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Pre-ISNA Annual Convention of the Islamic Medical Association of North America (IMANA)

A jointly sponsored CME Conference through the Dodge County Medical Society of Wisconsin

Muslim Physicians in the United States and their Role in Health Care

Hyatt O'Hare
Rosemont, Illinois
August 30-31, 2007

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Accreditation and Credits for Physicians: This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the Dodge County Medical Society of Wisconsin, Office of Continuing Medical Education (CME), and the Islamic Medical Association of North America (IMANA). The Office of CME, Dodge County Medical Society of Wisconsin, is accredited by the ACCME to provide continuing medical education for physicians.

The American Medical Association has determined that non-U.S. licensed physicians who participate in this CME activity are eligible for AMA PRA category 1 credit.

Dodge County Medical Society of Wisconsin for CME designates this educational activity for a maximum of fifteen (15) hours in category 1 credit towards the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

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Abstracts

1 Association between White Matter Abnormalities on Diffusion MRI and Measures of Gait and Balance in Elderly Individuals

Rafeeque A. Bhadelia, MD
Chief of Clinical Operations in Neuroradiology
Beth Israel Deaconess Medical Center
Associate Professor of Radiology
Harvard Medical School
Boston, Massachusetts

Objective: It has been suggested that cerebral white matter disease is an important but less recognized cause of gait and balance dysfunction in the elderly. Impaired gait and balance increase the likelihood of fall-related injuries, which are the sixth highest cause of death in older individuals. The purpose of this study was to investigate the relationship between directional water diffusion measurements by the magnetic resonance imaging (MRI) technique of diffusion tensor imaging (DTI) and quantitative measures of gait and balance in elderly patients.

Methods: One hundred sixty-six elderly homebound subjects were included in this investigation. Diffusion tensor imaging measures the microscopic motion of water molecules in the white matter tracts of the brain. Therefore, DTI is an ideal method to noninvasively detect the integrity of cerebral white matter. Diffusion tensor imaging can provide many different measurements, of which the most commonly evaluated is fractional anisotropy (FA). We measured the FA in various parts of the brain, which include the genu and splenium of corpus callosum, internal capsule, and frontal and occipital white matter. We used six independent directions for FA measurements. A neurologist determined Tinetti scores of gait and balance. The Tinetti gait and balance test is a simple clinical tool that measures characteristics associated with falls. Simple and partial correlations were used to determine the relationships between FA values in different areas of the brain, and gait and balance scores, with and without adjustments for age and other factors affecting gait and balance in the elderly.

Results: The mean age of subjects was 74 years (range: 60-91 years). Of the 166 patients, 123 were female. A significant correlation was observed between the FA in the genu of corpus callosum and gait scores (r=0.31; *P*=.001) and balance scores (r=0.27; *P*=.001). A significant correlation also was observed between the FA in frontal white matter and gait and balance scores. After adjustments for age, arthritis, neuropathy, cerebral atrophy, and mini-mental status examination scores, the FA in genu of corpus callosum (FAGCC) remained significantly correlated to gait and balance scores (*P*<.01). There was no relationship observed between the FA in the splenium of corpus callosum, internal capsule, and occipital white matter and gait or balance scores.

Conclusions: Our results show that the FA in the genu of corpus callosum is associated with quantitative measures of gait and balance, independent of age and other factors affecting gait in the elderly. Our results are in agreement with previous studies that have shown the relationship between frontal executive function and mobility impairment. Future studies using a higher number of DTI directions than used in this study may help further explore the association between various complex white matter tracts and gait and balance. These studies are important as falls related to gait and balance dysfunction are likely to become an increasingly important public health issue in the United States due to its aging population.

2 Disaster Medicine

Sheik N. Hassan, MD, FCCP
Associate Dean for Academic Affairs and Associate Professor of Medicine
Howard University College of Medicine
Washington, DC

Objectives:

- Categorize medical problems with associated disasters,
- Identify signs of biological and chemical weapons attacks,
- Describe the roles and responsibilities of physicians during disasters resulting in medical problems, and

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- Discuss preventive measures that can be taken to limit illnesses following disasters.

Disasters that affect human health are not new. However, recently these events have captured the attention of almost all healthcare providers for a variety of reasons. Physicians are often called upon to provide direct care, to serve as consultants, or to simply provide information to their local communities.

3 The ABCs of Blood Transfusion: What Every Clinician Should Know

Abida K. Haque, MD
The Methodist Hospital
Houston, Texas

Blood transfusions were started in early 1900, and the first blood bank was founded at the Cook County Hospital in Chicago in 1937 by Dr. Bernard Fantus. Since then, much progress has been made in the proper grouping, cross matching, and identification of blood group-related antibodies. We now have not only packed red blood cells but many individual components of blood available for transfusion. There are specific criteria for transfusion of each of the components. Packed red blood cells are used for treating massive blood loss and severe anemia, fresh frozen plasma is used for management of coagulation disorders, platelets are used for severe thrombocytopenia, and cryoprecipitate is used for treating disseminated intravascular coagulant (DIC) and Von Willebrand's disease.

Blood and blood product transfusions are not harmless procedures. Severe, and sometimes fatal, reactions can occur. An acute transfusion reaction may be seen within 15 minutes and may manifest as anaphylactic shock, which needs immediate treatment. An acute reaction may also be seen up to 2-3 hours later as fever, acute lung injury, or circulatory overload. Delayed hemolytic reactions may occur much later, with an anamnestic response and graft vs. host disease.

Major causes of transfusion fatalities are acute lung injury, transfusion-related circulatory overload, bacterial infections, and anaphylactic reactions. The risk of transfusion-related hepatitis and human immunodeficiency virus (HIV) infections is extremely low now; however, other infections such as West Nile virus, Chagas disease, and babesiosis may become more significant in the near future.

One of the common bleeding disorders that is under-recognized is Von Willebrand disease, which is caused by a reduction or absence of vWF, or a loss of a specific vWF function. There are at least five different types of the disease. Laboratory tests, including vWF antigen measurement, assays, and Enzyme-Linked ImmunoSorbent Assay (ELISA), are available for diagnosis.

4 Ethnic Kidney Transplant Recipients: Issues and Outcomes: A Brief Overview

Abdul Rauf Mir, MD
Clinical Professor of Medicine
University of Missouri-Kansas City School of Medicine
Medical Director, Kansas City Dialysis
and Transplant Center
Kansas City, Missouri

Objectives: To understand the following:

- Reasons for significant disparities between ethnic minority populations and majority populations in the U.S.,
- Causes of kidney allograft loss, and
- Possible steps that can alleviate this phenomenon.

Abstract: The incidence of end-stage renal disease (ESRD) is disproportionately higher in U.S. minority populations, including Hispanic, Native American, and Asian populations. Access to some treatments, particularly transplantation, is limited, and often the treatment outcomes are less than optimal. These statements clearly apply to African-Americans and in varying degrees to other minorities.

Data will be presented to examine the state of kidney transplantation as it impacts different ethnic groups. Information will be provided that can benefit practitioners to help treatment outcomes for minority patients with ESRD. Local initiatives that have significantly impacted outcomes also will be briefly discussed.

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5 End-of-Life Decision-making: Perspectives from Different Monotheistic Religions

Mohammed Moinuddin, MD, FACP
Baptist Hospital
Memphis, Tennessee

Objective: The purpose of the study was to determine how the followers of different religions approach the end-of-life decision-making based on their beliefs.

A literature review was performed on this subject. Chaplains, palliative caretakers, and nurse coordinators were interviewed.

Christians derive their view from the life and teachings of Jesus Christ and the religious teachers. The exemplar death for Christians is that of Jesus Christ on the cross, which was a humble death. Death with humility is emphasized with redemption and repentance seeking God`s forgiveness, thus accepting unavoidable suffering as an opportunity for spiritual growth through humble submission. The Christian Medical and Dental Association includes patients' right to refuse treatment if there is no hope for life and prolonging life by all means can entail serious spiritual and moral costs to the patient. Physicians who anticipate conflicts between their own beliefs and those of their patients should discuss the situation with chaplains or transfer the care to a physician who has beliefs similar to those of the patient.

The Jewish perspective holds the view that patient autonomy has a smaller role than in American secular ethics; the physician has more authority to determine the appropriate course of treatment. Orthodox and Conservative Jews give higher authority to the rabbi than reform Jews in decision-making about life support. They recommend the use of analgesics, even when they hasten death, as long as their intention is to alleviate pain. Suicide is not permissible.

In Islam, the two important sources of information are the Quran and Sunnah. Muslims believe that whatever happens is because it is the will of God and, therefore, pain and suffering are looked upon as a trial or punishment and thus rewarded. Suicide is not permissible because life is a gift of God, and humans are caretakers rather than owners of their bodies. Futile and disproportionate treatments towards end of life are discouraged. Autopsies are allowed only when absolutely necessary.

The Institute of Medicine did research in the 1990s on this subject, and introduced the concept of "good death" and "bad death". The former is reasonably consistent with clinical and ethical standards associated with avoidable stress and suffering, and the latter describes death when norms of decency have been violated. It identified the following deficiencies: there is too much unnecessary suffering because of acts of commission and omission, and there exists legal obstruction of reliable excellent care and inadequate training of health care professionals who are caring for terminally ill patients.

Conclusion:

- Almost all religions are against suicide, physician-assisted suicide, euthanasia, and unnecessary and futile treatments. There are minor variations in emphasis.
- All religions believe in sanctity of life, and that as a gift from God it is to be respected.
- The subject is important for the clergy and physicians. Despite the importance of an advanced directive, its neglect and futility are becoming more common as recently emphasized in an article in the Annals of Internal Medicine in July. Therefore, the decision will depend on individual circumstances.
- As the world's population becomes more mobile, chaplains, rabbis, imams, and physicians are more likely to see patients of diverse faiths and cultures; and, therefore, cross-cultural education will become very important.
- Much of the responsibility for keeping the public discussion going will rest not with the media but with public officials, professional organizations, religious leaders, and community groups. Hence, we need to increase awareness among us.

6 Infectious Diseases: Cannibals, Cows, Prions, and the Encephalopathies

N. Khan, PhD
Alta Loma, California

Objective: To study the natural history of transmissible spongiform encephalopathies (TSEs) and their implications for human health.

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Design: An electronic and manual search of medical literature about (TSEs), their implications for human health, and control strategies.

Results: Transmissible spongiform encephalopathies are a family of neurodegenerative diseases affecting both animals and humans. They are also known as prion diseases and are associated with abnormal proteins known as prion proteins (PrPs). Prions are proteins that are normally present in cells of humans and other organisms. They do not contain DNA or RNA. They occur in two forms: a non-infectious normal cell component called PrP, and an infectious component called PrP^{cs}. Spongiform refers to the pathological appearance of infected brains that are filled with holes and resemble sponges when autoposied. The best known prion disease is Creutzfeldt-Jakob disease (CJD). There are three major categories of CJD: sporadic, familial, and acquired. Sporadic CJD is the most common type of the disease and accounts for at least 85% of the cases. The incidence of this type of CJD is around 1 case per 1 million, accounting for approximately 300 cases per year in the United States. In familial or hereditary CJD, the patient either has a family history and/or tests positive for a genetic mutation in the prion genes that are inherited in an autosomal dominant pattern. About 5-10% of the total cases of CJD fall into this category. Acquired or iatrogenic CJD accounts for about 1% of cases and is usually acquired through contact with infected biological materials, e.g. autopsied brain or nervous system tissues. The classic example of this type of CDJ in humans is kuru, which was originally described in the Fore tribesman of Papua, New Guinea. There are several variants of CJD. A variant form of the disease called new variant or variant (nv-CJD, v-CJD) and was described in Britain and France in 1995-96 and has been causally linked to eating cattle products contaminated with bovine spongiform encephalopathy (BSE) or the "mad cow" disease agent. The fact that BSE is transmissible to other species has raised grave public health concerns worldwide. This threat to public health has intensified research efforts to understand the molecular basis of prion diseases, their mode of transmission, newer and improved methods of diagnosis, and development of preventive and therapeutic strategies. This presentation will discuss incubation periods, onset of clinical symptoms, better and newer diagnostic methods, and the course and outcome of these diseases.

Conclusion: A deep and thorough understanding of these encephalopathies is essential because the number of cases is going to increase as people infected years ago are going to manifest clinical symptoms now and in the future. Better and newer diagnostic methods and control strategies are also badly needed.

7 Anaphylaxis

Saba N. Sharif, MD
Kaiser Permanente
Los Angeles, California

Anaphylaxis potentially affects 1-16% of the United States population and accounts for 800 deaths per year. The incidence is significantly underreported, due to a decrease in both recognition by patients and correct diagnosis by physicians. The criteria for diagnosis of anaphylaxis were revised in 2006. This overview will include these diagnostic criteria, as well as a review of the diagnosis and treatment for both adults and children in outpatient and inpatient settings. The discussion also will include the challenges to prevention as well as appropriate indications for use of an epinephrine autoinjector.

8 A Pressure Ulcer Prevention Program for Certified Nursing Assistants in a Long-term Care Setting

S. Adem, RN
K. Boatright, RN
E. Kelly, RN
N. Napoleon, RN
San Francisco State University
San Francisco, California

Introduction: Pressure ulcers (PU) are an unfortunate occurrence in nursing homes; however, they can be prevented by making use of evidenced-based educational programs for all nursing staff, including certified nursing assistants (CNAs), who provide the bulk of physical nursing care. CNAs spend more bedside time with patients than the registered nurses and can utilize pressure ulcer prevention strategies to improve the quality of nursing care. Studies have

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revealed that the prevention of pressure ulcers decreases mortality rates, healthcare costs, and human suffering. Further studies have shown that long-term care (LTC) facilities where evidenced-based guidelines in staff education programs, such as the Agency for Healthcare Research and Quality (AHRQ), the National Pressure Ulcer Advisory Panel (NPUAP), and the Joint Commission (JC), have reduced the incidence of pressure ulcers and their related costs. Nurses who have successfully completed PU training programs have claimed a sense of empowerment and a desire to take a more active role in PU prevention.

Objectives: The primary objectives of this field study were to implement a PU prevention program for nursing assistants in the LTC setting and to determine its result in measurable learning through the use of pre- and post-test tools, role playing, and the utilization of case studies.

Results: The educational program was presented by four registered nurses and other key interdisciplinary staff, including a dietician, an occupational therapist, and a physical therapist. The training was presented to 43 nursing assistants in four 30-minute sessions. The educational program successfully demonstrated retention of the learned material evidenced in the post-test results.

9 Charitable Health Care: Home and Abroad

Wesam Silk, MD
Assistant Professor
George Washington University
Washington, DC
Director of Silk Vision and Surgical Center
Annadale, Virginia

Objective: To discuss practical ways to perform charity medical work in the United States and abroad.

Materials and Methods: To review experiences as an assistant professor performing charity eye exams and surgery in the United States; Panama City, Panama; and Damascus, Syria.

Results: Approximately four overseas trips were performed: three to Damascus, Syria, and one to Panama City, Panama. Each trip had its unique challenges of physical and mental preparation.

Conclusion: With the right mindset, charity work provides the physician with enormous professional and spiritual growth.

10 Incidence of Cystic Fibrosis in High-risk Egyptian Children and CFTR Mutation Analysis

M.L. Naguib, MD; S.S. Doss, MD
Department of Pediatrics
Cairo University Faculty of Medicine
Cairo, Egypt
I. Schrijver, MD; L.M. Pique, PhD
Department of Pathology
Stanford University of Medicine
Stanford, California
R. Gardner, PhD
Department of Medicine
Stanford University of Medicine
Stanford, California
M.A. Abu Zekry, MD
Division of Pulmonology, Gastroenterology
Cairo University Faculty of Medicine
Cairo, Egypt
M. Aziz, MD
Department of Clinical and Chemical Pathology
University of Michigan Medical Center
Ann Arbor, Michigan
S.Z. Nasr, MD
Department of Pediatrics
Division of Pulmonology
University of Michigan Medical Center
Ann Arbor, Michigan

Background: Knowledge about cystic fibrosis (CF) in Egypt is limited.

Objective: The objective of this study was to screen for CF in Egyptian children with suggestive-clinical features and identify causative genetic mutations.

Methods: Sixty-one patients from the Chest Unit, Cairo University Children's Hospital, Egypt, were included. The subjects presented with persistent or recurrent respiratory symptoms, failure to thrive, diarrhea and/or steatorrhea, and unexplained persistent jaundice. Patients were screened using the CF Indicator sweat test system (PolyChrome Medical, Inc, Brooklyn Center, MN). Quantitative sweat testing was conducted on 10 of 12 positive patients.

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Seven probands and one sibling underwent molecular analysis by direct DNA sequencing of the coding region and of the intronic sequences adjacent to the twenty-seven exons of the CFTR gene.

Results: Of the 61 patients, 12 (20%) had positive sweat chloride screening. Of the 12 patients, 10 underwent quantitative sweat testing and were positive. Eight CFTR sequence changes were identified in seven affected probands, and two were confirmed in one sibling by direct DNA sequencing.

Conclusion: The study results suggest that CF is more common in Egypt than previously thought. Larger studies are warranted to identify the incidence, molecular basis, and clinical pattern of CF in the Egyptian population.

11 Percutaneous Management of Deep Vein Thrombosis

M.I. Syed, MD, FSIR
Dayton Interventional Radiology
Wright State University School of Medicine
Dayton, Ohio

Objective: To introduce the epidemiology, pathophysiology, and clinical manifestations of iliofemoral deep vein thrombosis and percutaneous interventional treatments.

Deep vein thrombosis is a major public health problem. Physicians should be aware of the clinical characteristics of this condition as well as the newer percutaneous treatment options for iliofemoral deep vein thrombosis. Percutaneous intervention should now be offered to the appropriate patient as first-line therapy in addition to anticoagulation for acute to subacute illiofemoral deep vein thrombosis.

12 Investigation of Complement Activation in Patients with Chronic Idiopathic Urticaria

Saba N. Sharif, MD
Bruce J. Goldberg, MD
Kaiser Permanente
Los Angeles, California

Rationale: Thirty to fifty-five percent of patients with chronic idiopathic urticaria (CIU) have IgG autoantibodies with specificity for the FcåR1 of IgE. Previous studies have indirectly demonstrated that the autoantibody in chronic urticaria is complement fixing and that complement augments the histamine-releasing ability of the anti-FcåR1 antibody in chronic urticaria. The purpose of this study was to directly show whether complement activation occurs in CIU by measurement of the complement activation fragment iC3b.

Methods: The study group consisted of 14 adult patients with chronic idiopathic urticaria, 15 patients without urticaria but on similar antihistamines as the urticaria group, and 10 age-matched controls without urticaria and on no medications. The antihistamine group was chosen as an additional control group so that antihistamines would not need to be drawn from the urticaria patients. The number of patients and controls recruited were based on an anticipated effect size of 3 mcg/ml, á = 0.05, and power of 80%.

Chronic idiopathic urticaria was defined as urticaria lasting more than 6 weeks in which physical, infectious, or allergic causes were ruled out by history and physical and laboratory tests including CBC, ESR, CH50, hepatic transaminases, thyroperoxidase antibody, and skin or in vitro testing for specific IgE when indicated by history. None of the patients took oral steroids.

Blood was drawn into commercially available tubes containing EDTA/Futhan (Nafamostat Mesilate) to minimize spontaneous activation of complement. Plasma was collected immediately by centrifugation at 2000 x g for 15 minutes at 4° Celsius (C). The plasma samples were frozen and stored at -70° C. Samples were assayed for iC3b using a commercial enzyme immunoassay (Quidel, Santa Clara, California). Mean iC3b levels were compared between the three groups using an unpaired t-test.

Results: Mean ic3b levels were increased in all patients with CIU, compared to healthy controls (5.275 mcg/ml vs. 4.483 mcg/ml, *P*=.0289). The increased mean iC3b level observed in CIU patients compared with healthy controls was observed only for the subgroup (n=6) of urticaria patients not on antihistamines (6.246 mcg/ml vs. 4.483 mcg/ml, p=0.00396. Mean iC3b levels in nonurticaria subjects on antihistamines were higher than healthy controls (5.161 mcg/ml vs. 4.483 mcg/ml, *P*=.031) and urticaria patients on similar antihistamines (5.161 mcg/ml vs. 4.545 mcg/ml, *P*=.0341).

Conclusion: This study was conducted to assess if

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a commercially available assay-measuring complement activation fragments could directly confirm complement activation in patients with chronic idiopathic urticaria.

Our study demonstrated a statistically significant difference in mean iC3b levels between healthy controls and all groups of urticaria. The greatest differences were evident between healthy controls and the subgroup of urticaria patients not on antihistamines.

A discrepancy was seen between iC3b levels in urticaria patients on anthistamines, the two control groups that consisted of nonurticaria patients on antihistamines, and healthy controls. This may be related to complement activation in the inflammatory conditions that required antihistamines as well as inhibition of complement activation by antihistamines.

13 Adherence to Treatment in Children and Adolescent Patients with Cystic Fibrosis

Gameel N. Zindani, MPH
University of Michigan School of Public Health
University of Michigan Health System
Ann Arbor, Michigan
Epidemiology Doctoral Program
College of Human Medicine
Michigan State University
East Lansing, Michigan
Darcie D. Streetman, PharmD
University of Michigan College of Pharmacy
University of Michigan Health System
Ann Arbor, Michigan
Daniel S. Streetman, PharmD
University of Michigan College of Pharmacy
University of Michigan Health System
Ann Arbor, Michigan
Samya Z. Nasr, MD
Department of Pediatrics
Division of Pediatric Pulmonology
University of Michigan Health System
Ann Arbor, Michigan

Purpose: The purpose of this study was to monitor medication adherence in cystic fibrosis (CF) patients and its correlation with disease severity and patient age.

Methods: Children younger than 12 years (Group 1) and adolescents 12 years of age and older (Group 2) were recruited from the University of Michigan Cystic Fibrosis Center. The study duration was three months. Twenty-two patients per group were enrolled. Adherence to ADEK, an oral multivitamin, and dornase alfa, a nebulized mucolytic medication, was monitored. Adherence to ADEK was monitored by using the Medication Event Monitoring System (MEMS) SmartCaps (APREX, AARDx, Inc., Union City, California). The dornase alfa adherence rate was monitored by counting empty medication vials.

Results: Of the 33 patients who completed the study, 15 patients were in Group 1, and 18 were in Group 2. The overall mean adherence rates for ADEK and dornase alfa were (±SD) 63.6% (±24.0%) and 66.5% (± 31.2%), respectively. The median ADEK and dornase alfa adherence rate for Group 1 was 84.6% and 79.1%, respectively (P<.08); and for Group 2 was 56.7% vs. 78.4%, respectively (P<.07). There was a trend toward significance, suggesting that the adherence rate for ADEK was higher than for dornase alfa (P<.08) in Group 1. Group 2 showed a trend toward adherence to dornase alfa than to ADEK (P<.07). There was a trend for ADEK adherence between Groups 1 and 2 (P<.09) but not for dornase alfa (P<0.93).

Conclusion: Parental supervision and disease severity are likely to play a major role in adherence to medical management. Partnership with patients and families about the treatment plan might be important for improving adherence rate. The MEMS SmartCaps is an electronic monitoring technology that should be used to measure drug adherence objectively both in further larger clinical trials and in the outpatient setting.

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