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 PO$_2$ 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.


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.


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 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.

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**Traditional Year 909-580-1369**

**Transitional Year 909-580-3367**

**Womens Health 909-580-3470**
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 ongoing 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.

### 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.

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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.

**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 D2/3, Lekotriene 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

**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 iPS 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 Disfunction
2. Impairment of memory consolidation by galanin correlates with in vivo inhibition of both LTP and CREB phosphorylation
3. Metamphetamine 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.

**Kandpal, Raj**
2. Receptor tyrosine kinases in breast carcinoma cells: Implications for diagnostics and therapeutics.

**Glen Kisyby**
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 Paleoecological Communities Throughout Earth’s History

**Malecki, Marek**
1. Molecular mechanisms of osteopathic manipulative medicine.
2. Environmental pollution and epigenetics.

**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.

**Sefinger, 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.

**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 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.

REFERENCES:

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
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:

7. Current Medical Diagnosis and Treatment, 2012.
10. ECG Interpretation Made Incredibly Easy! 2011.
27. Pfenninger and Fowler’s Procedures for Primary Care, 2010.
34. Tarascon Pediatric Outpatient Pocketbook, 2012.
37. Tintinalli’s Emergency Medicine, 2011.

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


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 ARMC!
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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.