prevention of hair loss – role of diet/nutrition, stress and environment,
12. Animal models to study hair loss,
13. Hair growth in tissue culture,
14. Role of drugs that cause hirsutism in treating alopecia, and
15. Looking at the future.

Results and Conclusion: The membership and audience will be better informed on recommending treatment options to patients with hair loss. Use of appropriate medical

therapy may eliminate the need for expensive surgical procedures. Some patients may need medical treatment post surgery to maintain hair growth and prevent loss of graft. Hair restoration may have a significantly positive impact on psychological profile and quality of life of a patient.

14 Human Reproduction in the Qur'an

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Wake Forest University
Winston-Salem, NC

Objective: To prove, without any doubt, that the Qur'an is the word of Allah through the use of human reproduction facts mentioned in the Qur'an.

Design: The human development will be presented in a systematic way starting with the fertilized ovum until the birth of the fetus.

Materials and Methods: The Qur'an and slide presentation of the human development in the uterus.

Results: The science of human development as we know it today does not contradict the description of development mentioned in the Qur'an. The Holy Qur'an was revealed to Prophet Muhammad more than 14 centuries ago. The knowledge, particularly the science it contains, continues to amaze intellectuals, Muslims and non-Muslims alike. The findings in this presentation will show that the Qur'an preceded what scientists know today by centuries, a testimony that the Divine Book is the word of Allah the Almighty. Science in the Qur'an offers an undisputed proof that Allah is the creator of this universe, man, and life.

15 Palliative Care Services in a Muslim Country Case Study: King Faisal Specialist Hospital, Riyadh, Saudi Arabia

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King Faisal Specialist Hospital and Research Center
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Palliative care is one of the oldest means of caring for the sick, and yet it is one of the newest specialties in medicine.

Palliation was all that could be done in the era when there were no cures for most of the illnesses. The supportive care was mostly given at home by the family and other care givers. It encompassed physical, spiritual, and psychosocial measures to relieve suffering and improve the quality of life.

With advances in medicine during the last century, the focus shifted from one of caring to one of curing. Further specialization has changed the holistic nature of the medical care to that of disease management. By the end of 20th century the fragmentation had reached such proportions that a sick individual was reduced to body organs, which were being looked after by various super specialists. Whereas the diseases were treated vigorously, the patient as a whole was ignored.

This has changed in the last decade. A curriculum has been developed, and fellowship programs are now in place to train physicians in the art of palliative care. There is even a concept of aggressive palliative care where symptom management is carried out in a holistic fashion side by side during the treatment of an acute curable illness such as myocardial infarction. The focus has shifted to "healing" the patient and not merely treating the "disease."

King Faisal Specialist Hospital is a 700-bed tertiary care facility in Riyadh, Saudi Arabia. The hospital is one of the only few in the whole gulf region that provides the full spectrum of palliative care. It includes an inpatient unit, outpatient consultation and follow-up clinics, and home care program. This presentation will cover the core clinical components of palliative care as well as the establishment and operations of a "palliative care service" for adult and pediatric patients. The components of such a program, such as symptom control, pain management, psychological and spiritual support, social service intervention, and end of life care in incurable conditions will be discussed. The process of overcoming religious and cultural barriers to introducing this service in Saudi Arabia, a religiously conservative country, will be discussed.

16 Bombings in Riyadh: A Hospital's Response When Disaster Struck

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King Faisal Specialist Hospital and Research Center
Riyadh, Saudi Arabia

Objectives:

1. To have a structured, coordinated and integrated response to an external disaster.

2. To identify emergency roles for physicians, nurses, administrators, and other key personnel.

3. To have a strategy for resuming normal operations after the emergency conditions subside.

Design:

1. Assess External Disaster Plan in place prior to the Riyadh bombings and its effectiveness in enabling the hospital to respond appropriately when casualties were brought in;

2. Retool the disaster plan learning from the mistakes of the past; and

3. Assess emergency preparedness in light of subsequent bombings in Riyadh.

When the first bombing took place in Riyadh, this hospital received few casualties, but it set the stage for the need to assess emergency preparedness. The existing External Disaster Plan was reviewed and deficiencies identified. An Interim External Disaster Plan was developed and named "Code Amber", and departments were asked to develop corresponding subplans. An External Disaster Plan Committee was established to review the interim plan, and ensure integration of the subplans to allow for a coordinated hospital-wide response. A drill was planned to test the plan, but was superseded by a live bombing. Code Amber was activated, and the interim plan went into effect. After resumption of normal operations, a debriefing was conducted to evaluate the effectiveness of the interim plan and staff compliance. Major issues related to communication, readiness, compliance, and overzealousness were identified. This feedback was used in finalizing both the interim plan and departmental subplans. Within months, another bombing had taken place in Riyadh, and the final External Disaster Plan (Code Amber) was put to the test.

The presentation will discuss the components of this plan, including:

1. Departmental subplans and corresponding policies and procedures,

2. Roles and responsibilities of physicians, nursing, and administration clearly outlined in chronological order, and

3. Policies of dealing with families and the press.

Conclusions: Riyadh is a target for militant attacks, and hospitals are the recipient of casualties. This hospital has learned from the unfortunate experiences of the past. It is hoped that Code Amber will not have to be activated ever again, but should the unfortunate circumstance arise, the physicians, nurses, ancillary staff, and administration are well positioned to rise to the challenge.

17 The Capillary Endothelial Cell Membrane as an End-Organ Damage in Hemorrhagic, Septic, and Burn Shock

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Since the use of intravenous fluids in the past century, we have come to recognize that loss of fluid from intravascular space requires replacement as an effective treatment in shock states. Since 1986 we have studied the mechanism of the loss of fluids through capillary walls in hemorrhagic, septic, and burn shocks. It appears that there are microfilaments containing acto-mycin that join the nucleus to the capillary endothelial cell (CEC) walls. When these contract, they separate the CEC junctions and allow the escape of fibrinogen, platelets albumin, and some of the globulins with obligatory loss of water and electrolytes through the gaps created by this pull. This contraction of CEC occurs in the venous side of capillaries as large as 50 microns. Fluid resuscitation therefore is the hallmark of our treatment of shock, burns, severe pancreatitis and polytrauma. However, when the semipermeability of capillaries is severely damaged, the intravascular space (IVS-5%) and the interstitial space (ITS-15%) of body fluid compartments essentially become one com-

partment as 20% of body fluid compartment. In shock and low flow states we have to fill the tank (IVS) with pocked red blood cells (PRBC), fresh frozen plasma (FFP), platelets (PLTs), crystalloids and/or synthetic colloids, which all leak out into the interstitial space, not infrequently creating "Michelin man," or as some have described, "you have to swell to get well." In December of 1994 we published a book "Reperfusion Injuries and Clinical Capillary Leak Syndrome" with participation of 15 medical centers in the United States and Europe dealing with the problem of "capillary leak". We found in the laboratory an excellent model for study of capillaries in the transparent tail of salmon fingerlings. By tagging fluorescent molecules, the exchange of molecules at the important capillary membrane, which has been called "the business end of circulation" by Dr. Zeppa of Miami, has been studied. Our intravital microscopic studies with videos will show the wonders of this microcosm and size-specific molecule of starch 100-300K Daltons sealing the capillary leaks as a therapy in reperfusion studies in canine heart, rat gastrocnemius, cremesteric muscles, and heat shock in salmon fingerlings both qualitatively and quantitatively. These findings have been confirmed by 10 other research centers in the United States and England.

Ibn Sina Lecture

18 The Right to Die: Personal Reflections on the Terri Schiavo Case and the Role of Hydration and Nutrition in Hopelessly Ill Patients

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SUNY at Stony Brook, NY

On February 25, 1990, 26-year-old Terri Schiavo suffered cardiac arrest. She remained in a vegetative state for 15 years. She died of dehydration on March 31, 2005, at age 41, nearly two weeks after her feeding tube was removed in comliance with a court order.

In this presentation two key questions will be addressed:

1) Whether Ms. Schiavo's condition was hopeless?

2) Whether Ms. Schiavo would have wanted her feeding tube removed?

From a medical point of view, Ms Schiavo was in a state of irreversible stage of PVS with no chance of recovery.

Islamic View:

Ms. Schiavo did not meet the criteria of brain dead, so the question comes up, what is permissible in cases like Terri Schiavo who are not brain dead but have virtually no hope of recovery. In the IMANA position paper this issue was discussed and I reproduce some key excerpts:

"IMANA does not believe in prolonging misery on mechanical life support in a vegetative state... . In hopelessly ill patients, no further or new attempt should be made to sustain artificial support. Even in this state, the patient should be treated with full respect, comfort measures and pain control. No attempt should be made to withhold nutrition and hydration. In such cases, if and when the feeding tube has been withdrawn, it may not be reinserted."

Ms Schiavo, in my opinion, should have been allowed a dignified death. Instead, she was starved to death after 13 days of withholding food and water. While I may not have put in a feeding tube, I would have allowed provision of water with ice chips, sips of water, and liquid diet as tolerated.

19 Organ Transplant: Donor and Recipient Perspectives in Islam

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The debate about the permissibility or nonpermissibility of organ transplantation for Muslims has been ongoing for many years. Most of the objections to organ transplant for Muslims emanate from India and Pakistan, where the followers of the Hanafi madhab predominate. Scholars from other parts of the world propose that organ transplant is not only permissible, but should be recommended. This presentation will examine:

1. The sources of knowledge in decision making for Muslims,

2. The five categories of actions,

3. The reasoning scholars with opposing views use in arriving at their respective decisions, and

4. Strengths and weaknesses for the opposing views.

5. The presentation will conclude with guidelines for Muslims regarding organ transplants.

20 Betrayal of Trust: Physicians' Participation in Execution

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Objective: To explore ethical, legal, and medical implications of physicians' participation in executions.

Design: Electronic and manual search of ethical and medical literature about physicians' participation in executions.

Results: Death penalty has been a controversial and divisive issue in this country for a long time. Globally though, the trend is moving in a different direction. Executions around the world are declining, as a growing number of nations continue to turn against the death penalty. Historically, in this country five different methods of execution have been used; namely, electrocution, firing squad, hanging, gas chamber, and lethal injections. Of the 36 states in which death penalty is in effect, all but one prefer lethal injection. The reason the issue of execution by lethal injection has come to the forefront in recent months is because a U.S. District Court in California (Morales v. Hickman) ordered that the state have a physician, specifically an anesthesiologist, personally supervise the execution, or else drastically change the standard protocol for lethal injections. The Court of Appeals for the Ninth Circuit added a further stipulation requiring the physicians personally to administer additional medication if the inmate remained conscious or was in pain. The California Medical Association (CMA), the American Medical Association (AMA), and the American Society of Anesthesiologists (ASA) vehemently opposed the suggestion from the bench. Michael Morales's execution has been postponed, pending the resolution of the issues raised by the courts. In 1980, the AMA passed a resolution against physicians' participation in executions as a violation of core medical ethics. It reaffirmed that ban in its 1992 Code of Medical Ethics. Yet the only survey ever done on this issue, in 1999, found that only 3% of physicians knew of any guidelines governing their participation in executions. A cursory review of the literature indicates that physician participation in executions, in one form or another, is not that uncommon. This presentation will review physician participation in executions, particularly those using lethal injections, the protocol of lethal injection execution as it is in place today, the suggested changes in the protocol and its implications for the future. The widespread feeling in the literature is that the issue is larger than one state or jurisdiction and will ultimately be decided by the Supreme Court. Any method of execution needs to take into account the Eighth Amendment, which requires protection from "cruel and unusual punishment."

Conclusion: Physicians need to be cognizant of their responsibilities as healers; they need to be aware of the Code of Medical Ethics of the AMA; and to be vigilant so that they do not get involved, unknowingly and unintentionally, in practices and situations that might be legal but not ethical.

21 Pre-implantation Genetic Diagnosis – Rationale and Ethics: An Islamic Perspective

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Clinical Professor, Medical College of Georgia
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Objectives:

1. To describe the procedure of pre-implanted genetic diagnosis and its uses.

2. To discuss the ethical concerns, especially from an Islamic perspective.

Pre-implantation genetic diagnosis (PGD) is a procedure whereby a cell (blastomere) is obtained from a blastocyst resulting from in vitro fertilization (IVF) and subjected to genetic testing i.e. FISH, DNA, etc. PGD is to be used when a couple has a high risk (25-50%) of transmitting a genetic disease (including x-linked hereditary disease) to their offspring. IVF is performed and the multiple developing blastocysts are subjected to testing to select the ones that test negative for the specific disease to be implanted in the uterus, while the affected ones are "discarded".

PGD is attractive because it eliminates the need for invasive antenatal diagnostic procedures i.e. chorionic villus sampling (CVS) or amniocentesis and the need for termination of the pregnancy if the fetus is found to be affected at that time.

Ethical concerns are:

1. What is the moral status of the embryo? When does human life begin?

2. Is it morally/ethically acceptable to sort out "human" embryos and to discard "defective" ones?

3. Potential for abuse.

a. Eugenic reasons.

b. Gender selection for nonmedical reasons (other than the risk for x-linked diseases).

c. Socioeconomic concerns: cost effectiveness and equitable access to PGD and negative impact on the status of handicapped individuals.

Most Muslim scholars agree that the embryo prior to implantation is not yet a person. Thus PGD will be permissible to avoid or minimize the risk of severe debilitating disease in the offspring. However, it must be done with strict guidelines that prevent abuse and PGD should not be used for gender selection for nonmedical reasons.

22 Measurement of Oxyhemoglobin Saturation in the Superior Vena Cava, Right Atrium, Right Ventricle, and Pulmonary Artery

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Introduction: Monitoring of the oxyhemoglobin saturation (O2 Sat) of the mixed venous blood, namely the pulmonary arterial blood, provides useful information about the functional status of the cardiopulmonary system. This information is valuable in the perioperative period in certain procedures such as open heart surgery and organ transplantation and in patients with critical conditions in the intensive care units. It is not known what correlation exists between the O2 Sat of the blood in the superior vena cava (SVC), right atrium (RA), right ventricle (RV), and that of the pulmonary artery (PA).

Objective: To compare and contrast the O2 Sat in the SVC, RA, RV, and PA, and determine their correlation.

Patients and Methods: In 27 patients undergoing open heart surgery for coronary revascularization, the O2 Sat was measured in the SVC, RA, RV, and PA by means of an oximetric Swan-Ganz (SG) catheter. These patients were receiving supplemental oxygen by nasal catheter at 2-3 L/min during insertion of the SG catheter. Similar measurements were made in 8 patients undergoing orthotopic liver transplantation. In this group, the SG catheter was inserted after induction of anesthesia and tracheal intubation while the patients were being ventilated with 100% oxygen. Data were analyzed using linear regression analysis and repeated measures analysis of variance. P value less than 0.05 was considered statistically significant.

Results: In the open heart surgery group, O2 Sat (Mean±SEM) was 72.3±1.43, 72.4±1.44, 72.2±1.42 and 72.0±1.42 in the SVC, RA, RV, and PA, respectively. The differences between these values were non-significant. The correlation of O2 Sat between SVC and PA was highly significant ($R=0.92$, $P<0.001$). The correlation of O2 Sat between RA and PA was highly significant ($R= 0.93$, $P<0.001$). The correlation of O2 Sat between RV and PA was also highly significant ($R=0.97$, $P<0.001$).

In the liver transplantation group, the O2 Sat (Mean±SEM) was 87.4±2.0, 88.2±2.0, 88.3±1.9, and 88.5±1.8 in the SVC, RA, VA, and PA respectively. Here too, the correlation of O2 Sat between SVC and PA, RA and PA, and RV and PA were all highly significant ($P<0.001$).

Conclusions: These results show that the O2 Sat in the SVC, RA, and RV can reliably reflect the O2 Sat of the mixed venous blood in the PA. It may be concluded that measurement of O2 Sat in the SVC, RA, or RV is a satisfactory substitute for measurement of O2 Sat of the mixed venous blood in the PA assuming that there is no intervascular or left-to-right intracardiac shunt. Further, a difference of the O2 Sat between SVC and PA should alert us to the possibility of a left to right intracardiac shunt.

23 Management of Acute Stroke

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Objective: To present guidelines for the management of acute stroke in the emergency department (ED), and relate Henry Ford Hospital's stroke protocol for streamlining approach as a certified stroke center.

Design: PowerPoint presentation of literature review through Sladen Library for guidelines of management of stroke; and relate our experience of treating stroke patients in our emergency departments as a stroke center.

Materials and Methods: An Ovid online search is conducted via Sladen library for management of stroke in ED. The articles are evaluated for information pertinent to the management of stroke in acute phase, and with modalities readily available at most emergency departments. After initial screening of these articles, the results are correlated with the most recent guidelines provided by the American Heart Association. Special attention is paid to t-PA, its efficacy and treatment guidelines. The experience and pathways of streamlining the management of stroke at Henry Ford Health System's main ED and its three satellite free-standing emergency departments is evaluated especially with respect to timeliness of care and administration of t-PA.

Results: Recognition and aggressive treatment of stroke is paramount in dealing with this costly and devastating problem. Annually, there are over 750,000 cases of stroke in United States alone with one third of the patients under the age of 65. United Kingdom alone suffers £4.6 billiona year in costs and lost productivity. t-PA is the only approved medication for treatment of acute stroke. Number-needed-to-treat (NNT) is 32% for better outcome and 3% of patients have a worse outcome. Lack of understanding in the community leads to poor outcomes. Only 15% of the stroke patients present to the ED within the 3-hour window for administration of t-PA. There is research with fibrinolysis inhibitor biomarkers such as PAI-I and TAFI that may help predict the increased incidence of intracranial hemorrhage in those patients. There is also growing interest with various endovascular interventions like lasers, ultrasonography, etc for rapid recanalization. The Henry Ford Health System is one of the few stroke centers that have recently aligned their processes to provide expedient care to stroke patients. It is a system-wide effort with coordination between ED, neurology, radiology, laboratory services, and EMS where any patient with stroke-like symptoms is put on a stroke pathway with preprinted work-order sheets and guidelines for the whole health care team.

Conclusion: Stroke is one of the biggest challenges to medicine with poor outcomes and high morbidity and mortality, which will only worsen with increased prevalence of cardiovascular disease and increased life expectancy. It is poorly advertised and understood by the medical and general community at large. Expedient and proper treatment with t-PA can ameliorate life for the patient and their family.

24 Noninvasive Coronary Angiography – Has It Come of Age?

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Objective: To introduce the 64-slice cardiac computed tomography (CT), the latest in noninvasive cardiac imaging technology.

Design: The presenter will explain the technology, present a literature review and indicate future directions.

Materials and Methods: Multi-slice CT-scanners were introduced in the early 1990s; Twin scanners in 1994; 4-slice scanners in 1998; 16-slice scanners in the early 21st century; and 64-slice CT last year. Indications, procedures, risks and benefits will be presented.

Results: The results of prospective studies comparing established/standardized technology of cardiac catheterization with the new technology will be presented.

Conclusions: New advancements are important but utility, safety and cost effectiveness are very important issues that need to be considered before any new testing modality is introduced in clinical medicine.

25 Drug Warning Labels For Glaucoma – How Real is the Risk?

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Objective: Many over the counter (OTCs) and prescription drugs (PDs) have warning labels for glaucoma. The objectives of this study are to determine: (1) the risk of angle closure (AC) in those susceptible from such medications; (2) the prevalence of contraindicated PD use in newly diagnosed patients with anatomically narrow angles (NA) at risk for AC.

Design: Literature search and electronic health records (EHR) review from a glaucoma practice.

Materials and Methods: For objective (1), OVID Medline Search (1966-2006) was conducted using key words "acute disease", "glaucoma", and "angle closure:". For objective (2), using EHR from September 2002 to September 2004, newly diagnosed NA patients were identified at presentation and classified as group A (n=50) who underwent laser therapy or group B (n=33) who were only observed. All active PDs used at the time of diagnosis were reviewed, with warning labels identified using "UpToDate online" [www.utdol.com/utd/index.do]. For data analysis, the percent of patients with contra-indicated PD use was estimated with a binomial proportion and 95% confidence interval (CI). Angle closure risk was determined gonioscopically in all patients by the author.

Results: OVID Search identified 52/80 reports implicating drugs with warning labels for glaucoma. Ten different drug classes were implicated with most cases involving both eyes. Up to 68% (98/144) of drug-induced NA attacks were due to topimarate, an anti-epileptic, in patients ranging from the second to fourth decades of life, 7.6% were due to anti-cholinergics, and 6.9% were due to antidepressants. EHR revealed that the majority had complete angle closure (group A: >90%; group B: >80%). Contraindicated prescription use occurred in 16/50 (32%, 95% CI=[20%, 47%]) of Group A; and in 11/33 (33%, 95% CI=[17%, 49%]) of Group B patients, respectively. The most frequently prescribed PDs in both groups were benzodiazepines (28.3%) and vasodilators (26.1%). Five of the 88 patients (5.7%) presented with acute AC attack.

Conclusions:

1. The antiepileptic topimarate poses a significant risk for AC and physicians need to be aware of its atypical occurrence in a younger age group;

2. Bilateral eye involvement should raise suspicion of PD induced AC.

3, Overall, the real risk for AC from both OTC and PD based upon a 40 year review is very small with only 52 drug-related reports in comparison to countless medications consumed annually.

4. Using EHR, one-third of patients with NA in both groups A and B took PD drugs with warning labels for "glaucoma". reflecting futility of such labels in patients unaware of their diagnosis. About only 6% presented with AC upon presentation while taking a PD. These labels reflect proactive steps taken by drug companies to protect themselves from liability. Unfortunately, such warnings neither benefit the public nor address the prediction that China will have the largest number with primary glaucoma by 2010 and that the estimated 86.5% of those affected by angle closure glaucoma will be living in Asia by 2010 (Brit J Ophth 2006;90:253-254).

26 Infection in the Returned Traveler

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Objectives:

1. Evaluation of fever in the returned traveler.
2. Evaluation of diarrhea in the returned traveler.
3. Pertinent pre-travel health assessment and counseling.

More than 50 million individuals travel from the industrialized world to the developing world. Of these, up to 70% report an illness in association with travel. The differential diagnoses of travel associated infections are quite extensive. The most frequently encountered infections include malaria, dysentery, hepatitis, and dengue fever. A substantial number remain undiagnosed. In evaluating the etiology of travel-related infections one must consider geographic distribution of diseases, mode of transmission, prior immunization history or chemoprophylactic regimens as well as other potential exposures

to infectious agents. This presentation will provide a case based approach to common scenarios of infections in returned travelers, such as fever and diarrhea. It will stress the importance of pre-travel health counseling

27 Current Trends in the Management of Trigeminal Neuralgia

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Trigeminal neuralgia (tic douloureux) is an extremely painful condition primarily starting in the fith and sixth decades of life. Historically, the treatment has gone through many changes. The medications are quite effective in the control of pain; and in recent years, several new medications have become available. The medical management, however, has frequent failures and neurosurgeons are called upon to help with the treatment of trigeminal neuralgia. The procedures available are both ablative and decompressive and can be tailored to individual patient's needs. Based on personal experience with more than 500 patients treated surgically, treatment options will be discussed with their applicability to different patients detailing the newer trends.

28 Mood Disorders: Diagnostic Clues and Criteria for Non-Psychiatrist Physicians

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Mood disorders are the most common psychiatric disorder. By virtue of their varied presentation, depending on class, culture, and race, they present in non-psychiatric medical practices as often as in psychiatric practices. General practitioners, for example, see more patients with depression than hypertension.

Various surveys of medical/surgical outpatient clinics have shown that 15-20% of patients had diagnosable clinical depression.

Lifetime prevalence of depression is 18-23% in females, 8-12% in males.

An NIMH survey of three different communities in the U.S. showed a 6- month prevalence of 6.5%.

Some 40 million Americans will suffer from a mood disorder.

1. Mood disorders are much more prevalent than recognized.

2. Mortality and morbidity associated with them are very high. It consists of not only individual suffering but cost to families, society, and productivity.

3. Comorbidity is very high. Depressed patients are at a high risk for alcoholism, substance abuse, suicide, homicide, accidental deaths, and many medical illnesses as well as poor response to treatment

4. Mood disorders are easily treatable, but for a variety of reasons, which will be discussed, they are scandalously under recognized and under treated. Not more than 15% of patients get adequate treatment

This presentation describes and defines various mood disorders, their diagnostic clues, criteria, treatment and prognosis. It is hoped that this will enable non-psychiatric physicians to recognize, diagnose, and in most cases treat them successfully without the need for referral to a psychiatrist.

29 The Healing Curve: Art as Therapy

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Objective: To explore the role of art in the healing process.

Design: Electronic and manual search of medical and other literature to explore the role of art in the healing process.

Results: Critical, life-threatening, and terminal illnesses are traumatic experiences, not only for the patients, but also for their caregivers and loved ones. These illnesses have also, psychologically speaking, liberating influences. Still it is almost impossible for anyone to even have a faint glimpse of the emotional turmoil tormenting the patient's psyche. Art as therapy is being used to address and explore these issues. The underlying purpose is to harness the creative processes, present in almost all of us to some

extent, and use it for therapeutic purposes. Art therapy usually is not a single modality but includes drawing, painting, sculpting, and writing. This type of therapy has been shown to be extremely effective in people who have difficulty expressing their innermost feelings. These groups include cancer patients, children, and those with diminished intellectual and mental capacities. Art therapy, in combination with meditation, has been shown to alleviate anxiety, exhaustion, depression, loss of appetite, and pain. Art therapy has been shown to energize, relax, and to function as a cathartic. It is a very powerful way of expressing the illness experience and provides another means of coping with it. Recent global events, like 9/11, the Asian tsunami, Katrina, the Pakistani earthquake, and most significantly the Iraqi conflict, have opened entirely new possibilities for art therapy. Though therapeutic, this kind of therapy needs to be carefully monitored so that it does not become emotionally overwhelming. Other benefits of art therapy include improved social functioning, better immune responses, decreased loneliness, and an overall feeling of well being. In this presentation several drawings from patients will be shown and the psychological interpretations of those drawings will be discussed. The significance and uses of different colors in these drawings and their possible interpretations will also be explored.

Conclusion: Art therapy is being used, as a modality of treatment, in clinics, hospitals, and schools. It behooves us to explore its potential as an added tool for the well being of our patients.

30 Multiple Gestation, Multiple Risks

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Clinical Professor
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Objectives:

1. Identify the demographic factors of multiple gestation
2. Describe the maternal/fetal complications of multiple gestation.
3. Discuss the management of multiple gestation pregnancies.

The prevalence of multiple pregnancies has increased dramatically over the last two decades because of the increased use of ovulation induction, assisted reproductive technologies and delayed childbearing. High order multiple pregnancies (triplets, quadruplets, etc.) that were extremely rare are now seen more often.

Twins can be monozygotic (identical) or dizygotic (fraternal). Monozygotic twins could be sharing one placenta (monochorionic) or divided into two sacs (dichorionic). All dizygotic twins will have dichorionic placentas.

Multiple pregnancies are associated with increased risk of miscarriage, pre-term labor, pregnancy-induced hypertension, preeclampsia, polyhydramnious, fetal growth restriction, antepartum bleeding, postpartum bleeding, gestational diabetes, increased rate of preterm delivery with its significant fetal and neonatal mortality and morbidity as well as increased incidence of fetal malformations.

Complications are more common with monochorionic twins and include, in addition to those mentioned above, the serious complication of twin-twin transfusion syndrome. Also, complications are more common and more severe the higher the order of the multiples.

Strategies to reduce the complications include primary prevention, i.e. better management of infertility treatment, early diagnosis, attention to diet, changes in lifestyle, early and proper prenatal care to include serial sonograms, fetal well-being testing and early detection of pre-term labor. That includes patient education, serial sonographic evaluation of the cervix, home uterine activity monitoring (HUAM) and proper management of preterm labor, i.e. the judicious use of tocolytics, including oral terbutaline, terbutaline pump, as well as timely consultation with maternal fetal medicine specialists and possibly delivery in a tertiary care setting.

31 Reducing Medical Errors and Managing Risk at King Faisal Specialist Hospital – Riyadh, Saudi Arabia

Sabeeha Rehman
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King Faisal Specialist Hospital and Research Center

Riyadh, Saudi Arabia

Objective: To educate physicians on using tools to enhance patient safety and to reduce medical errors.

Design: A Case Study: The patient safety program at King Faisal Specialist Hospital, a 700-bed tertiary care hospital.

Materials and Methods: Patient safety was made an institutional priority with the goal of reducing medical and medication errors.

The case-finding system was enhanced by replacing the paper incident reporting system with an electronic system

This led to identification of problem-prone, high-risk, and high-volume areas.

A system for managing risk was developed.

A system to investigate sentinel events and high risk events was developed and put into high gear and a Risk Management Committee was established to oversee the outcome.

Results: Enhanced case-finding: 112% increase in volume of reporting of adverse occurrences due to ease of reporting; 70% of cases now reported within 24 hours of occurrence; and expeditious involvement and resolution due to interactive capability of the electronic system.

Clearly defined policies and procedures for writing prescriptions, prescribing medications, using abbreviations, high-risk medications, surgery on correct patient, correct limb, correct side, etc.

An ongoing on-line education system to prevent medical errors.

A vigorous program for investigating high risk adverse occurrences and conducting root-cause analysis.

A mechanism to track and monitor compliance with implementing recommendations resulting from the investigations.

Conclusions: Given the unique nature of the institution, the potential for error was recognized and within the parameters of a nonpunitive environment, a vigorous risk reduction program was instituted and blame-free culture cultivated. There is an enhanced level of awareness among the medical staff and whereas the reduction in medical errors cannot be quantified as yet, system breakdowns and gaps that cause the potential for error have been significantly minimized. The work is not complete and many long-term strategies will be implemented in accordance with the long-term plan.

For any system to be successful, it has to take into consideration the unique nature of the institution, the local culture and its environment, and the absence of incentives operative in the United States: absence of malpractice insurance, negligible litigation, absence of health insurance plans, salaried staff with job security, minimal regulatory oversight, limited required reporting for adverse occurrences, no report cards, and no unannounced surveys. Furthermore, a multinational, multicultural staff has language barriers and high turnover. The patient population has limited health education and a consumer orientation. These factors add to the risk of medical errors.

32 Spectrum of Imaging Findings in Chronic Pulmonary Embolism

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Objective: To demonstrate the various imaging findings of chronic pulmonary embolism that will aid in making the diagnosis.

Chronic pulmonary embolism is a rare but serious sequela of acute pulmonary embolism occurring when pulmonary emboli fail to completely lyse, thus forming an organized clot that can lead to partial vascular occlusion. Pulmonary artery hypertension can result over time, which is associated with considerable morbidity and mortality. Recognition of chronic pulmonary embolism is important and must be differentiated from acute pulmonary embolism since the treatment is surgical rather than anticoagulation therapy. Imaging findings on computerized tomography (CT) include visualization of an organized thrombus that generally appears as an eccentric or cresentric filling defect. Calcifications can occasionally be present. Chronic pulmonary emboli also have higher HU attenuation values than acute emboli. Other important distinguishing features include dilated pulmonary arteries associated with pulmonary hypertension, asymmetry of the pulmonary vasculature, bronchial and intercostal artery enlargement from collateral circulation

and/or right ventricular enlargement. Finally, a mosaic pattern of attenuation can be seen due to vascular occlusion of the small arteries supplying the secondary pulmonary lobule. Each of these imaging findings will be demonstrated with the aid of multiplanar reformations where appropriate.

Conclusion: Chronic pulmonary embolism has several imaging features that can help in its distinction from acute embolism. Recognition of this entity can significantly improve patient outcome since chronic pulmonary embolism is amenable to surgical thrombolectomy.

33 Cardiac Biomarkers in Ischemic Heart Disease: Update

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Cardiac biomarkers are used to define the cardiac disease, identify the underlying etiology, and help guide therapy. Several new biomarkers are being tested to achieve these goals, and once approved by FDA would be available to use in conjunction with the existing standard markers. In particular, the search is focused for faster, more specific, and sensitive markers for early diagnosis of acute coronary syndromes (ACS).

Cardiac troponin is the most reliable and sensitive marker for ACS at present, since an increased level is specific for myocardial ischemia and false positive results are rare. Troponin is a necrosis marker that rises 6-8 hours after an acute myocardial infarction (MI). Sequential troponin levels can rule out myocarditis. Troponin can also be elevated in patients on dialysis. Positive troponin test can guide treatment in patients with non-ST-segment elevation MI, with a 15% reduction in mortality using glycoprotein IIb/IIIa inhibitors. The drawback of troponin is the 6-8 hour delay time, and lack of sensitivity to detect disease in ACS in some patients.

Markers that show an earlier elevation are CK-MB and myoglobin. Myoglobin rises 1-3 hours after MI, but may be increased in muscle injury and renal disease.

A new biomarker, myeloperoxidase (CardioMPO) can identify troponin-negative patients at risk for MI. CardioMPO was approved recently by FDA. While troponin can miss up to 11% of patients at risk for MI, adding MPO can reduce the missed patients to 1%. MPO levels may increase in infectious or inflammatory diseases, however, the rise in myocardial ischemia or ACS is significantly higher (3-4 times the upper limit of normal).

Additional new markers under study are: ischemia-modified albumin or IMA, choline and pregnancy-associated plasma protein A, Soluble CD40 ligand (sCD40L), heart-type fatty acid binding protein (H-FABP), C-reactive protein (CRP), and BNP, and particularly the N-terminal portion of BNP (NT-proBNP). Recent studies suggest that BNP and MPO may also be used as markers to identify patients at risk for developing heart disease, and for aggressive prevention and control of heart disease.

34 The Unrecognized Epidemic of Heart Disease in Women

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Objectives:

1. To increase the healthcare professional's awareness of current issues related to women and cardiovascular disease (CVD)

2. To discuss how medical knowledge and strategies to manage CVD can improve outcomes for women.

The key messages in this presentation are that the CVD impact for women is increasing and each healthcare provider can be a leader in his/her community for women's CVD through research, advocacy, and awareness.

Since the late 1970s, men have experienced a fairly steady decline in number of deaths from CVD. Much of this is due to improvements in cardiovascu-

lar research, medical and surgical interventional therapies, pharmacological advancements, and emphasis on lifestyle modifications. CVD in women, on the other hand, has increased, mainly because it was thought that it was a man's disease which did not affect females at the same rate and that men and women with CVD present in the same way. In addition, women have been historically underrepresented in clinical trials, so there has been little data available about CVD in women.

In an effort to better understand the disease specificities in women and improve diagnostic testing and treatment, the government and academic institutions have, in the last decade, carried out several large landmark studies involving women and CVD. In 1993, women began to be included more in clinical trials, hence, in the past 10 years we were able to learn more about CVD in women. The recent studies have shown that the disease presentation may be different in women and underscored the need for a new approach to cardiovascular care in women. These studies are either under way or recently completed and will be discussed. It is now known that not only do more women than men die every year from CVD, but women are more likely than men to experience death after a cardiac event. Unexpected results from some of these trials have highlighted the need to further study CVD in women to better understand biological sex differences in disease manifestation and presentation. In summary, there is a need for building awareness and education around women's cardiovascular health.

35 Hyperlipidemia and Heart Disease Risk

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There are multiple risk factors for coronary heart disease.

1. Increased serum total and LDL cholesterol, decreased HDL cholesterol, and increased triglycerides,
2. Increased serum homocysteine,
3. Decreased serum B12,
4. Decreased serum folate,
5. Syndrome X,
6. Hypertension, and
7. Smoking.

Hyperlipidemia is an increase in serum lipoproteins or cholesterol, which includes HDL, LDL, VLDL, and triglycerides. Also of increasing importance are serum apolipoproteins, serum proteins that regulate the metabolism of lipoproteins. There are four major apolipoproteins, Apo A-I and A-II, Apo B, and Apo C-I, C-II, and C-III. Serum Apo A-I and B are more highly correlated with severity and extent of heart disease than total cholesterol and triglycerides.

Cholesterol is a fat-like substance that is present in animal foods. Cholesterol is also made in the liver from foods, and is bound to lipoproteins when in circulation. LDL or "bad cholesterol" is transported and deposited in blood vessels; high LDL levels increase the risk of heart disease. HDL or "good cholesterol" carries cholesterol away from the blood vessels to liver for removal from body, and lowers the risk of heart disease.

Dietary fats influence the serum cholesterol levels. There are four different types of fat that affect the blood levels.

1. Saturated fats increase the LDL (bad cholesterol) levels and are found in animal fats and some vegetable oils
2. Polyunsaturated fats lower the total cholesterol blood levels and are found in many vegetable oils and fish
3. Monounsaturated fats also lower cholesterol and increase HDL (good cholesterol) levels and are found in many vegetable oils.
4. Transfatty acids increase bad cholesterol levels and are found in hydrogenated oils and margarine.

In addition there are familial hyperlipidemias that cause severe heart disease at an early age, and can be diagnosed by special blood tests.

Cholesterol blood level can be lowered by changing eating habits, reducing weight, regular exercise, and eating high fiber, low-fat, low-meat diet.