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MEDICAL FOLKLORE THE HISTORY OF ONDINE'S CURSE

Roozehra Khan, DO
Resident Graduate '11, Internal Medicine
Currently a Critical Care Fellow, Mt. Sinai Hospital, New York

There are many mythical tales in the field of medicine, but none as whimsical and as enchanting as the story of Ondine's curse. German folklore, dating back to 1812, depicts a story of an immortal water spirit, named Ondine. Like many beautiful water nymphs she

was disillusioned of human men, who may be filled with deceit and lies. Ondine was an independent spirit blessed with eternal youth, beauty and power. She was wary of falling in love, for she would lose her gift of immortality once bearing a human man's child. Yet, like

all tragic love stories, Ondine met a man who fulfilled her and gave her a soul, and so they happily married. He tenderly vowed to her, “My every waking breath shall be my pledge of love and faithfulness to you.” After a year of marital bliss, the two joyfully welcomed a new child, but regrettably Ondine’s beauty began to fade as she succumbed to the aging process of mortal beings. As her beauty became more mature, her husband’s eye began to slowly wander away to younger women, with the unmarred beauty that Ondine once possessed. One ill-fated afternoon, Ondine set out for a walk through the forest and heard the familiar sound of her husband’s snore across the water. Giggling, she ran to awaken her beloved from his nap, but came upon a scene of scattered clothing, and her unfaithful husband lying with another woman. At that moment, she was filled with anger and dismay after realizing she had sacrificed her free spirit to be tied to a mortal soul with the man she loved. She awoke her husband in a rage and placed a curse on him for the remainder of his life. She cried, “You pledged faithfulness to me with your every waking breath and I accepted that pledge. So be it. For as long as you are awake, you shall breathe, but should you ever fall into sleep, that breathe will desert you.” He never slept again. In 1962 Severinghaus and Mitchell found reality in this fairytale. They first described three surgical cases of central hypoventilation syndrome in patients with upper cervical and brainstem lesions, which they cleverly named “Ondine’s curse.” Currently, Ondine’s curse is a rare syndrome characterized

by a loss of automatic breathing that can be congenital or acquired, often from brainstem damage, such as in a medullary stroke. The descending anterolateral medullocervical pathways are responsible for automatic breathing. When this area is damaged, patients experience prolonged apneic states during sleep and require mechanical ventilation at night, yet they have preserved voluntary breathing while awake. There are no set diagnostic criteria, yet recent articles have proposed that patients meet the following: Hypercapnia during non-REM sleep, normal PO₂ during voluntary breathing when awake, alveolar hypoventilation during sleep, and exclusion of pulmonary diseases. Acquired cases have been reported in patients with Duret hemorrhages, medullary tumors, brainstem infarction, demyelinating diseases, encephalitis, and mitochondrial diseases. Treatment is unfortunately limited, but most patients respond to bi-level positive airway pressure nightly and in extreme cases, diaphragmatic pacing. The prognosis is variable, and some patients with acquired type can even have spontaneous recovery. Pharmacological treatment has shown no benefit to date, but it’s something that researchers are sleeping on.

Special thanks to Dr. Katz for her editorial assistance. Schestatsk P, Fernandes, LNT. Acquired Ondine’s curse: case report. *Arq. Neuro-Psiquiatr* 2004.

<http://www.goddessgift.com/goddess-myths/goddess-Ondine.htm>

Severinghaus JW, Mitchell RA. Undine's curse - failure of respiratory center automaticity while awake. *Clin Res* 1962;10:122

Pedroso JL, Baiense RF, Scalzaretto AP, Neto PB, Teixeira de Gois AF, Ferraz ME. Ondine's curse after brainstem infarction. *Neurol India* 2009;57:206-7.

FASCINATING CASE

Tanya Minasian, DO
Neurosurgery, PGY 2

As we come of age during our training in medical school and beyond during internship and residency, we learn to perfect the skill of formulating a differential diagnosis.

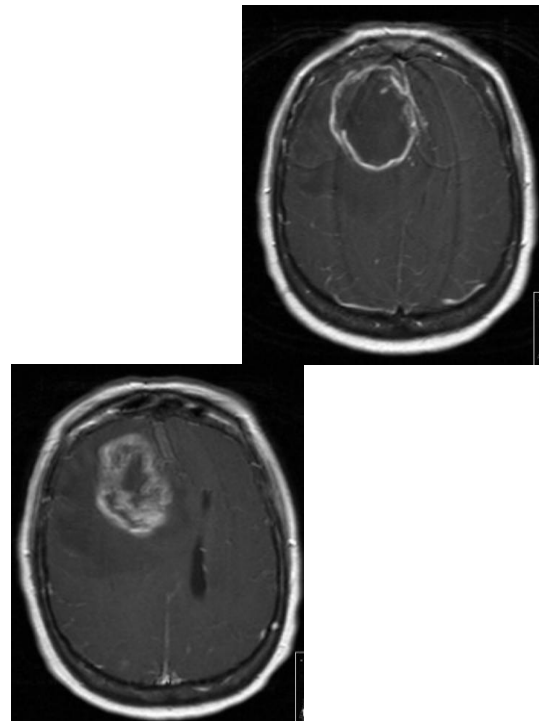
This is key for each and every patient that we see. Various mnemonics are utilized, most commonly, 'VINDICATED.' We all remember this being pounded into our heads over and over again until the idea of it becomes engrained in every case we come across and think about. The most important part of this skill is keeping the differential broad. This includes the ability to think about all possibilities, middle of the road diagnoses and the zebras. Here we present a fascinating case...what is your differential?

57 year old right handed Caucasian female with no significant past medical history except anxiety, begins having change in mentation per family. Over just a few weeks, it crescendos to a point that she has severe erratic mood swings, is unable to take care of herself, her family can no longer care for her as they fear for her and their own life and safety. She is admitted to a psychiatric facility where she is diagnosed with a psychiatric disorder NOS, and started on multiple medications. Patient then begins having altered mental status, now associated with LEFT sided weakness for 3 days. Given worsening mentation and neurologic status over a few days, patient finally is transferred to the emergency room for evaluation.

The patient's presentation could have been easily dismissed as psychiatric in origin, without further work up. However, keeping a broad differential diagnosis, as this case very appropriately demonstrates, is vital.

Thoughts on a differential thus far:
Conversion disorder or manic state? Side effect from psych meds? Electrolyte abnormality? Seizure? Trauma? Ischemic/hemorrhagic stroke? Ruptured aneurysm/AVM? Infection? Mass?

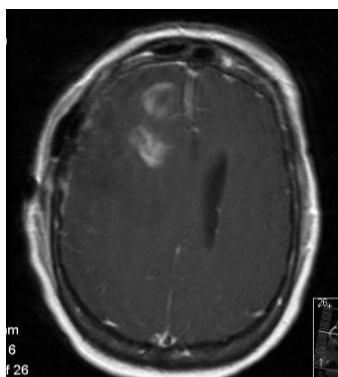
Appropriate workup by the emergency room of a patient with altered mental status includes imaging studies of the brain. Initial non contrasted head CT shows a mass in the RIGHT frontal lobe. This was followed by an MRI brain with and without gadolinium, demonstrating a large 5.8 x 4.4 x 4.8 cm RIGHT frontal rim enhancing cystic mass with central necrosis, significant vasogenic edema, mass effect, and 1.5 cm midline shift (contrasted MRI below)



Now, given a ring enhancing cystic intracranial lesion, the differential can be narrowed: astrocytoma, abscess, metastatic disease, lymphoma, radiation necrosis, resolving intracerebral hematoma, infection (toxoplasmosis vs. cysticercosis), trauma, recent infarct, and giant thrombosed aneurysm.

CT chest, abdomen, pelvis as part of the metastatic workup was negative. ESR, CRP for abscess workup was minimally elevated. Patient had minimal leukocytosis on admission.

Patient underwent neurosurgical intervention immediately: RIGHT craniotomy for decompression and near complete resection of the mass (post-operative MRI below). Final pathology: WHO Grade IV astrocytoma (Glioblastoma Multiforme), in addition to an associated intratumoral abscess (micro: MRSA and coagulase negative staph).



Post operatively, patient returned to her normal neurologic and psychiatric baseline. Family noted that she was acting 'like herself' again. Patient was placed on triple

antibiotic therapy, Flagyl, Vanco, and Fortaz; infectious disease then recommended 6 week therapy with IV Vancomycin based on final cultures. Radiation therapy was started two weeks post operatively, the usual time frame to allow for wound healing. Chemotherapy was on hold per oncology until after antibiotic therapy was completed, to avoid further immunosuppression in the face of an active infection.

The incidence of an intracranial tumor with a concomitant intratumoral abscess is rare. The majority of cases reported include sellar tumors (e.g., pituitary tumors, craniopharyngiomas) with highest association given the proximity to nasal sinuses, possibly allowing for direct extension of bacteria. Also, there are a few case reports of meningiomas and abscess formation, possibly secondary to close proximity to dural venous sinuses, allowing for bacterial extension via venous vasculature. The incidence of glioblastoma multiforme and intratumoral abscess is even rarer. To our knowledge, there have been only five cases ever reported. Most common microbial agent: *S. Aureus*. Pathophysiology is the same for a stand-alone intracranial abscess, including hematogenous spread (pulmonary source, congenital heart disease with shunting, dental abscess, bacterial endocarditis (rare), GI infection), direct extension (sinusitis, ear infection), and s/p trauma or neurosurgical procedure. An intracranial tumor is prime location for an abscess given breakdown of the blood brain barrier and pathological neovascularization, which help in direct invasion of bacteria. Additionally, patients with intracranial tumors are started on steroid treatment for control of vasogenic edema and mass effect pre operatively, which unfortunately aids in immunosuppression and infectious spread. In the last year, our service has had two such cases of GBM with a concomitant

intratumoral abscess; publication of the case series is currently underway.

The presentation of such patients with 'psychiatric' diagnoses being found later to have a large frontal mass is, unfortunately, all too common. Having a high index of

suspicion and maintaining a broad differential is vital in these cases, as commencing with early surgery, chemotherapy and XRT, is certainly key in prolonging life.

PLEASE CONGRATULATE **Dr. LAURYN MCNALLY** for being elected as the national resident representative to the Board of Trustees from the American College of Osteopathic Obstetricians and Gynecologists. Lauryn McNally D.O is a PGY3, for the OB/GYN Department. Congratulations Dr.McNally!

HOW I TREAT IT- PUS AND PARTICLES

Thomas F Minahan, DO
Program Director Emergency Medicine Residency

We treat a lot of abscesses at our facility. When I first started at ARMC, I was surprised by all the 'spider bites' people had. I questioned moving my family to an area so infested with spiders.

Anyway, the procedure routine is: anesthetic, a #11 blade and let the room start smelling.

Let's respect others in the ER. I minimize the stench and assist in absorbing the foul-smelling pus by using a yankauer to 'pick up' the pus and absorb as much of the foul odor as possible. Most use 4x4's to wipe up the pus as it pours out, but I encourage you to respect your colleagues and try the yankauer next time.

When it comes to irrigating a wound, 'dilution is the solution.' The procedure includes putting an 18-gauge needle in the top of a saline bottle and then squeezing with all the energy you have. Maybe it's time for a gym membership, but I get tired after squeezing for just 15 seconds. So, after I've made holes with the 18-gauge needle, I place a manual-BP cuff around the bottle. Pump up the cuff and you have instant pressure to irrigate.

Research helps the learning physician to formulate, ingrain, and measure, a method of thought, investigation, and evaluation necessary for physicians to have and patient care. Multi-lateral information exchange and communication with experts in areas of scientific and medical discovery, knowledge, and analysis, in order to continuously and efficiently improve human health

RESEARCH PROJECTS AT ARMC

Are you interested in research? Are you a student, resident, staff, or faculty member at ARMC? Please contact the offices listed below to participate in any of the following ongoing studies. We thank all the faculty primary investigators of the following projects.

Cardiology

Fitzmorris, Steven MD, Cardiology Wan, QuiHua DO Int Med Resident	Comparing Accuracy of Transthoracic Echocardiogram vs Trasesophageal Echocardiogram and Cardiac Catheterization in Obese Population
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Emergency Medicine 909-580-6370

Ho, Anthony DO PGY IV	Retrospective Evaluation of the Proportion of Systolic Heart Failure in Young Patients With and Without a History of Methamphetamine Use in a California County Hospital Facility
Mesisca, Michael DO PGY IV Kwong, Eugene MD	A 10-Year Retrospective Review of Patient Outcomes Undergoing Emergency Thoracotomy at a Level-Two Trauma Center
Neeki, Michael DO Garabedian, Tigran DO PGY III	Manifestation of Necrotizing Fasciitis: A Retrospective Review of Patients Presenting to San Bernardino County Emergency Department
Seng, Sakona DO, PGY III (Weingrow, Daniel DO)	Retrospective Analysis of the Effect of Specific Cost Containment Measures on MediCal Patients Presenting to an Urban Emergency Department with Non-Traumatic Dental Complaints
Alconcel, Franklin DO PGY1	Estimated time of arrival of EMS for trauma alerts and activations.
Fenati, Greg DO PGY 1	Link between allergies and psych disorder
Johnson, Joshua DO PGY1	1.What characteristic result in a match to emergency medicine in the osteopathic match 2. Survey regarding if patients in the ED would not mind be contacted or find results via electronic communication.
Mamic, Marko DO PGY 1	Link between allergies and psych disorders
Baccaglioni, Gabriella DO PGY II	EM Resident Lifestyle Survey
Horan, Jennifer H DO PGY II	Minor burn care in the Emergency Department
O'Kelley, Timothy DO PGYII	Nec fasc and DKA, Research project: a ten-year retrospective review of patient outcomes undergoing emergency thoracotomy at a level II trauma center
Orhard, Derek A DO PGY II	Survey International Medicine and the Obstacles Involved
Welch, Mary E DO PGY II	EM Resident Lifestyle Survey
Garabedian, Tigran DO PGYIII	Efficacy if 23.4% Nad on decreasing ICP
Kuhnen, Keasha, DO PGY III Jones Kevin, DO PGY III	Retrospective analysis of the correclation between subjective abdomincal pain and intra-abdominal injury on CT in pts, with blunt abdominal trauma
McAfee, Lisa DO PGY III	Do patients expect to be tested for HIV?
Roten, Ryan DO PGY III	Utility of CT in cervical spine clearance in the acutely intoxicated
Seng, Sakona DO PGY III	Retrospective analysis of assembly bill X35 on Medi-cal pts presentng with dental complaints
Herr, Christie DO PGY IV	Email correspondence in an urban community ER
Ho, Anthony DO PGY IV	Prospective study on the use of normal saline versus bicarbonate in IVF prevention of renal failuire in patients with exercise indused rhabdomyolysis.
Mesisca, Michael DO PGY IV	Thiamine deficiency among adult patients with diabetic keto-acidosis presenting to the emergency department
Minera, Robert DO PGY IV	A retrosepective review of blunt arotic injury: Are trauma supine portable chest x-ray sufficient enough to rule out blunt aortic trauma?
Mjos, Nathan DO PGY IV	1.Testicular torsion emergency medicine survey 2. An analysis of CA-MRSA prevalence cultured from ultrasound probes and cords in an urban emergency dept.
Stone, Benjamin DO PGY IV	I&D treatment of abscesses in an EM dept: Clinical evaluation of a 100% sodium, carboxymethylcellulose (NaCMC) ribbon dressing with ionic silver and strenghtening fiber as a primary dressing

Family Medicine 909-580-6236

Bohn, Heather DO, PGY III Goharbin, Amir MD PGY III, Ito, Bonnie LCSW	Health Literacy in English Speaking patients at McKee-FHC
Boshra, Heba MD PGY III; Matyas, Samy MD	Pregnancy in a patient with gouty arthritis secondary to pseudo bartter syndrome
Budde, Audra DO PGY III Ebert, Emily MD	Patient OMT satisfaction vs Non-OMT Patients with chronic pain
Chang, Rudolph, DO PGY III; Gupta, Pooja DO	Adherence to workout regimens
Ho, Eugene, MD PGY III; Melendez, Martha MD	Elephantitis verrucosa nostra
Lin, Felix DO PGY III; Velasquez Juan MD	Prevalence of spinal cord diseases in patients with SLE
O'Hara, Erin DO PGY III; Gupta Pooja, DO	Multiple concurrent renal lesions in lupus nephritis resultin g in ESRD
O'Neil, Michelle DO PGY III; Gupta Pooja, DO	Hepatic hydrothorax
Rollins, Jessie DO PGY III; Gupta Pooja, DO	Parathyroid carcinoma: a rare case study
Smith, Rory MD PGY I II; Raval, Niren DO	Chief project: culturally competent care for the latino patient
Welsh, Sean MD Former TY Resident Melendez, Martha MD Family Medicine	The impact of pre-treatment with gabapentin on development of neuritis following radio frequency ablation of lumbar medial branch nerves.
Young, Mathew MD PGY III; Velasquez, Juan MD	Hereditary hemorrhagic telangiectasia

Internal Medicine 909-580-6266

Bali, Rachna DO PGYIII	A case of pulmonary arteriovenous malformations secondary to hereditary hemorrhagic telangiectasia characteristics and treatment outcome of spinal epidural abscess: A county hospital experience of 100 cases over 10 years
Hadi, Molood, DO PGY II	Vancomycin Sensitivity in MRSA Strains Causing Hospital Acquired Pneumonia
Ober, Robin DO PGY Int Med Resident	MAD Sepsis: <u>M</u> anual vs <u>A</u> utomated <u>D</u> ifferential Sepsis
Pearce, Daniel DO Int Med/Western U Ani, Chizobam	Relative Risk of Mortality From Acute Myocardial Infarction: HIV Seropositive vs Seronegative Individuals
Pearce, Daniel DO Western U /Int Med	Who Should Receive Cardio Pulmonary Resuscitation (CPR)? Evaluation of the Modified Pre-Arrest Morbidity Indices
Pearce, Daniel DO Western U /Int Med	Are obese patients at increased risk of developing ACE-inhibitor or ARB associated angioedema?
Pearce, Daniel DO Western U/Int Med	How does toxoplasmosis seropositivity affect testosterone levels and therapy in HIV infected males.
Pearce, Daniel DO Internal Medicine Western University	California Medical Monitoring Project (MMP)
Sherman, Catherine DO PGY III; Khan, Tony DO PGY II; Reynolds, Kyle DO PGY II	To evaluate the accuracy of persantine cardiolute stress tests in patients that have also undergone coronary angiography.
Stepanyan, Tigran, DO PGY III	Lemierre's Syndrom: A case report.
Vinn, Vanessa DO Int Med, Resident	Septicemia and catheter related infections in dialysis patients at ARMC.
Wan, Peter, DO PGY III	Isolated L4 vertebral cryptococcosis in an immunocompetent patient-case report.

Neurosurgery 909-580-1366

Dan Miulli, DO Oh, Susanna DO	The effects of Osteopathic manipulation on intracranial pressure in patients with severe closed head injuries
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Huynh, Katie DO PGY III Lowe, Andrew PharmD Le, Tina PharmD	Does dihydropyridine calcium channel blockers lower serum sodium:amlodipine vs nifedipine on sodium levels.
Siddiqi, Javed MD Ramakrishnan, Vivek DO PGY III	Anti-Epileptic Prophylaxis in Traumatic Brain Injury (TBI) Patients Undergoing Craniotomy vs Decompressive Craniectomy Operations
Siddiqi, Javed MD Minasian, Tanya DO PGY II	An Analysis of Neuron Specific Enolase (NSE) in Traumatic Brain Injury (TBI) Patients
Ophthalmology	
Rudometkin, Nathan MD	Investigation of Retinal Traction Associated with Lung Cancer
Tokuhara, Keith MD Storkersen, Kris MD	Role of Sub-Conjunctival Bevacizumab in Post Pterygium Excision Management
Pharmacy 909-580-0016	
Lowe, Andrew PharmD	Effect of Ketorolac Tromethamine (Toradol) on Pain Perception and Narcotic Use
Hiroshige, C. PharmD Love, Jessica Pharmacy	Recognizing and Evaluating Potential Causes of Hypoglycemic Events in Hospitalized Patients
Le, Tina PharmD Resident	Efficacy of High Dose Nutritional Vitamin D3 in Decreasing PTH Levels in Hemodialysis Patients as Compared With Paricalcitol
Ng, Steven PharmD resident	Anti-Emetic Effects of Dronabinol in Chemotherapy Induced Nausea and Vomiting
Surgery 909-580-3362	
Culhane, John MD Surgery	Amount of Residual Intra-gastric Feeding Formula in ICU Patients Undergoing PEG Placement or Tracheostomy Placement
Culhane, John MD Surgery	Retrospective Review of Muscle Relaxants as Adjunct to Standard Pain Management in Surgical Patients
Joe, Victor MD Surgery Sadia Khan, DO PGY III	Does the Gail Model Help Stratify Women with Breast Imaging Reporting and Data System (BI-RADS) Classification 3 Lesions to Biopsy Rather than Short Term Follow Up?
Davis, Vivian Joseph DO, Surgery Woods, Bill Coord	Transcutaneous Oxygen (TcPO2) Change Following Hyperbaric Oxygen Therapy
Joe, Victor MD Wong, David T MD	A Randomized Clinical Trial of Restrictive vs. Traditional Blood Transfusion Practices in Burn Patients
Joe, Victor MD Surgery	Commercial Burn Wound Dressings: Evidence and Experience – A Retrospective Analysis of the Use of Commercial Wound Dressings in the Treatment of Superficial Partial Thickness Burn Wounds
Wong, David T MD Raja Gnanadev Student	Intrathoracic Pressure of Patients Measured Through Chest Tubes
Ho, Catherine DO PGY V	Limiting preoperative fasting prior to percutaneous endoscopic gastrostomy: Is there an aspiration risk? Case study
Khan, Sadia DO PGY III; Quigley, Jeff DO PGY I	Birads Three Gail Model for early breast cancer detection.
Quigley, Jeff DO PGY I; Dr. Joe MD	ICU vs. Burn Unity-Normal Flora vs. Regular ICU
Quigley, Jeff DO PGY I; DR. Davis, DO	Osteopathic evaluation of vagal stimulation in cardiac dysfunction
Quigley, Jeff DO PGY I; Dr. Joe MD	Patterns of normal flora, colonization and infection in burn unit patients.
Lin, Erin DO PGY III	Compare the complication rate of wound infection between tram flaps and tissue extender
Lin, Erin DO PGY III	Case report: Trichobezoar
Gelvezon, Nani DO PGY III; Dr. Hussain MD	Pancreatic head sparing duodenectomy in a trauma setting
Gelvezon, Nani DO PGY III	Clinical case: brown-squared plus syndrome in a trauma
Dr.Davis DO	Incidence of vertebral artery injury with traumatic cervical spine subluxations
McCague, Andrew DO; Dr.Navarro MD, Dr. Kong MD	Recurrent left chest mass: a case report

McCague, Andrew DO PGY IV	Empyema necessitans presenting as transient chest mass
McCague, Andrew DO PGY IV	Osteopathic manipulation on trauma patients
McCague, Andrew DO PGY IV	Percutaneous dilational tracheostomies in the emergent setting

Traditional Year 909-580-1369

Alvarez, Ixchel DO PGY I; Miulli, Dan DO	Labor Inducing Medications and Incidence of Stroke
Bae, Esther DO PGY I; Miulli, Dan DO	Presenting serum sodium levels in patients with ischemic stroke and associated outcomes.
Young, Jacob DO PGY I; Miulli, Dan DO	Exploring the relationship between hyper-thyroidism, hypercoagulability and incidence of cerebrovascular ischemic events
Kavipurapu, Kiran DO PGY I; Miulli, Dan DO	Pregnancy resulting in Chronic Back pain
Hariri, Omid DO PGY I; Miulli, Dan DO	Incidence of Vertebral Artery Injury with Traumatic Cervical Spine Subluxations
Kim, Min DO PGY I; Miulli, Dan DO	The Effectiveness of Aspirin on Preventing Recurrent Ischemic Stroke
MaCneil, Colin DO PGY I; Miulli Dan DO	Estimated time of arrival of EMS for trauma alerts and activations.
Mejia, Cheryl DO PGY I; Miulli, Dan DO	Motorcycle accidents; correlation between helmet use and GCS levels.
Nelson, Chris DO PGY I; Miulli, Dan DO	Methamphetamine Abuse on Size of Stroke-a Retrospective Study
Schulte, Adam DO PGY I; Miulli, Dan DO	Neurologic impairment as a result of fat embolism: comparison of rates between gunshot related fractures and orthopaedic operative management
Scolnick, Jill DO PGY I; Miulli, Dan DO	Immune responses to Beta-Amyloid in Alzhimers Disease
Syu, Trixy DO PGY I; Miulli, Dan DO	Young Adults with Diabetes and Incidence of Stroke
Tracey, Robert DO PGY I; Miulli, Dan DO	Testosterone levels in incidence of stroke
Zall, Mona DO PGY I; Miulli, Dan DO	Pain management in Central Post-Stroke Syndrome

Transitional Year 909-580-3367

Bhanu, Shiv MD PGY1	Intrathoracic complications following percutaneous intercostal drainage of abdominal fluid collections
Gillham, Seth MD PGY 1	Poor Patient Handoffs Lead to Adverse Outcomes in Patient Care
Hamstra, Ashley MD, PGY 1	Wilderness Medicine
Koning, Jeffrey MD PGY 1	Technique safety, and efficacy of Yttrium-90 for the Treatment of Chemo refractory Colorectal Liver Mestastases
Mondek, Nick MD, PGY 1	Gulf war veteran with exposure to acetyl cholinesterase inhibitors & multi system conditions: a case discussion and literature review
Mortenson, William MD	Congenital Alopecia Acreata
Nanayakkara,Rajika MD PGY1	Multimodal Pre-emptive Pain Management versus Standard Pain Control for Post-Operative Pain Relief: A Prospective Randomized Controlled Trial.
Rotchel, Sepher MD PGY 1	The Acute Presentation of Herpes Encephalitis
Sandy, Jewel MD PGY 1	Role of Prokera as Adjuvant Treatment to Complex Cataract Surgery
Shi, Anna MD PGY 1	Correlation Between Macular Pigment Optical Density and Macular Volume in Normal Subjects and Subjects with Cystic Fibrosis
Tan, Jeffrey MD PGY 1	Pediatric Persistent Nephrogram Without Contrast-Induced Nephropathy After Trauma

Womans Health 909-580-3470

Burke, Julia DO PGY IV	The Course of Preeclampsia in the Setting of Methamphetamine Use
Hodieb, Rafik DO PGY IV	Comparing the Rates of Detection / Diagnosis of Gestational and Overt Diabetes Mellitus Using Old vs New Screening Guidelines
Valenzuela, G. MD	

Hodeib, Rafik DO PGY IV	Difference in GDM detection rates pre and post HAPO
Roloff, Kristina DO	Cord C-Peptide: Is Fetal Hyperinsulinemia the Link to Macrosomia in the Obese Non-Diabetic Population Too?
Roloff, Kristina DO Valenzuela, MD	Nutrition in the Obese Gravid Patient: Is Improved Nutrition a Factor in Preventing Fetal Macrosomia?
Valenzeula, G. MD Women's Health	Interval From Skin Incision to Delivery of the Newborn: The Effect of Body Mass Index
Valenzuela, G MD Women's Health	Tubal Sterilization Disparity in Ethnic Groups
Valenzuela, G MD Hong, Karen DO PGY IV	A Retrospective Study Examining the Frequency of Induced Abortions According to Religious Preference
Valenzuela, G MD	Changes in the Incidence of Severe Shoulder Dystocia
Valenzuela, G. MD	A Prospective Evaluation of Omental and Subcutaneous Fat in Normal and Obese Women to Study the Adipose Tissue Renin Angiotensin System During Pregnancy

Congratulations to **Omid Hariri, D.O., M.Sc, Kamran Parsa, D.O., Dan Miulli, D.O., M.Sc. FACOS, & Javed Siddiqi, M.D. PH.D, FACS, FAANS** for winning First Place for Scientific Poster Presentation in the field of Neurological surgery on 'Incidence of Vertebral Artery Injury with Traumatic Cervical Spine Subluxations' At the 2011 Annual Clinical Assembly of Osteopathic Surgeons, Atlanta, GA

There are many ways for ARMC residents to become involved in research. ARMC is associated with Western University and as such residents have the opportunity to become involved in on-going studies at Western U. Here is a list of the current ongoing studies at Western. If you are interested in finding out more on a particular topic or are interested in being involved in the project, please contact the GME Research Coordinator, Teckah Lawrence, for more information. Ongoing research is organized by faculty member.

Al-Tikriti, Mohammed

1. The morphological and histochemical effects of administration of cisplatin on the GIT of the least shrew.

Barnes, Edward

1. Effects of Patient engagement and Dietary Education on glycemic control in Diabetic patients.

Benninger, Brion

1. Finger probe ultrasonography - anatomy and clinical benefits
2. Unhappy triad - knee and elbow terminology controversy
3. Definition, morphology, and classification of subcondylar fractures

Bi, Xiaoning

1. Angelman-autism project: protein synthesis, degradation, and actin polymerization in spine plasticity
2. Behavior and epigenetic in mouse models of imprinting disorders
3. Neurodegeneration in Niemann-Pick type C disease
4. Epilepsy, excitotoxicity, and gene susceptibility

Brar, Rajivinder

1. Oxidative metabolism of linoleic acid derivatives and the enzymes involved in that process.

Chew, Amy

1. Collaborative pilot work for submission of an NSF proposal (deadline July 15, 2012) to investigate climate and environmental change and their effects on the early Eocene Willwood mammal fauna from the Bighorn Basin, WY, with K. Rose and B. Passey, Johns Hopkins University.
2. Collaborative analysis and description of the species-area bias on different methods of rarefaction using GIS, with K. Oheim, Suffolk County Department of Planning.

3. Collaborative description of Bridgerian *Thysbemyx* (middle Eocene rodents) with D. Anderson, St. Norbert College.
4. Curation and description of a late Eocene rhino bone bed from Sespe Formation, Orange County, currently stored at the Cooper Center, Cal State Fullerton.
5. Review of Paleocene-Eocene Thermal Maximum for Grizmek's Extinction volume.

Darmani, Nissar A.

1. Mechanisms of antiemetic drugs including cannabinoids.
2. Chemotherapy-induced vomiting.
3. Mechanisms of serotonergic drugs such as antidepressants, hallucinogens.

Covasa, Mihai

1. The role of NMDA receptors on control of food intake.
2. Changes in sensitivity to satiation signals in obesity and diabetes.
3. The role of gut microbiota in control of food intake and regulation of body weight

Darmani, Nissar (website)

1. Developmental effects of drugs of abuse on the newborn.
2. Serotonergic mechanisms of cocaine's actions.
3. Mode of action of antidepressant drugs.
4. Adaptive mechanisms of serotonergic 5-HT₂ receptor functions.
5. The role of delta-9-THC and synthetic cannabinoids on chemotherapy- and radiotherapy-induced vomiting. His laboratory had the first opportunity to demonstrate the mechanisms of antiemetic actions of marijuana.
6. Role of 5-HT₃-, Dopamine D_{2/3}-, Lipoic acid CysLT₁- and NK₁- receptors in emesis and application of their antagonists as antiemetics.
7. The role of osteopathic manipulative medicine on the blood levels of endogenous cannabinoid-like compounds and other pain markers in patients with back pain. He had been successful in obtaining several million dollars of research grants from numerous funding agencies including the Pharmaceutical industry, the National Institute of Drug Abuse, the National Institute of Cancer, the Department of Defense and the Environmental Protection Agency.

Ethell, Douglas

1. Evaluation of amyloid-beta specific CD4+ T cell responses in Alzheimer's
2. A Physiological Role for the Alzheimer's Peptide Amyloid-beta in Angiogenesis
3. Fragile X Subject-derived iPSC Cells as a Source for Human Neurons with Clinically-relevant FMR1 Mutations.

Fraix, Marcel

1. Effectiveness of Osteopathic Manipulative Treatment (OMT) and Vestibular Rehabilitation Therapy (VRT) alone or in combination on Balance and Visual Function in Individuals with Vertigo and Somatic Dysfunction

Henriksen, Steven

1. VTA GABA neurons: Role in Neocortical Activation and Neurological Dysfunction
2. Impairment of memory consolidation by galanin correlates with in vivo inhibition of both LTP and CREB phosphorylation
3. Methamphetamine and Lentivirus Interactions: Reciprocal Enhancement of CNS Disease
4. Strain-Specific Viral Distribution and Neuropathology of Feline Immunodeficiency Virus

Hovorka, Michelle

1. Histological examination of the presence of sensory neurons (ganglia) along the C1 spinal nerve
2. Biliary tree changes with age and disease (waiting on IRB approval)

Hu, Jin-Shan (from website)

1. Multidimensional NMR methods and their application in structural biology.
2. Structures and functions of the DNA repair and tumor suppressor proteins.
3. Molecular mechanism of the RecQ helicases function in DNA metabolism and in maintaining genome integrity.

Issar, Manish

1. Quantitative analysis of 13-HODE and 13-Oxo-ODE in human placenta, shrew liver, brain and heart by HPLC.
2. Characterization of 13-HODE dehydrogenase in the liver of shrew and human placenta.
3. Quantitation of 13-HODE and 13-Oxo-ODE in the shrew brain after treatment with antineoplastic agents. (not initiated but under planning).

Kandpal, Raj

1. Molecular profiling of retina in a mouse model of diabetic retinopathy: Understanding molecular basis of disease etiology and candidate drugs.
2. Receptor tyrosine kinases in breast carcinoma cells: Implications for diagnostics and therapeutics.

Glen Kisby

1. Role of Environmental Factors in Residents of Southern Oregon with ALS.
2. Determine if environmental genotoxins trigger underlying mechanisms of cancer in amyotrophic lateral sclerosis (ALS) and Alzheimer's disease (AD).
3. Examining the effect of the viral regulatory protein P13 on neuroinflammation in animal models of neurodegenerative disease.
4. Role of pesticide-induced oxidative stress and DNA damage in agricultural workers.
5. Development of a community-based health and wellness program at COMP-NW.
6. Examining epigenetic changes (i.e. histone modifications) in the brain of individuals with Alzheimer's disease.

Kraatz, Brian

1. A Geometric Morphometric Analysis of Skull evolution in the Lagomorpha (rabbits, hares, and pikas)
2. Faunal Evolution of the Arabian Peninsula as from Late Miocene Fossils from the United Arab Emirates
3. Paleontological Exploration of Paleogene Faunas of Oman
4. The Evolution of the Locomotor System of Lagomorpha
5. Modeling the Stability of Paleocommunities Throughout Earth's History

Malecki, Marek

1. Molecular mechanisms of osteopathic manipulative medicine.
2. Environmental pollution and epigenetics.

3. Novel methods of gene sequencing.

John Mata

1. Synergism of natural products with 5-alpha reductase inhibitors to inhibit growth of prostate cancer cells in vitro.
2. CT guided third molar ablation in swine.

Martin, James

1. Saw Palmetto effects on glycemic control in Type II Diabetes.
2. 2nd to 4th digit ratios relationship to Type II Diabetes and Hypertension
3. Directional and fluctuating asymmetry: relationship to human chronic diseases

Mehta, Rucha

1. Inspire Diabetes trial: A multicenter investigator initiated trial to evaluate the efficacy of intensive insulin regimen as a primary treatment of new onset Type 2 Diabetes.
2. AADE Demonstration Project: This is a diabetes education project aimed at evaluating the efficacy of diabetes education in empowerment of the patient and thereby improving outcomes.

Merbs, William

1. Canine Thoracic Splanchnic Nerves and Their Comparison to Those of the Homo Sapiens
2. Clinical Anatomy of the Thoracic Splanchnic Nerves
3. Pain Pathways of the Pancreas

Mitsouras, Katherine

1. Analysis of tissue-specific gene expression of an endangered felid, the snow leopard, using transcriptome sequencing.
2. Analysis of the alternative transcriptome of an endangered felid, the snow leopard
3. Development of novel methods to annotate gene expression data

Patel, Nishita

1. I am working with Dr. Venketaraman and Dr. Mehta on project of increased risk of tuberculosis in Diabetic patients with low glutathione level.

Pumerantz, Andrew

1. PEGylated liposomal vancomycin (PLV) as a novel drug delivery system to improve patient-centric outcomes with treatment of MRSA pneumonia.
2. Innovations in health care delivery with integrated practice units to improve patient-centric outcomes.
3. Expanding integrated health care in China and other developing countries where chronic diseases such as diabetes are emerging on a large scale.

Sanchez, Jesus

1. Working on IRB approval for the efficacy of OMT in the asthmatic patient.

Saviola, Beatrice

1. Antimycobacterial action of engineered peptides.
2. PhoP binding and regulation of the *lipF* promoter from *Mycobacterium tuberculosis*.
3. Role of acidity in gene regulation during *in vivo* infection by *Mycobacterium tuberculosis*.

Seffinger, Michael

Randomized clinical trials:

1. Osteopathic manipulation vs vestibular rehabilitation training for patients with vertigo
2. Osteopathic manipulation vs sham for patients with chronic headaches
3. Osteopathic manipulation vs sham for patients with asthma

Educational research:

4. Effectiveness of students performing osteopathic manipulation for patients with musculoskeletal pain
5. Evaluation of an intensive osteopathic manipulation summer course for entering osteopathic medical students

Venketaraman, Vishwanath

1. Host immune responses against *Mycobacterium tuberculosis* and HIV infection
2. Characterization of the beneficial effects of glutathione in enhancing the functions of host immune cells against *Mycobacterium tuberculosis* infection in both healthy individuals and individuals with HIV infection
3. Elucidation of the underlying causes for increased susceptibility to tuberculosis in individuals with type II diabetes, chronic smokers and in ageing population
4. Determine the efficacy of vancomycin formulations against MRSA infection by performing in vitro and in vivo studies

Wagner, Ed

1. My research interests focus on how cannabinoids regulate the hypothalamic feeding circuitry to affect changes in feeding behavior and energy homeostasis in male and female subjects, and how gonadal steroids modulate this interaction.

Wedel, Mathew

1. Evolution of the respiratory system in dinosaurs.
2. Biological challenges of long necks (support, breathing, blood pressure).
3. Biological limits to large body size in animals, particularly whales and dinosaurs.
4. Early Cretaceous dinosaur faunas of North America.

Wedel, Vicki

1. Determining season at death using dental cementum increments
2. Patterns of bone remodeling among enslaved and freed historical blacks
3. Detecting a historical epidemic from cemetery samples

Wong, Stanley

1. Effect of adipose tissue-derived stem cells on skin proliferation and wound healing

Zhong, Li

1. Profiling autoantibodies for early detection of esophageal squamous cell carcinoma
2. Validation study of select biomarkers for early detection of esophageal squamous cell
3. Risk Assessment of Mesothelioma Development Using Autoantibody Signature

SPOTLIGHT ON RESEARCH

Possible Link Between Fibromyalgia and Bipolar Disorder: A Case Report

Khatera Ghazanfar, D.O.

Department of Behavioral Health

INTRODUCTION:

Fibromyalgia (FM), also known as fibrositis, is a common rheumatic condition that is estimated to affect 2-4% of the general population [2, 5]. It is a chronic and debilitating condition characterized by diffuse musculoskeletal pain in the presence of 11 tender points (TPs) located at 18 specific anatomical sites [1, 2]. FM is a member of the affective spectrum disorder (ASD), which includes 10 psychiatric conditions: attention-deficit/hyperactivity disorder (ADHD), bulimia nervosa, dysthymia, generalized anxiety disorder (GAD), major depressive disorder (MDD), obsessive-compulsive disorder (OCD), panic disorder, post-traumatic stress disorder (PTSD), premenstrual dysphoric disorder (PMDD), and social phobia, along with 4 medical conditions: FM, irritable bowel syndrome (IBS), migraine, and cataplexy [3, 4]. These conditions frequently occur together within individuals and within families suggesting a link among them [3, 4, 10]. Further, patients with FM commonly display symptoms suggestive of major affective disorder: sleep disturbance, fatigue, anxiety, irritability, poor concentration and anhedonia [2,10]. FM also often co-occurs with mood disorders and

responds to antidepressants as well as cognitive behavioral therapy [1, 3, 8, 10].

This suggests a possible link between FM and major affective disorder. Major affective disorder includes both MDD and bipolar disorder (BD). BD is estimated to affect 0.5-1% of the US population [11]. It has been found in some studies, such as Arnold et al. to occur more frequently in FM patients [6, 11]. Other studies have postulated that BD may actually be associated with a form of chronic musculoskeletal pain complaints that is not FM [11]. Here a case report of a patient with both FM and BD is presented and discussed in an attempt to explore a possible link between the two.

CASE PRESENTATION:

The patient is a 51 y/o CF with history of MDD recurrent, severe w/o psychotic features and panic disorder with Agoraphobia. She reported to have her first “mental breakdown” at the age of 30 years old. She was having recovered memories of childhood sexual abuse by her mother and father. She was hospitalized for over 1 month at that time for SI and a major depressive episode.

Over the years the patient would have recurring bouts of major depression in which she would isolate herself, have anhedonia, crying spells, feelings of hopelessness and helplessness, guilt, decreased appetite, insomnia, decreased energy levels, fatigue, SI and one suicide attempt in 2000 by overdosing on her medications. She required

inpatient psychiatric hospitalization multiple times.

The patient had many somatic complaints of pain and feelings of tiredness. A few months after her initial hospitalization, the patient was diagnosed with chronic fatigue syndrome (CF) by her PCP. Five years later she was diagnosed with rheumatoid arthritis (RA) by her PCP. Her RA diagnosis was changed 10 years ago by a rheumatologist to FM. The patient had been tried on a variety of tricyclic antidepressants (TCAs) in an attempt to address both the depression and FM, however with poor response. She was started on modafinil for both her CF and FM. This seemed to help.

Four years ago the patient lost her job and became homeless. She was forced to move in with friends. Soon afterwards she developed panic disorder with agoraphobia. The patient was then tried on serotonin selective reuptake inhibitors (SSRIs) to address both her depression and anxiety, however with minimal response. The patient was also tried on bupropion. The only combination that seemed to improve her condition was venlafaxine XR and alprazolam. Later alprazolam was replaced with clonazepam which has a longer half-life to prevent inter-dose anxiety.

The patient continued to have some recurrence of major depressive episodes. However in recent months she began to have hypomanic episodes as well. She was experiencing nights with very little sleep (2-3 hrs. at the most), racing thoughts, distractibility, increased energy levels, reckless spending habits, irritable mood, and

a sense of grandiosity. These episodes would last at least four days. The patient's diagnosis was changed to bipolar type II and she was started on aripiprazole, an atypical anti-psychotic also used to treat mania in BD. The patient did very well on the combination of venlafaxine XR, aripiprazole and clonazepam. She was finally stabilized.

DISCUSSION:

High rates of major affective disorder are found in patients with FM and their relatives [10]. Many individuals with FM and their relatives are also more likely to have co-morbid panic disorder, PTSD, social phobia, OCD, anxiety disorder, anorexia nervosa, bulimia nervosa, and substance use disorder [6, 7, 12]. FM has a high frequency of psycho-affective disturbances and as such has been classified as an ASD [1]. Studies have shown the co-morbidity of FM with MDD to be 20-80% [1, 12]. Although fewer studies have looked at the co-morbidity of FM with BD, reporting rates range between 1.3-12.8% [12]. Even without a diagnosis of BD, a significant number of manic symptoms are reported in FM patients [12, 13]. In one study 59% of FM patients reported having manic symptoms [7, 13]. Conversely, many BD patients report the presence of pain compared to those without BD or those with MDD or anxiety disorder [12].

Among the majority of individuals with both FM and a major affective disorder, the onset of the affective disorder was usually greater than 1 year before the onset of the FM [2, 6].

Also FM and major affective disorder co-aggregate in families [8, 14]. So it appears vulnerability to the development of FM in some individuals, or that FM and major affective disorder may actually share common heritable factors (discussed below) [6, 8, 14]. It has been suggested in a study by Hudson et al. that FM may be a form of major affective disorder in which certain somatic symptoms are prominent [2]. Still others believe that it may be as simple as life stressors predisposing an individual to both FM and major affective disorder [5].

Individuals with FM and major affective disorder both have altered neurotransmitter signaling [1]. There is evidence of dysfunction in the dopaminergic, norepinephrine and serotonergic systems of both disorders [1, 8]. Genetic studies of FM and MDD have found that polymorphisms in the dopamine-related genes and serotonin-related genes may be associated with the pathogenesis of both disorders [1, 8]. A notable example is the higher frequency of the short/short (S/S) genotype of the promoter region of the serotonin transporter (5-HTT) gene found in FM patients compared to those without FM [1]. These individuals were found to have higher mean levels of depression, psychological distress and anxiety [1]. Further genetic studies need to be done to see if these polymorphisms are also found in BD.

Those who believe that major affective disorder and FM are not linked, and that the pain found in BD is not FM but a form of chronic musculoskeletal pain complaint (pseudo-fibromyalgia), cite the evidence that

that the affective disorder may impart a

cerebrospinal fluid (CSF) levels of substance P are increased in FM 2-3 times, only modestly in MDD and normal in BD [11, 15].

CONCLUSIONS:

The case presentation above demonstrated one example of a patient with co-occurring FM and major affective disorder first diagnosed as MDD and later determined to be BD. Whether there is a link between FM and BD as seen in those who have FM and report manic symptoms or those with BD who have complaints of chronic musculoskeletal pain is yet to be determined. Further studies need to be done to see if and how the two may be linked. Researchers in the future should examine a genetic basis for a possible link between FM and BD.

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3. Hudson JI, Arnold LM, Keck PE Jr., Auchenbach MB, Pope HG Jr. Family Study of Fibromyalgia and Affective Spectrum Disorder. *BIOL PSYCHIATRY* 2004; 56: 884-91.
4. Hudson JI, Goldenberg DL, Pope HG Jr., Keck PE Jr., Schlesinger L. Comorbidity of Fibromyalgia With Medical and Psychiatric Disorders. *The Am Jour of Med* 1992 April; 92: 363-7.
5. Epstein SA, Kay G, Clauw D, Heaton R, Klein D, Krupp L, Kuck J, Leslie V, Masur D, Wagner M, Waid R, Zisook S. Psychiatric Disorders in Patients With Fibromyalgia: A Multicenter Investigation. *Psychosomatics* 1999; 40: 57-63.
6. Arnold LM, Hudson JI, Keck PE Jr., Auchenbach MB, Javaras KN, Hess EV. Comorbidity of Fibromyalgia and Psychiatric Disorders. *J Clin Psychiatry* 2006 Aug; 67(8): 1219-25.
7. Carta MG, Cardia C, Mannu F, Intilla G, Hardoy MC, Anedda C, Ruggero V, Fornasier D, Cacace E. The high frequency of manic symptoms in fibromyalgia does influence the choice of treatment? *Clin Pract Epidemiol Ment Health* [Internet]. 2006 Dec 19; 2 (36). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1779782/>.

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9. <http://en.wikipedia.org/wiki/Fibromyalgia>.
10. Hudson JI, Pope HG Jr. Fibromyalgia and Psychopathology: Is Fibromyalgia a Form of "Affective Spectrum Disorder?" *Journal of Rheumatology* 1989 16(19): 15-22.
11. Wallace DJ, Gotto J. Hypothesis: Bipolar Illness with Complaints of Chronic Musculoskeletal Pain Is a Form of Pseudofibromyalgia. *Semin Arthritis Rheum* 2008 37: 256-9.
12. Dell'Osso L, Bazzichi L, Consoli G, Carmassi C, Carlini M, Massimetti E, Giacomelli C, Bombardieri S, Ciapparelli A. Manic spectrum symptoms are correlated to the severity of pain and the health-related quality of life in patients with fibromyalgia. *Clinical Exp Rheumatol* 2009; 27(56): S57-S61.
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15. Merskey H. Fibromyalgia Syndrome: Affective Disorders and Social Influences. *Primary Psychiatry* 2006; 13(9): 47-51.

Innovations in Medicine

Rapid Diagnostic Testing: Real-Time Polymerase Chain Reaction

Kyle Reynolds D.O.

Numerous methods are used in infectious disease to make the microorganism visible and measurable. Traditional methods of identification such as growing the organisms on different mediums, staining them and using microscopy to make an accurate identification has been around for a long time and has not changed. New techniques and technology such as rapid diagnostic testing (RDT) have brought opportunities to greatly decrease the time for such information to become available. Although not currently commonplace or offered by

microbiology laboratories in great volume, the future of such testing and its place in the healthcare setting can't be ignored. It will likely increase greatly as it becomes more affordable and its benefits more clearly visualized. One emerging RDT platform is real-time polymerase chain reaction (RT-PCR). The basis for this technology is not new. In 1993, Kary Mulis won the Nobel Prize in Chemistry for his specific DNA development of PCR. This reaction allowed for the amplification of sequences generating millions of copies by repeated heating and cooling which caused DNA melting and enzymatic replication to occur. A primer or short DNA segment that is complementary to the target region is used to enable selective and repeated amplification. Multiple techniques can then be used to detect the presence of the specific DNA that was amplified.

Real-time PCR uses this technology but allows the user to view the increase in DNA as it is amplified. This allows for a more rapid quantitative analysis. Multiple primers can also be used within a single PCR mixture which allows for simultaneous amplification of many targets of interest. In the hospital setting this allows for rapid identification of non-cultivable or slow growing organisms such as mycobacterium, anaerobic bacteria, or viruses. An example of this is *C. difficile*, which takes days to grow on culture medium. Using real-time PCR for detection of gene sequences associated with toxigenic *C. difficile* takes less than forty-five minutes to identify. It could also allow for the rapid identification of any organism or infection before the clinical signs of disease are

present. The utility of RDT and real-time PCR is becoming even more apparent with the emergence of more virulent infectious diseases and drug-resistant organisms.

However, the limitations of cost may not curb future use unless new less expensive and more practical platforms are developed.

Library Books

ARMC supports an environment of learning through multiple endeavors including continuous purchasing of books for library users. Besides the print titles, there are also two vendors that supply online books. This list is divided into two sections -- [Print Titles and Online Books](#).

Print Titles purchased from 6/1/11 to 2/29/12:

1. AACN Procedure Manual for Critical Care, 2011.
2. AANN Core Curriculum for Neuroscience Nursing, 2012.
3. Audio-Digest CD's -- Psychiatry, 2012.
4. Berek & Novak's Gynecology, 2012.
5. Caffey's Pediatric Diagnostic Imaging (2 Vol. set), 2008.
6. Clinical Gynecologic Endocrinology and Infertility, 2011.
7. Current Medical Diagnosis and Treatment, 2012.
8. Current Diagnosis & Treatment in Pediatrics, 2011.
9. Developing Management Skills, 2011.
10. ECG Interpretation Made Incredibly Easy! 2011.
11. Emergency Orthopedics, 2011.
12. Essentials of Musculoskeletal Care, 2010.
13. Evidence-Based Chronic Pain Management, 2010.
14. Foundations of Osteopathic Medicine, 2011.
15. Green's Operative Hand Surgery. (2 Vol. set), 2011.
16. Guide to Medical Education in the Teaching Hospital, 2010.
17. Handbook for Principles and Practice of Gynecologic Oncology, 2010.
18. Harrison's Principles of Internal Medicine. (2 Vol. set), 2012.
19. Institutional Review Board: Member Handbook, 2011.
20. Manual of Emergency Medicine, 2011.
21. MedStudy: Internal Medicine Review Core Curriculum. (5 Vol. set), 2011-2012.
22. Myofascial Trigger Points: Pathophysiology and Evidence-Informed Dx and Management, 2011.

23. Neonatology: Management, Procedures, On-Call Problems, Diseases, and Drugs, 2010.
24. Niedermeyer's Electroencephalography, 2011.
25. The Obstetrician/Gynecologist Workforce in the United States, 2011.
26. Oxford Textbook of Palliative Nursing, 2010.
27. Pfenninger and Fowler's Procedures for Primary Care, 2010.
28. Pocket Companion to Robbins and Cotran Pathologic Basis of Disease, 2010.
29. Practical Approach to Electromyography: An Illustrated Guide for Clinicians, 2011.
30. Practical Guide to the Care of the Medical Patient, 2011.
31. Renal and Electrolyte Disorders, 2010.
32. Rutherford's Vascular Surgery. (2 Vol. set), 2010.
33. Sternberg's Diagnostic Surgical Pathology. (2 Vol. set), 2010.
34. Tarascon Pediatric Outpatient Pocketbook, 2012.
35. Tethered Cord Syndrome in Children and Adults, 2010.
36. The Textbook of Spinal Surgery, 2011.
37. Tintinalli's Emergency Medicine, 2011.
38. The Washington Manual of Medical Therapeutics, 2010.
39. Youmans Neurological Surgery. (4 Vol. set), 2011.

Of the 75 Online Books from McGraw-Hill's AccessMedicine, these are the newest editions:

1. The Atlas of Emergency Medicine, 2010.
2. Basic and Clinical Biostatistics, 2004.
3. Basic Radiology, 2011.
4. The Big Picture: Gross Anatomy, 2011.

I would like to take this opportunity to formally introduce myself. My name is **Teckah Lawrence** and I am the new Research Coordinator for the Office of Graduate Medical Education. My main duty is to assist residents in their research projects. Please feel free to stop by my office for questions on research or to say hello and introduce yourself. I am located in the M.O.B Suite 206. I can be reached by email at lawrencete@armc.sbcounty.gov or by phone 909-580-6337. I look forward to working with the residents and staff at ARMCM!

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The schedules for the following issues are:

June 2012

History of Medicine

How I do it

Spotlight on Research

Case of the Month

Innovations in Medicine

SERVICE

OB

Surgery

Neurosurgery

ER

Pscyh

September 2012

History of Medicine

How I do it

Spotlight on Research

Case of the Month

Innovations in Medicine

Family Medicine

Internal Medicine

OB

Surgery

Neurosurgery

Research Dates

Dates to remember...

- ✚ Deadline for submissions to the next issue Journal of ARMC: **May 21st, 2012**
- ✚ ARMC's 7th Annual Resident Research Day will be held on **Friday, June 1, 2012** in the Oak Room. The purpose of this research day is to showcase research done by residents and increase our participation in regional research efforts.
 - Abstract submission deadline:
- **May 1st, 2012**
 - Poster submission deadline:
- **May 15th, 2012**

The 6th Annual Western University – ARMC Research Symposium will be **Wednesday August 22nd** in the Oak Room. It is intended for faculty, residents, students and staff. The national speakers will discuss means to initiate, continue, fund, and publish medical research.