Community Health Network

First Annual

Multidisciplinary Scholarly Activity Symposium

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First Annual
Multidisciplinary Scholarly Activity
Symposium Proceedings
2016

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ORAL PRESENTATIONS

O1 **The Use of Multidisciplinary Team Staffing to Address High ED Utilizers** (Laura Schaecher, LCSW)

This presentation will outline the multidisciplinary team staffing model used in the Community East Family Medicine Residency Program. Twice a year, data is gathered identifying patient on each resident's panel who have visited the Emergency Department three or more times in the past six months. The goal of team staffing is to review these patients and discuss strategies for decreasing hospital visits moving forward. Team staffing involves the entire team of residents (6-8 residents), the team's nurse care manager, the clinic's pharmacy team, a licensed clinical social worker, and the transitions of care social worker. Objectives of this presentation include introducing the model of team staffing, discussing topic ideas for facilitating team staffing, and identifying common goals and tasks that result from these multidisciplinary discussions.

O2 **Transitional Care Management Services in a Patient-Centered Medical Home** (Kim Jones, LSW)

Adequate continuity of care between inpatient and outpatient settings is essential to support safe and successful transitions for patients. Throughout the transition between levels of care, patients can face many barriers and are at risk for unnecessary readmissions. Successful transitions for complex patients often require advance care coordination and a team effort in order to efficiently address patient barriers. As a patient-centered medical home, the Community Group Family Medicine & Residency program (CGFMC) delivers a comprehensive model of care through an inter-professional team, while educating future physicians how to implement innovative models of care. In July 2014, CGFMC began delivering Transitional Care Management (TCM) services to our patients transitioning between the inpatient and outpatient settings. Services are designed to uphold the TCM billing requirements set by Medicare, while providing team-based care to our patients who have returned to the community setting and are at risk for readmission. This presentation will outline our program design, the roles of each profession in the team-based model, and discuss general outcomes.

O3 **Recovery Plus: A Model for Community-Based Treatment** (Dennis Anderson, MD; Jessica Sowers, MBS, MSW, LCSW, LAC; Shawna Patterson, MSW, LCSW)

This presentation will describe changes from the traditional model of care to the Recovery Plus teams model of care. The team includes a psychiatrist, care coordinator, three recovery clinicians, and an RN. The teams serve 60-80 patients at Gallahue Continuing Services program which treats severely mentally ill patients. Goals of the Recovery Plus team model include: increased engagement in skills training in the community, decrease hospitalization and readmission rates, decreased incidence of incarceration, and improvement in clinical and functional outcomes. Data has been collected over one year and demonstrates significant success in meeting these goals. Presentation includes a discussion of the model, the role of each professional on the team, and subsequent improvement in patient outcomes.

O4 **Pre-visit Planning** (Larissa Davids, RN; Courtney Geer, LPN)

Using a multidisciplinary approach, the goal of our project is to show the effectiveness of pre-visit planning and its impact on the following preventative health measure: the number of 15-25-year-old female patients who have been screened for chlamydia in the past year; the number of 40-69-year-old female patients current on their mammograms and three diabetic measures - microalbumin/creatinine ratios, foot exams, and hemoglobin A1c. By analyzing data prior to and after the pre-visit planning tool is implemented, we intend to show that pre-visit planning will be a key component of healthcare moving forward as there is an increasing emphasis on the quality of care that is delivered.

O5 **Crisis Response Team: Strategy to reduce seclusion and restraint** (Karla Kirby, MN, RN)

Presentation will describe the design of a Crisis Response Team, its implementation in a large behavioral health inpatient facility, and relevant outcomes. Data demonstrates an 18-month trend in reduction of seclusion and restraint and patient and employee injury.

O6 **Centering Pregnancy at Community Hospital East Family Medicine Residency – Jane Pauley Health Center** (Jesse Clark, DO; Stephanie Nader, LCSW)

Centering Pregnancy is a group visit model for prenatal care. We have been successfully running centering pregnancy groups for three years at the Jane Pauley Health Center. This model of care is proven to increase birth weight and gestational age for mothers who deliver pre-term. Centering pregnancy focuses on three key areas: health assessment, education, and support. The women in these groups are empowered to make healthy decisions throughout pregnancy and provide support to each other. In addition, this model allows us to provide continuity of care. Family Medicine residents assigned to these groups as facilitators attend 7 to 8 of the 10 group sessions and then complete these deliveries. This has proven to be an innovative model of care that enhances the patient experience and quality of care delivered.

O7 **Titanium Cages in the Treatment of Large Osseous Voids** (Eric Meshulam, DPM)

Treating segmental bone defects can cause limb length discrepancy. Few procedures for treatment allow for primary fusion, stage procedure, and maintenance of limb length. Titanium cages are commonly used in vertebral column fusions to maintain architecture. Foot and ankle defects corrected by titanium cages is a new technique. Cylindrical mesh design allows for early axial loading evenly transferring load and hollow design allows ample graft material.

O8 **Pharmacist Performed Medicare Annual Wellness Visits** (Megan Dorrell, PharmD, BCPS)

Objective: The primary objective was to assess the impact of pharmacist-run Medicare Annual Wellness Visit (AWV) on the utilization of the G0437 and G0439 billing codes from March to August 2013 compared to March to August 2014. The secondary objectives include characteristics of pharmacy recommendations with completion of interventions and patient satisfaction with pharmacist-run Medicare AWV.
Methods: Billing information was gathered for the primary study objective. A retrospective chart review was utilized for the first secondary objective. A retrospective review of completed patient satisfaction

surveys was utilized for the second secondary objective. All patients age ≥ 18 years and ≤ 89 years were included. Prisoners and pregnant patients were excluded.
Results: From March to August 2014, seventy-seven Medicare AWV were completed in clinic compared to one Medicare AWV from March to August 2013. Medication reconciliation during the 76 Medicare AWV appointments included, resulted in 127 clinical recommendations made by the pharmacist to impact patient care. Examples of recommendations include optimization of treatment, streamlining of therapy, and medication adjustments for chronic disease states. Also, additional recommendations were focused on medication adherence and safety. Of the 127 recommendations made to the patients' primary care provider, 101 resulted in a completed intervention. Overall satisfaction with pharmacist provided Medicare AWV was found with only one of the twelve questions answered once with a negative response from the fifty-two completed surveys.
Conclusion: Pharmacists were able to increase the number of Medicare AWV appointments performed while also having a positive impact on the patients' medication use and safety. Overall, these visits were positively received by patients. Pharmacists are uniquely qualified to perform these new visit types under the direct supervision of a physician.

O9 **Use of Valproic Acid in the Treatment of Benzodiazepine Withdrawal** (Syed Hasan, MD; Brittany Parmentier, PharmD)

Patients admitted to the Behavioral Health Pavilion for inpatient detoxification from benzodiazepines are at risk for seizures if benzodiazepines are abruptly stopped. One management option is to taper the benzodiazepines down over a period of clays, which is commonly performed in the inpatient setting. Another option is to use valproic acid as an augmenting agent with a benzodiazepine taper to prevent complications of benzodiazepine withdrawal such as seizures. There is limited literature about using valproic add in benzodiazepine withdrawal, but at least one study found that valproic acid may decrease withdrawal symptoms. At Community Health Network, physicians treat patients in benzodiazepine withdrawal with valproic acid. This presentation will be a case series describing the outcomes of patients who were treated with valproic acid for benzodiazepine withdrawal. There are currently 10 patients to date in the Behavioral Health Pavilion who have received valproic acid specifically for benzodiazepine withdrawal, and more patients will be included in the case series as they are admitted and discharged.

O10 **Gabapentin Misuse: Case Report** (Kelly Banker, PharmD, BCPS; Laura Ruekert, PharmD, BCPP, CGP; Syed Hasan, MD)

Gabapentin is an anticonvulsant that is structurally related to gamma-aminobutyric acid (GABA). However, gabapentin does not bind to GABA receptors itself; instead, it binds to the alpha-2 delta site of presynaptic voltage-sensitive calcium channels and reduces calcium influx. This indirectly alters neurotransmitter release, including GABA and glutamate. It has utility in treating seizures, neuropathies, anxieties, ETOH withdrawal, restless leg syndrome and multiple other disease states. Currently published accounts of gabapentin abuse report patients motivated by the desire for a "high". This case report describes gabapentin abuse in a patient with a prior history of alcohol, opioid and benzodiazepine abuse who did not experience such effects and was unable to explain his compulsion to over-use gabapentin.

O11 **Use of Anticonvulsants in Anxiety Disorders** (Kanwaldeep Sidhu, MD)

Anxiety disorders are often complicated by other comorbid psychiatric disorders and personality disorder. 73% of patients with panic disorder have many comorbid conditions ranging from major depression to substance abuse and personality disorders. SSRIs are first line and gold standard treatment but effective in only 50-60% of the patients. Benzodiazepines are effective and have rapid onset of action but can cause many complications including abuse, dependence, withdrawal delirium, sedation, cognitive deficits. Benzodiazepine use can lead to poor quality of life and impaired social functioning. Drugs that stimulate GABAA receptors, such as benzodiazepines, have both anxiolytic and antiseizure effects via GABA-A mediated reduction of neuronal excitability. A positron emission tomography (PET) study demonstrated that patients with panic disorder have a decrease in GABA-A receptor.

O12 **Comparison of Continuous Intravenous Insulin Order Sets in the Setting of Hyperglycemic Emergency** (Eileen Carroll, PharmD)

The American Diabetes Association Consensus Statement on Hyperglycemic Crises in Adult Patients with Diabetes recommends treatment of hyperglycemic emergencies with continuous intravenous (IV) insulin beginning with an optional initial bolus and adjusting subsequently based on measured serum glucose. Some hospital facilities utilize an alternative method of insulin titration using a multiplier-based approach that is not described in the ADA recommendations. The objective of this study is to compare the safety and efficacy of the two methods of initiating and titrating continuous IV insulin.
A retrospective chart review will be performed within a network of community hospitals. Eligible patients will be identified through an electronic medical record report which will include patients from August 1, 2013 to August 1, 2015 who were treated for at least four hours with one of three IV insulin order sets, representing two methods of IV insulin titration. Patients within protected groups are to be excluded as well as patients receiving IV insulin for organ procurement. The following data will be collected for each participant: patient demographics; admitting diagnosis; hospital length-of-stay; presence or absence of a previous diabetes diagnosis or home insulin use; use of bolus insulin or carbohydrate correction insulin during insulin infusion; maximum infusion rate; protocol deviations with the first four hours; episodes of hypoglycemia; initial blood glucose, serum pH, serum bicarbonate and anion gap; time to blood glucose less than 200mg/dL; and anion gap closure and acidosis resolution at infusion cessation. Data from the two order sets will be compared to identify the method which achieves the quickest resolution of hyperglycemia and acidosis, when present, and the fewest hypoglycemic events.

O13 **Refining Asthma Care** (Jamie Street, RN, BSN; Larissa Davids, RN)

For two years, the Family Medicine Clinic, East Residency has been providing asthma patients an Asthma Control Test (ACT) at every office visit. Results of the impact the ACT has had on exacerbations, ED visits and inpatient stays has been tracked. In October, 2015, the authors began developing a proposal to standardize care for asthma patients. The proposal was approved by providers and implemented in practice. Washington Family Medicine and Pediatrics began distributing the ACT to all of their asthma patients at office visits and tracking their progress as part of the 'Primary Care Redesign.

This presentation will show: successes and failures from this experience; the impact the ACT had on patient care; the impact the ACT and standardized asthma care had on exacerbations, ED visits, and

inpatient admissions; the impact the elevated care had on the clinical team and the workflows used to reach this standard of care; and the multidisciplinary approach to asthma care.

O14 Increasing Percentage Rate of Charges Captured in a Point of Care Test (Ryan Sanderson, MD)

Our office performs many point of care tests. Some charges and results are entered into the EMR by nursing staff, others by physicians. Most providers enter these charges later in the day or in the evening and these are often forgotten. Some providers do not know that a charge should be placed. Some providers do not know how to place the charge. Through the use of microscope reminders, concise instruction cards, and education this project is intended to increase the percentage of captured charges for wet mounts thereby increasing revenue for the office.

O15 Managing Perinatal Maternal Distress in Level 3 NICU: An Integrative Multidisciplinary Approach (Beth Buckingham, PhD, HSPP)

Multidisciplinary teams consist of parents, neonatologists, NNPs, PAs, nurses, respiratory therapists, physical and occupational therapists, lactation consultants, nutritionists, speech therapists, case manager/social worker, and chaplains
The goals of the team include: Prevention and/or treatment of maternal psychiatric perinatal disorders during NICU stay; to improve health and physical, cognitive and psychosocial development of NICU babies; optimize lifelong family and childhood functioning and optimal health; normalize parental emotional responses and grief; provide coping strategies; and to increase hope, resiliency, endurance, possibilities.

O16 Impact of Interdisciplinary Approach to Chronic Pain Management (Megan Dorrell, PharmD, BCPS; Kanae Jumper, NP)

Statement of purpose: Indiana falls into the highest category for opioid use based on 2012 data from the Centers for Disease Control. On December 15, 2013 in Indiana, new opioid prescribing rules went into effect to reduce misuse. In response, a pharmacist and nurse practitioner at a family medicine residency patient-centered medical home provided education to prescribers on the law and proper use of opioids in chronic pain management. In addition, clinic policies were reviewed and reinforced with all staff. The primary objective of this study is to evaluate the change in prescribing high-dose opioids for pain pre- and post-law.
Methods: A retrospective chart review was conducted using the electronic medical record. Patients 18 years or older who received at least one (1) prescription for an opioid product from the clinic between July 1, 2013 and June 30, 2014 were included in the study. Patients excluded were over 89 years of age, prisoners, pregnant, or exclusively prescribed tramadol or acetaminophen combinations. Secondary study objectives were to evaluate the change of the following pre- and post-law: number of patients co-administered benzodiazepines and/or muscle relaxants; number of emergency department or hospital encounters with opioid-induced adverse effect as an active problem; median opioid dose; and number of patients that discontinue clinic management of opioid therapy.
Preliminary results: Education to providers as well as clinic policies impacted change in prescribing patterns in a family medicine residency program. The number of high-dose prescriptions decreased from 232 patient months pre-intervention to 176 patient months post-intervention. In addition, a decrease was seen in the number of emergency department visits and hospital admissions related to opioids and opioid side-effects.

POSTER PRESENTATIONS

The posters for the following two presentations are not available for reproducing in this publication. The remaining posters presented at the Symposium will be found on the following pages.

P1 **Evaluation and Expansion of the Medication History Process in a Community Hospital Setting Through Proposal and Implementation of a Medication History Technician Program** (Kara M. Nedderman, PharmD)

Complete and accurate medication history evaluation is a vital component to medication safety and error prevention. In a community hospital with 170 inpatient and 3G emergency department beds, the current process for obtaining medication histories is primarily nursing and physician driven with pharmacists available on a consult basis. Pharmacists identified a gap in pharmacy services and sought to fill the need for pharmacy personnel completing medication histories through a medication history technician program. This program was implemented in efforts to provide the best quality patient care possible as well as aid in the development of future pharmacists.

P7 **Medical Regimens of Patients with Schizophrenia and Related Disorders with 30 Day Inpatient Readmissions Compared to Patients without 30 Day Inpatient Readmissions** (Brittany L. Parmentier, PharmD; Laura Ruekert, PharmD; Syed Hasan, MD; and Kanwaldeep Sidhu, MD)

Purpose: The objective of this study is to determine how medication regimens of patients with schizophrenia and related disorders with an inpatient readmission within 30 days of discharge compare to patients without a 30 day readmission.
Methods: A retrospective, observational chart review study will be performed. Inpatients admitted to the Community Behavioral Health Pavilion between September 1, 2013 and August 31, 2015 with a diagnosis of .schizophrenia and related disorders (ICD-9 codes 295.00--295.95) and an inpatient readmission within 30 days of discharge will be identified by social work report. Subjects will be matched to a control group with a diagnosis of schizophrenia and related disorders without an inpatient readmission within 30 days of discharge. The discharge medications from the original admission will be reviewed and the regimens between the two groups will be compared. Collected data will include: patient demographics, length of stay, diagnosis code, comorbid psychiatric diagnosis codes, readmission post discharge day, and medications at discharge. Medication information collected will include name, dose, dosage form, classification, and total number of antipsychotics.
Results and Conclusion: To be presented at the Multidisciplinary Scholarly Activity Symposium

Community Health Network

Comparison of time to first dose of oral morphine in the treatment of neonatal abstinence syndrome

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Background

- Neonatal abstinence syndrome (NAS) is the result of *in utero* exposure to psychotropic substances. The best understood and most studied form of NAS is after *in utero* exposure to opiates.
- Signs and symptoms of NAS due to opiates reflect CNS irritability, autonomic overreactivity, and gastrointestinal tract dysfunction.[1]

CNS irritability	Autonomic overreactivity	GI tract dysfunction
• Tremors • High pitched cry • Reduced sleep after feedings • Increased muscle tone • Excoriation • Myoclonic jerks • Convulsions	• Sweating • Fever • Frequent yawning • Mottling • Nasal stuffiness • Nasal flaring • Sneezing • Tachypnea	• Diarrhea • Vomiting • Poor feeding • Excessive sucking • Poor weight gain

- Opiates tend to be the mainstay of treatment in NAS as they can induce bowel motility inhibition and can treat seizures secondary to opioid withdrawal.[2]

Objectives

- Primary Objective: compare time to first dose of oral morphine for the treatment of NAS in a neonatal intensive care unit (NICU) setting versus a special care nursery (SCN) setting
- Secondary objectives:
  - Evaluate the influence of other factors that may affect the initiation of morphine
  - Determine the effects of initiation timing on treatment outcomes assessed

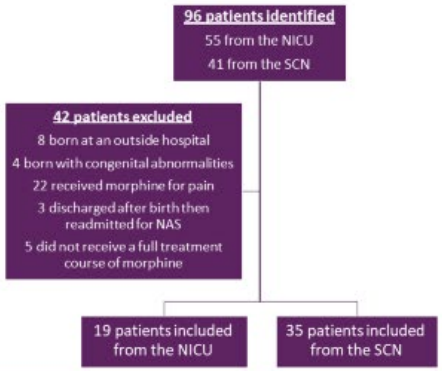
Methods

- Retrospective chart review
- Study period: January 1, 2013 and August 31, 2015

Inclusion
- Born at Community Hospital North or Community Hospital East during study period
- Received treatment for NAS with a course of oral morphine

Exclusion
- Received morphine for an indication other than NAS
- First dose of morphine was not administered during the initial delivery admission
- Infant was born with major congenital abnormalities

Patients



Results

	NICU	SCN	P-value
Time to first dose of morphine (h)	67.7	49.6	0.171
Length of morphine treatment (days)	22.6	23.7	0.718
Starting dose of morphine (mg/kg)	0.040	0.041	0.281
Maximum dose of morphine (mg/kg)	0.047	0.049	0.705
Total cumulative morphine dose (mg)	10.1	13.8	0.188
Number of morphine doses	120.3	133.6	0.483

	NICU	SCN	P-value
Time to transfer (h)	21.1	33.1	0.067
Time to first Finnegan score (h)	12.8	9.9	0.408
Finnegan score before first dose	9.6	10.1	0.529
Overall peak Finnegan score	12.2	13.1	0.134
Time to peak Finnegan score (h)	181.3	110.7	0.298
Length of hospital stay (days)	29.5	28.1	0.670

While there were trends toward faster transfer to a higher level of care in the NICU patients and a shorter time to first dose of oral morphine in the SCN patients, neither of these endpoints reached significance.

Full Disclosures

Authors of this study have nothing to disclose regarding possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject of this presentation.

References

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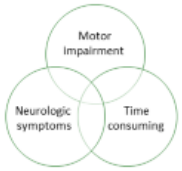
Community Health Network

Alteplase dosing for acute ischemic stroke

Rachel M. Scott, PharmD; Kara Nedderman, PharmD, BCPS; Sandi Lemon, PharmD, BCPS
Community Health Network, Indianapolis, Indiana

Background

- Since its approval in 1996, intravenous (IV) administration of recombinant tissue plasminogen activator (rtPA) remains the only FDA-approved pharmacological therapy for treatment of patients with acute ischemic stroke (AIS).[1]
- Dose-escalation studies demonstrated increased bleeding risk when larger doses of rtPA were administered. Four out of five intracerebral hemorrhages occurred at a dose of 0.95 mg/kg.[2-4]
- Obtaining an accurate weight measurement for AIS patients in the emergency department often is not feasible for several reasons[5]:



- Weight estimation error rate has ranged from 14.9%[6] to 38.2%[5] in previous studies.
- Breuer and colleagues found that 29% of patients received an rtPA dosage diverging >10% from the optimal dose. Underdosage was an independent predictor for worse clinical outcomes.[5]

Objectives

- Primary objective: Determine the percentage of patients receiving rtPA for AIS having a greater than 10% variance in dose due to a difference in initial weight obtained in the ED versus actual body weight obtained upon admission to the ICU
- Secondary objectives: Compare the relationship between rtPA dose and safety and functional outcomes within four patient subgroups:

Objectives (continued)

A	Patients receiving a calculated dose with a greater than 10% variance below recommended dose resulting in underdosing based on the measured body weight (≤0.79 mg/kg)
B	Patients receiving a calculated dose within 10% of the goal dose range based on the measured body weight (0.8-0.99 mg/kg)
C	Patients receiving a calculated dose with a greater than 10% variance above recommended dose resulting in overdosing based on the measured body weight (≥1 mg/kg)
D	Patients receiving the maximum dose per protocol with a greater than 10% variance below the recommended dose, resulting in underdosing based on the measured body weight (≤0.79 mg/kg)

Methods

- Retrospective, observational chart review of patients admitted to the Community Health Network hospitals between January 1, 2013 and August 31, 2015 with orders for IV rtPA for AIS.
- Exclusion criteria includes: pregnancy, prisoner status, age <18 or >89, received rtPA outside of the ED, transferred to another facility within 24 hours of receiving rtPA, received a partial dose of rtPA, had only one weight recorded during admission

Safety Outcomes	• Intracranial hemorrhage within first 36 hours after rtPA • Mortality within first 36 hours after treatment and /or prior to discharge
Functional Improvement	• NIHSS assessment score at baseline; at 2 hours and at 24 hours after receiving rtPA; and at discharge • Level of care required at discharge

Results

83 patients included

58% Female

Average age 66.5 years

Results (continued)

- Primary objective:
  - 8.4% of patients received a >10% variance in dose due to a difference in initial weight obtained in ED versus actual body weight obtained in the ICU
- Secondary objectives:

Dosing group	n (%)
A	2 (2.4)
B	66 (79.5)
C	5 (6)
D	10 (12)

Safety & Functional Outcomes	n (%)	Average dose (mg/kg) of pts with outcome	Average dose (mg/kg) of pts without outcome
ICH	12/83 (14.5)	0.9	0.88
Death prior to discharge	3/83 (3.6)	0.78	0.88
Death within 36 hours	0/83 (0)	N/A	N/A
Change in level of care required at discharge	53/83 (63.9)	0.89	0.87
NIHSS improvement at discharge	26/47 (55.3)	0.89	0.87

Conclusion

- Majority of patients received appropriate weight based dose.
- Due to small numbers, appropriate statistical analysis cannot support comparing functional and safety outcomes within dosing groups based on mg/kg dose received.

Full disclosure

- Authors of this study have nothing to disclose regarding possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject of this presentation.

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Enhancing Interprofessional Collaboration Through TEAM Training

Community Health Network

Presenter: Laura Leaming, MSN, RN-BC, AA, Community Hospital East Maternity Services East Clinical Educator
Poster developed by: Laura Leaming, MSN, RN-BC, AA & Rainey Martin, MSN, CNS, RNC-OB

TEAM Training

Background /Purpose

Reduce events of patient harm through interdisciplinary Team Effectiveness And Management (TEAM) communication training.

- Use effective communication and teamwork principles to provide safe care to patients.
- Demonstrate use of error prevention tools in team-based simulations and actual patient situations.
- Change organizational culture to overcome power and authority gradients to enhance bidirectional flow of information within the team.

TEAM Principles (Nance, 2008)

- Since humans are fallible, the only chance to keep human error from hurting patients is by creating collaborative interactive teams.
- Teams can't be effective without mutual caring, respect and support.
- There can be no effective communication if the culture discourages people from speaking up.
- There can be no effective communication if the team leader's control is based on snobbery, defensiveness or high power distance.
- Team leaders must lead with the full participation of their team.
- Team must be assertive with respect.

The High Cost of Intimidation and Bullying

Intimidation and bullying fosters (The Joint Commission, 2008):

- Medical errors
- Preventable adverse outcomes for patients
- Increased cost of care
- Team member attrition

Hypothesis/Question

- Will interprofessional TEAM training improve patient outcomes and overall safety?
- Will interprofessional TEAM training empower staff to speak up for safety?

Communication Safety Tools

3-Way Repeat Back:

- Sender initiates communication
- Receiver repeats back
- Sender acknowledges – "that's correct."

Clarifying questions:

- Asking one or two questions when information is incomplete or ambiguous

SBAR:

- When you need something from another person
- Situation, Background, Assessment, Recommendation

ARCC:

- When you need to communicate a concern
- Ask a question
- Make a Request
- Voice a Concern
- Chain of Command

Methods

Team trained in use of safety communication tools using didactic approach.
•Communication tool prompts displayed on posters in simulation rooms Training reinforced using simulation scenarios for maternal hypertension, newborn codes, and post-partum hemorrhage:

- Errors built into provider roles in simulation scenarios
- Team recognized and practiced intervening using safety communication tools
- Debriefing method used to encourage reflection on individual performance.
- Simulation repeated at least once with each group to enhance learning and retention.

Abruption/Neonatal Resuscitation/Emergent Neonatal Transfusion

Participants: Obstetricians, Family Medicine Faculty, Family Medicine Residents, CRNAs, NNPs, RNs, RRTs, CST, PST, Critical Care Consult Nurse, Pharmacists, Educators, Maternity Services Leadership Team.

Data/Results

Decision for emergent Cesarean Section to time of first incision:

- Six months before TEAM training: 45.88 minutes.
- Six months after TEAM training: 37.7 minutes.
- Reduction in time: 18%.

Improved outcomes for maternal hypertension:.

- 50% decrease in readmissions for hypertension
- Realized $25,000 cost reduction in prevention of patient readmissions.

Education survey:

- Simulation selected as preferred learning method by 56% of staff members.

Conclusion

- Feedback from Family Medicine Residents post-intervention revealed that they feel welcomed, and a part of the team in Maternity Services.
- Interprofessional simulations occurred quarterly in 2015; monthly in 2016, based on positive feedback from participants.
- High level of engagement sustained among members of the interprofessional team in both planning and implementation of ongoing simulations.

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Justifying the Implementation of a Collaborative Drug Therapy Management Protocol in an Outpatient Psychiatric Clinic

Kelly Banker, PharmD, BCPS [1, 2]; Kevin Bozymski, PharmD [2]; Cheen Lum, PharmD, BCPP [1]; Laura Ruekert, PharmD, BCPP, GCP [1, 2]; E. Ann Cunningham, DO [1]; Syed Khan, MD [1]; Frank Covington, MD, MBA [1] 1. Community Health Network 2. Butler University, College of Pharmacy & Health Sciences

Background

- Community Health Network (CHNw): a non-profit, non-teaching model health system with >200 care sites in central IN
- Primary care clinics (PCCs) currently have ambulatory care pharmacists practicing through collaborative drug therapy management protocols (CDTMPs)
- Psychiatric pharmacist provides services part-time in one outpatient mental health center (MHC), known as Gallahue
- CHNw yet to implement CDTMPs for psychiatric pharmacist due to issues including billing, physician resistance and lack of evidence showing improved outcomes with pharmacist services in outpatient MHCs
- Previous studies completed at CHNw have attempted to resolve issues with billing and physician-pharmacist relationships
- Atypical antipsychotics (AP) are associated with increased risk of metabolic syndrome. Despite guidelines published in 2004, clinical practice has been slow to adopt monitoring practices
- Potential for pharmacist intervention to improve monitoring practices

Table 1: Recommended atypical AP monitoring (2004 ADA consensus guidelines)

Parameter	Baseline	4 weeks	8 weeks	12 weeks	Quarterly	Annually	Every 5 years
Personal/ family history	X					X	
Weight/ BMI	X	X	X	X	X		
Waist circumference	X					X	
Blood pressure	X			X		X	
Fasting plasma glucose	X			X		X	
Fasting lipid panel	X			X			X

Purpose

- Assess antipsychotic monitoring practices at Gallahue MHC
- Compare to practices at PCCs
- Identify opportunities for pharmacist interventions
- Provide justification for benefits of clinical pharmacy services in outpatient MHCs

Materials and Methods

Research design
- Retrospective chart review

Outcomes
- Frequency of metabolic monitoring (ADA 2004 consensus)
- Extrapyramidal and tardive dyskinesia side effect monitoring

Inclusion criteria:
- ≥ 18 years of age
- Seen in one of 2 identified PCCs or Gallahue MHC 11/1/2012 - 12/31/2013
- Prescribed an antipsychotic

Exclusion criteria:
- Did not have at least 1 follow-up visit

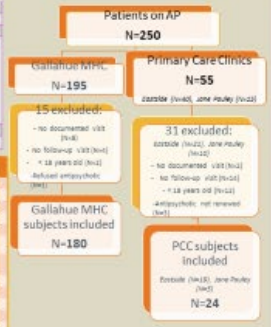
Statistics
- Categorical demographics by Chi squared or Fisher's exact
- Ethnicity and AP indication by one-way ANOVA
- Age by independent t-test
- Metabolic monitoring by Chi squared or Fisher's exact

Results

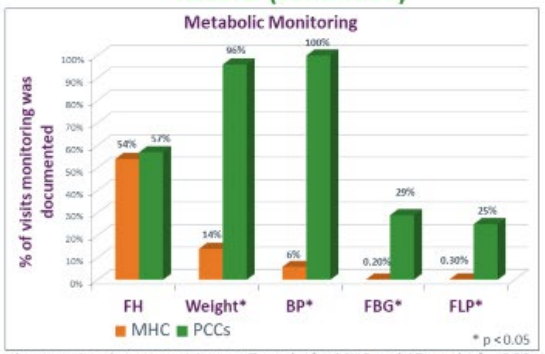
Table 2: Subject Demographics		Gallahue MHC (n = 180)	PCCs (n = 24)	p-value
Sex	Male	82 (45.6%)	11 (45.8%)	0.98
	Female	98 (54.4%)	13 (54.2%)	
Ethnicity	Caucasian	93 (51.7%)	10 (41.7%)	0.16
	Black	81 (45%)	13 (54.2%)	
	Hispanic	4 (2.2%)	1 (4.1%)	
	Asian	2 (1.1%)	0	
Mean Age		44.9 (SD=13.9)	48.1 (SD=9.5)	0.17
Comorbids	HTN	74 (41.1%)	11 (45.8%)	0.66
	HLD	43 (23.9%)	14 (58.3%)	< 0.05
	DM	42 (23.3%)	7 (29.2%)	0.53
	CAD	12 (6.7%)	3 (12.5%)	0.39
	Obesity	93 (51.7%)	13 (54.2%)	0.82
EH	HTN	16 (8.9%)	11 (45.8%)	< 0.05
	HLD	3 (1.7%)	2 (8.3%)	0.11
	DM	23 (12.8%)	8 (33.3%)	< 0.05
	CAD	27 (15%)	9 (37.5%)	< 0.05
SH	Tobacco	79 (43.9%)	8 (33.3%)	0.33
	Alcohol	17 (9.4%)	3 (12.5%)	0.71
	Illicit Drugs	19 (10.6%)	3 (12.5%)	0.73
AP Indication	Schizophrenia	89 (49.4%)	3 (12.5%)	0.085
	Schizoaffective	42 (23.3%)	0	
	Bipolar I	25 (13.9%)	4 (16.6%)	
	Bipolar II	11 (7.7%)	3 (12.5%)	
	MDD	7 (3.9%)	7 (29.2%)	
	PsychosisNOS	11 (6.1%)	0	
	Other	3 (1.7%)	7 (29.2%)	
Previous AP	Typical	16 (8.9%)	0	0.23
	Atypical	32 (17.8%)	2 (8.3%)	0.38

Table 3: Prescribing Patterns		Gallahue MHC	PCCs	p-value
Atypical	Aripiprazole	54 (19%)	5 (21%)	0.79
	Asenapine	7 (4%)	0	1
	Clozapine	13 (8%)	0	0.37
	Lurasidone	12 (7%)	0	0.36
	Olanzapine	15 (7%)	2 (8%)	0.89
	Paliperidone	44 (24%)	0	< 0.05
	Quetiapine	40 (22%)	11 (46%)	< 0.05
	Risperidone	49 (27%)	2 (8%)	< 0.05
	Ziprasidone	4 (2%)	2 (8%)	0.15
Typical	Haloperidol	34 (19%)	1 (4%)	0.03
	Perphenazine	6 (3%)	1 (4%)	0.59
Other	Long-Acting Injection	79 (44%)	0	< 0.05
	AP polypharmacy	53 (29%)	1 (4%)	< 0.05
	New start AP	48 (27%)	11 (46%)	0.06

Figure 1: Flow of study subjects



Results (continued)



- Average time between visits was 7 weeks for MHC and 15 weeks for PCCs
- Waist circumference was not documented for any subject at any clinic
- AIMS was only performed at 2.8% of MHC visits and not performed at any PCC visits

Limitations

- Study limitations include small subject number in PCC group, limited external generalizability, bias in PCC monitoring due to best practice reminders for weight and BP and lack of access to labs for MHC subjects with outside PCPs

Conclusions

- There was a statistically significant difference in documentation of AP monitoring at the PCCs as compared to Gallahue MHC
- Study findings demonstrate an opportunity for clinical pharmacists to make significant interventions in order to improve AP monitoring at Gallahue MHC
- This evidence supports establishing a CDTMP at Gallahue MHC in order to improve outcomes and provide optimal patient care

**The authors have no disclosures concerning financial or personal relationships that may have had a direct or indirect interest in the subject matter of this presentation

Community Health Network

Efficacy of Antidepressants in Alleviating Anhedonia in Depressed Patients

Paras Patel; Chad Knoderer, PharmD; Ben Coplan, DO; E. Ann Cunningham, DO; Magdoline Daas, MD; Syed Hasan, MD; Syed Khan, MD, MBA; Kanwaldeep Sidhu, MD; Laura Ruekert, PharmD, BCPP, CGP

Background

A depression diagnosis can include several variable characteristics that make finding the right pharmacotherapy approach challenging. Anhedonia, or the inability to feel pleasure, is an important symptom of depression because it may play a significant role in preventing complete recovery and facilitating relapse of depression. However, the relationship between depression severity and presence of anhedonia in patients being treated with antidepressants has not been widely studied.

Objective

The primary goal of this study is to determine the efficacy of antidepressants in alleviating anhedonia in depressed patients.

Methods

- Prospective paper survey administered from January 26, 2016 to present, at three different outpatient psychiatric settings, involving six psychiatrists.
- Subjects above the age of twenty who indicated a diagnosis of depression were included. Subjects who additionally checked any anxiety disorders were also included, but those who selected Schizophrenia, Bipolar Disorder, or Substance Abuse Disorder were excluded.
- The survey tool included a demographic section to provide patient data, the Snaith Hamilton Pleasure Scale (SHAPS)[1] to determine presence of anhedonia, and the Clinically Useful Depression Outcomes Scale (CUDOS)[2] to quantify depression severity.

Preliminary Results

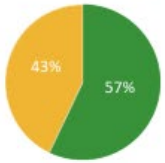
Table 1. Patient Demographics	
Age	44 yo +/- 14 years
Gender	F (82.9%) > M (17.1%)
Comorbidities	General Anxiety Disorder (54.9%), ADHD (18.3%), OCD (4.2%) Social Anxiety Disorder (14.1%) PTSD (11.3%)

Preliminary Results Continued

There were six psychiatric conditions identified in the patient sample. All the patients had depression, and 65.7% of patients had a comorbid anxiety disorder. The most common comorbid anxiety disorder was general anxiety disorder, with over half of the patients presenting with comorbid anxiety and depression.

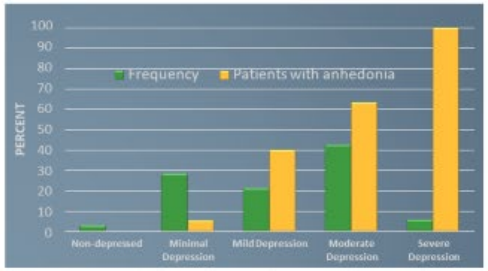
We found that 42.9% of patients had abnormal levels of hedonic tone. We further categorized the patient sample by current level of depression severity and determined anhedonia levels to be negatively correlated, according to a Spearman's rho equal to -0.57

Chart 1. Hedonic Tone



Patients who were in the "non-depressed" or "minimal depression" categories were considered to be in remission (outcome tracker). Of all the patients in the study currently being treated with antidepressants, 30% were in remission and 70% still had depression. The frequency of anhedonia was 4.8% in the remission group and 59.2% in the depressed group.

Furthermore, there was a higher prevalence of anhedonia in patients who had comorbid anxiety disorders (45.7%) as opposed to patients presenting with only depression (37.5%).



Preliminary Results Continued

About 40% of patients were involved in psychotherapy along with their antidepressant regiment, and less than a quarter of them had anhedonia. Over half of the patients taking only antidepressants showed presence of anhedonia (Table 3). Moreover, 55% of patients participating in psychotherapy were moderately or severely depressed, while 33.3% in the no psychotherapy group were moderately or severely depressed.

	Frequency	Anhedonia	Remission
Antidepressant therapy	59.7%	52.5%	30%
Antidepressant plus psychotherapy	40.3%	23.1%	37%

Discussion

The original hypothesis of this study was that anhedonia may present equally in all depressed patients regardless of severity, and may even persist in patients who reach remission. However, there was a moderate correlation showing that anhedonia prevalence actually increased as the depression severity increased. Moreover, the anhedonia levels were substantially lower in the remission group compared to the group that still had significant depression. These results show that anhedonia is not as persistent as previously expected, but similar trends will be evaluated once we have a larger population size.

The overall efficacy of antidepressants in facilitating remission was poor at only 30%. This is similar to the study that found 54% of patients did not achieve remission after antidepressant treatment[3]. Along with 70% of patients still being clinically depressed, 42.9% had anhedonia. This is despite 90% of the patients had been on antidepressants for over two months, yet their results seem to minimal. Our findings in this area do match with previous studies.

Cudos findings give insight into areas where anhedonic patients may present differently than non-anhedonic patients, and as we start to better understand neurochemical processes associated with different symptoms, we can see an opportunity to identify patients that are at a higher risk for anhedonia. Specifically, knowing that the feeling of hopelessness is associated with anhedonia could be important if validated since it is related to suicide ideation

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**Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.
***This study has been approved by the Community Health Network Institutional Review Board

Community Health Network

Development of Collaborative Drug Therapy Management (CDTM) and Clinical Pharmacy Services in an Outpatient Psychiatric Clinic

Ashley Tewksbury, PharmD, Laura Ruekert, PharmD, BCPP, CGP, Cheen Lum, PharmD, BCPP, Frank Covington, MD, MBA, E. Ann Cunningham, DO

Objective

To develop clinical pharmacy services, involving independent patient appointments, within an outpatient mental health center, Gallahue Mental Health Clinic, in Indianapolis, IN.

Background and Purpose

- Merely 1% of subjects with mental illness achieve the five good health indicators compared to 10% of matched controls and possess higher rates of morbidity and mortality.[1]
- The patient population served by Gallahue Mental Health Clinic has poor follow-up with the health care system in general, leaving gaps in care that are too large to be filled during 15-minute psychiatrist appointments.
- Meanwhile, multiple studies have demonstrated pharmacists ability to detect medication-related problems in this patient population, placing pharmacists in the ideal position to address this patient-care need.[2]
- Literature on the burgeoning role of pharmacists in clinical practice is ubiquitous; numerous qualitative and descriptive reports of the development of collaborative drug therapy management and clinical pharmacy services in outpatient settings have been published.
- However, review of the arduous process specific to psychiatry is sparse. The psychiatric pharmacy services described in the literature to date have been in safety net and primary care clinics, rather than mental health centers.[3,4]
- Prior research has demonstrated success in pharmacist-managed point-of-care metabolic screening in outpatients receiving atypical antipsychotics.[5]
- Distinctions in health-care facility structure, funding, regulation, and patient population factors make the generalizability of current published approaches challenging.

Disclosures

The authors of this presentation have nothing to disclose, personally or financially.

Methods

- Identify gaps within current practice model for potential pharmacist intervention
- Develop rapport and collaborative working relationship with the five practicing prescribers within the mental health center
- Identify state specific requirements for collaborative practice agreements, including requirement of physician on the premises during pharmacist-led appointments
- Determine the minimum number of pharmacist-patient appointments required per day to provide economic incentive
- Develop an informative presentation for the administrative committee providing an overview of CDTM, pharmacists' professional skill sets, and improvements in clinical outcomes secondary to pharmacist involvement documented in the literature
- PGY2 Behavioral Care resident will collaborate with a BCPP-certified psychiatric pharmacist in the development of a CDTM protocol describing scope of practice
- Select most feasible payment/reimbursement model, most likely "incident-to" billing under the physician's name
- Create a descriptive report of the approval process and obstacles encountered, with a step-wise approach that other pharmacists desiring similar practice implementation can follow. A qualitative analysis of the types of interventions and referrals made by the pharmacists will also be detailed.
- The pharmacist will act as a liaison between inpatient psychiatric pharmacy services already developed and out-of-network health clinics to enhance continuity of care.
- This preliminary descriptive study will organize pertinent data for future quantitative review and association with outcome measures, such as re-hospitalizations.

Barriers Identified

- Administrative body responsible for approval of such clinical services lack sufficient knowledge regarding Indiana state laws pertaining to CDTM, as well as the knowledge and clinical abilities possessed by pharmacists. Despite the establishment of CDTM at a Family Medicine Center within Community Health Network, skepticism remains, primarily due to the preconceived notion that management within psychiatry differs in terms of the law and professional capabilities.
- Ability to document pharmacy services appropriately within the current electronic health record
- Logistical barriers of time, workload, and proximity
- Lack of compensation mechanisms from third parties for pharmacist services

Primary Activities Outlined in Protocol

- Medication reconciliation, including maintenance of a complete, current medication list in the medical records
- Comprehensive medication reviews to identify potentially inappropriate medications, absence of necessary pharmacotherapy, drug-drug interactions, drug-disease state interactions, barriers to adherence, and adverse effects
- Monitor metabolic adverse effects of atypical antipsychotics by ordering the appropriate laboratory values at frequencies recommended per guidelines published by the American Psychiatric Association and American Diabetes Association
- Monitor extrapyramidal side effects of antipsychotics utilizing the Abnormal Involuntary Movement Scale
- Modify medication doses or dosing regimens based on pharmacist-ordered laboratory values or other principles, including improved efficacy, reduction of adverse effects or toxicity, adherence, and affordability.
- Continue medications/renew expired prescriptions previously prescribed by the physician in the case of psychiatric condition stability
- Act as a liaison between psychiatric and other medical services, contacting other prescribers outside of the network to ensure continuity of care
- Educate patients on disease states and pharmacotherapy, including importance of adherence
- Document all patient-care activities in the electronic health record that can be accessed by Gallahue Mental Health clinicians
- Obtain written consent from Gallahue Mental Health physicians for any deviations from the CDTM protocol
- Meet with Gallahue Mental Health physicians on a periodic basis (annually at a minimum) to review the CDTM protocol

$^{*}p \leq 0.05$

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Hereditary Angioedema: A Case of Lifelong Misdiagnosis

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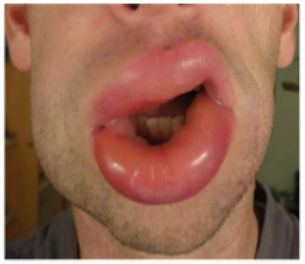
Community Health Network

Introduction

- Hereditary Angioedema (HAE) is a rare, but commonly misdiagnosed disease, often resulting in ineffective treatment and even unnecessary procedures.
- Taking a thorough medical and family history and understanding the pathophysiology is essential to making the correct diagnosis and managing it appropriately.

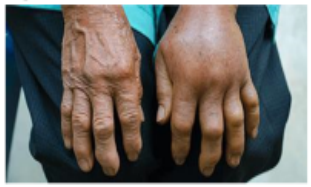


Presentation

- A 25 year-old, white male, with a history of angioedema, presented to the ED secondary to facial edema without urticaria or pruritis.
- He was treated for allergic angioedema with steroids and antihistamines and discharged.
- He returned later that day with worsening facial edema and right upper extremity edema, and again given the same steroid and antihistamine cocktail without relief.

Clinical Course

- He was admitted and treatment was initiated using a C1 esterase inhibitor (C1INH) concentrate, after being formally tested for hereditary angioedema (HAE).
- H/o similar episodes as a child and adolescent, all being treated similarly with steroids and antihistamines without significant relief.
- He also revealed an episode of abdominal pain lasting approximately one week and ending in exploratory laparotomy with no conclusive results.
- Family history revealed similarly described episodes experienced by his mother and maternal aunt.
- He denied recent NSAID use, but did just switch from cigarettes to electronic cigarettes.

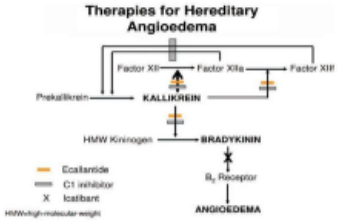


Treatment

- C1INH treatment resulted in improvement in symptoms within 2-4 hours.
- Serum testing revealed C4, C1INH antigen, and C1INH functional levels greater than 30 percent below the reference ranges.
- The patient was discharged with the diagnosis of Type I HAE, Allergy/Immunology follow up, and given a wallet card describing his diagnosis and recommended treatments for future exacerbations.

Discussion

- While allergic angioedema is a common emergency department presentation, HAE is rare and unique in its treatment as a purely bradykinin-mediated edema. Deficits in C1 Inhibitor allow unregulated activation of the complement, kinin, and coagulation cascades allowing vascular leakage and edema unaffected by steroids or antihistamines.
- Although mortality is low from cutaneous and gastrointestinal angioedema, recognition of the etiology in cases like this allows for appropriate treatment and mitigates unnecessary surgical procedures, while improving morbidity from repeated episodes.



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Community Health Network

Incidence and clinical outcomes of off-label oral anticoagulant dosing in nonvalvular atrial fibrillation within a community hospital health system

Lauren Behrle, PharmD[1]; Brenda Clark, PharmD, BCPS[1]; Brian Lindvahl, PharmD, BCPS[1]
[1]Community Health Network, Indianapolis, Indiana

Background

- The American Heart Association recommends oral anticoagulation therapy when CHA_2DS_2-VASc ≥2 to reduce risk of stroke or systemic embolism in patients with atrial fibrillation (AF).[1]
- The use of novel oral anticoagulants, including apixaban, rivaroxaban, and dabigatran, to prevent stroke and systemic embolism in patients with nonvalvular AF has increased due to ease of administration and compliance, lack of frequent therapeutic monitoring, and lack of extensive drug-drug, drug-disease, or drug-food interactions.[2]
- There are still unanswered questions regarding the use of these medications, including appropriate dosing in renal and hepatic impairment and the lack of reliable reversal agents.
- In two previous retrospective chart reviews, 35.4% and 14.4% of patients received an off-label dosing regimen of rivaroxaban and dabigatran for nonvalvular AF, respectively.[3,4]
- Within Community Health Network, deviations from FDA approved dosing regimens of the formulary agents apixaban, rivaroxaban, and dabigatran, for prevention of stroke and systemic embolism have been observed in patients with AF.
- A review of the prescribing patterns and the clinical outcomes of off-label dosing regimens, including safety and efficacy, is warranted.

Drug Name	Indication	FDA Approved Doses for Normal Renal Function	FDA Approved Doses for Impaired Renal Function	
Eliquis (apixaban)[5]	Nonvalvular AF	5 mg twice daily	If 2 of the following are true: weight ≤60 kg, age ≥80, and SCr ≥1.5 mg/dL	
			2.5 mg twice daily	
Xarelto (rivaroxaban)[6]	Nonvalvular AF	20 mg once daily	CrCl <50 mL/min and ≥15 mL/min	CrCl <15 mL/min
			15 mg once daily	Avoid use
Pradaxa (dabigatran)[7]	Nonvalvular AF	150 mg twice daily	CrCl ≥15 mL/min and <30 mL/min	CrCl <15 mL/min
			75 mg twice daily	Avoid use

Methods

- Retrospective chart review of patients diagnosed with AF who received at least one dose of apixaban, rivaroxaban, or dabigatran for the prevention of stroke or systemic embolism from June 1, 2014 through December 31, 2014.
- Secondary clinical outcomes will be evaluated by matching patients who received an off-label dosing regimen to an FDA approved dosing regimen in a 1:3 fashion based on age within 10 years and gender for each agent.

Inclusion Criteria:	Exclusion Criteria:
• Patients 18 – 89 years of age • Diagnosis of atrial fibrillation	• Pregnancy • Incarceration

Objectives

Primary
- Incidence of off-label dosing regimens of apixaban, rivaroxaban, and dabigatran prescribed for AF

Secondary
- Frequency of underdosing and overdosing
- Time to first stroke or systemic embolism
- Time to first major bleeding event*
- Presence of valvular heart disease

*Bleeding event defined as clinically overt bleeding with a decrease in the hemoglobin level of at least 2 g/dL, transfusion of at least 2 units of packed red cells, occurrence at a critical site, or a fatal outcome.

Results

Figure 1: Incidence of Off-Label Oral Anticoagulant Dosing for Nonvalvular Atrial Fibrillation

- Off-label dosing regimens were determined based on renal function, age, and weight.
- Analysis of secondary outcomes is currently in process.

Conclusion

- Increased provider and pharmacist education is warranted to ensure appropriate patient-specific dosing regimens of oral anticoagulants are chosen for nonvalvular AF.

Disclosures

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

- Lauren Behrle, PharmD – Nothing to disclose
- Brenda Clark, PharmD, BCPS – Nothing to disclose
- Brian Lindvahl, PharmD, BCPS – Nothing to disclose

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An Evaluation of Adjunctive Tigecycline Use for Clostridium Difficile

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Background

- Tigecycline is a broad spectrum antimicrobial agent with activity against gram positive, gram negative, atypical and anaerobic organisms.[1]
- It is FDA approved for the treatment of complicated skin and soft tissue and intra-abdominal infections as well as community acquired pneumonia.[2]
- There have been an increasing number of published cases and reports detailing tigecycline use for the treatment of clostridium difficile infection (CDI).[3-6]
- Infectious Disease Society of America (IDSA) guidelines do not endorse the use of tigecycline for CDI.[2]
- European Society of Clinical Microbiology and Infectious Diseases (ESCMID) guidelines support tigecycline for severe cases of CDI when oral therapy is not feasible.[2]
- A medication usage evaluation discovered a large amount of use directed at treating CDI which exceeded the total number of cases reported in literature.
- The purpose of this project is to determine if there is a clinical benefit in using tigecycline for CDI.

Objectives

- Primary: To compare time to resolution of diarrhea in confirmed positive CDI patients treated with tigecycline compared to patients who did not receive tigecycline.
- Resolution of diarrhea defined as <3 loose stools in a 24 hour period.

Confirmed positive will be defined as:

- EIA/GDH positive in any single step testing
- EIA/+GDH in the 2-step algorithm
- + PCR either as the standalone test or back-up to disconcordant EIA/GDH testing
- Direct evidence of pseudomembranous colitis by colonoscopy

- Secondary: To compare recurrence, treatment failure, hospital length of stay, ICU treatment anytime during therapy.
- 28 day all-cause and hospital mortality and drug adverse effects.
- Composite endpoints of recurrence in 28 or more days, need for surgery (i.e. colectomy) and mortality between groups will also be evaluated.

Methods

- Retrospective cohort study
- Target 180 patients admitted to any Community Health network inpatient facility between January 2014 through August 2015.
- Patients will be matched to one another based upon admission date ± 14 days and age ± 5 years.
- Matching will provide a 1:2 (case:control) comparison between groups.

Data collection parameters

ICU vs non-ICU disposition at tigecycline initiation	Concomitant C. diff treatments	IDSA C. diff severity at tigecycline initiation and discontinuation
Demographic information	Time to tigecycline initiation	Mortality
Hospital length of stay	White blood cell count	Baseline serum creatinine (Scr)
Scr at CDI diagnosis	Serum albumin	Blood pressure
Serum lactate	Compromised GI tract	NAP1 status

- A Hines-VA index score, Zar score and a Charlson comorbidity index score will be calculated for each patient.[7-9]

Exclusion Criteria

- Received less than 48 hours or two doses of tigecycline
- Special populations will be excluded
- Did not receive standard therapy
- Adjunctive therapies for the treatment of CDI not including probiotics

Statistical Analysis

- Student t-tests will be utilized for analysis of the primary objective.
- If t-test assumptions are not met, it would be appropriate to evaluate the primary outcome using a Wilcoxon rank sum and Mann-Whitney U test.
- Secondary outcomes will be compared using a chi-squared test, Fisher's exact test or unpaired student t-tests.
- Logistic and linear regression as well as propensity matching will be used to make associations between two or more variables in the study.

Outcomes Assessed

Time to resolution of diarrhea

Treatment failure

- Patient colectomy or death after 5 days of therapy
- Persistence of diarrhea (>2 soft stools) after 7 days of therapy

Recurrence

- Diarrhea (>3 loose stools in a 24 hour period) and positive stool toxin test within 8 weeks (56 days)
- Data at 4 weeks will be collected as well

Drug Adverse Effects

- Nausea, vomiting and increased liver function tests (>3x upper limits of normal) leading to drug discontinuation or change in therapy

Discussion

- Data collection is in progress.
- Final results will be presented at the Great Lakes Pharmacy Residency Conference in West Lafayette, Indiana in 2016.

Full Disclosure

- Authors of this study have nothing to disclose regarding possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject of this presentation.

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Community Health Network

Hypercoagulability Risks When Prescribing Oral Contraceptives

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ABSTRACT

INTRODUCTION:
While oral contraceptive pills (OCP) remains a common and simple solution for women with abnormal vaginal bleeding, it is not a benign modality. OCP's have a black box warning for serious cardiovascular side effects with smoking. They also have contraindications such as thromboembolism and coronary artery disease – all aspects that can exacerbate hypercoagulability. Keeping these concerns in mind, it is critical that primary care physicians obtain a thorough past medical and familial history, as well as a gynecological history. This will give a more comprehensive formulation of whether OCP's are an appropriate and safe treatment mechanism.

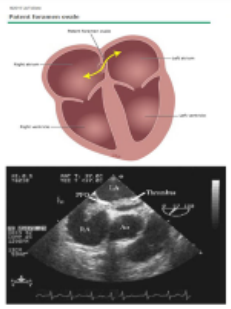
CASE SUMMARY:
A 52 year old female with a history of microcytic anemia, miscarriage, and multiple dilation and curettages (D+C) of uterus presented to the emergency department due to heavy vaginal bleeding, shortness of breath, and right calf pain for 1 week. Patient was placed on OCP for the treatment of her vaginal bleeding one month ago. A CT angiogram of chest with IV contrast was done which showed a large amount of acute pulmonary emboli in the distal main right pulmonary artery and distal main left pulmonary artery extending into lobar branches bilaterally as well as right ventricular strain. An echocardiogram was done which showed right and left atrial thrombus and a Doppler ultrasound was done of bilateral lower extremities which showed right deep vein thrombosis.
Patient underwent a bi-atriotomy with removal of left and right atrial thrombus and an atrial septal defect closure. OCP's were discontinued at discharge and patient was started on Eliquis 5mg BID.

DISCUSSION:
Studies show that women on oral contraceptives have a 2-4 fold increase risk of venous thromboembolism. Primary care physicians should do a thorough history to evaluate whether OCP are the appropriate method of treatment for abnormal vaginal bleeding. Any history of thromboembolism or family history of thromboembolism, gynecological history are all very important ways to evaluate risks. In my case, the patient had a significant family history of VTE's in all siblings and the patient herself had multiple dilation and curettage of the uterus and a miscarriage. This collective information may have prevented this patient from starting OCP's which may in turn, prevent life threatening VTE's.

INTRODUCTION

Abnormal vaginal bleeding is a common symptom where patients seek medical treatment. One of the possible treatments is to start oral contraceptives(OCP). It is non-invasive and usually yields good results. There are some side effects of OCP's which include hypercoagulability, hypertension, breakthrough bleeding. Although it seems that these side effects are rare, they can be fatal.

The purpose of this case report is to emphasize the importance of physicians to obtain a thorough history of our patients before initiating what seems like a harmless treatment. This history should include past medical history, family history, as well as gynecological history.



Risk Factors for Venous Thrombosis

Genetic and acquired risk factors for a first episode of venous thrombosis

Condition/risk factor(s)	Relative risk	Incidence, percent per year
Normal	1	0.008
Prothrombin gene mutation	2.8	0.02
Oral contraceptives	4	0.03
Factor V Leiden (heterozygous)	7	0.06
Oral contraceptives plus heterozygous factor V Leiden	35	0.29
Factor V Leiden (homozygous)	80	0.5 to 1.0

Adult subjects only.

From Annals of Internal Medicine, Bauer KA, The thrombophilias: Well-defined risk factors with uncertain therapeutic implications, vol. 135, p. 367. Copyright © 2001 American College of Physicians, Inc.

CASE PRESENTATION

A 52 year old female with a history of microcytic anemia, miscarriage, and multiple dilation and curettages (D+C) of uterus presented to the emergency department for heavy vaginal bleeding for one week. Patient states she has intermittent right calf pain that began this morning and was exacerbated with movement and alleviated with Ibuprofen. Patient reports the shortness of breath is getting progressively worse. She was recently started on oral contraceptives for the vaginal bleeding. Patient denies chest pain, fever, weight loss, tobacco history.

Patient vital signs were within normal limits. A CT angiogram was done which showed bilateral pulmonary emboli with right ventricular strain. A follow up echocardiogram showed a mobile mass from the interatrial septum that extended to both atria. Results also showed that the most likely cause of this thrombus was a patent foramen ovale. Patient had a hypercoagulability work up done which included Protein C and S, factor V Leiden, prothrombin, cardiolipin, and antithrombin. All of these were negative. After further inquiries about patient's history she did state she had D+C's done and a miscarriage as well as having a brother with some sort of blood clotting problem. OCP was discontinued and patient underwent a bi-atriotomy to remove the thrombus and a patent foramen ovale closure. Patient was started oral anticoagulant therapy with Eliquis 5mg BID for management.

DISCUSSION

The fact that hypercoagulability is a risk factor for oral contraceptives is not a new concept. There are obvious contraindications for starting OCP's such as hypertension, venous thromboembolism, and thrombogenic mutations. Physicians should keep these in mind when thinking of treatment options for abnormal vaginal bleeding.

The patient in this case report did not have blatant contraindications to OCP's. She did however had a combination of factors that may have caused her to have the outcome of multiple clots involving multiple organs.

The patient did have a history of miscarriages and D+C's which may have been attributed to a genetic thrombophilia such as antiphospholipid syndrome. The labs for hypercoagulability disorders were negative. The patient had a patent foramen ovale (PFO) which would not have been found until symptomatic such as this case. This incident was found based off of echocardiogram results showing right ventricular strain. The finding of bi-atrial clots was thought to be due to a deep vein thrombosis causing a slight obstruction through the PFO. The patient also had family history of a first degree relative with a blood clotting disorder.

Individually, all of these factors are not contraindications to starting OCP's. The 2-4 fold increased risk of venous thromboembolism of OCP's alone may have caused this patient to have multiple thromboses. However, compounding all of her anatomical, obstetric, and family history may have caused this patient's life threatening ordeal.

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Community Health Network

Aligning an Osteopathic Medical Student Mentoring Program with a Health System Partner's Core Values

Steven Patton, DO and Sherry Jimenez, Ed.D.

Background

Mentoring is a process whereby two or more individuals work together to develop the career and abilities of a single individual. Mentoring can focus on a career or personal context. Community Health Network (CHN) is a non-profit health system with a full continuum of care integrating hundreds of physicians who volunteer as mentors for Marian University College of Osteopathic Medicine (MUCOM) students. MU-COM's Meaningful Medicine Mentoring Program aligns with the college's dedication of preparing osteopathic physicians who are committed to the complete healing of individuals' bodies, minds, and spirits and addresses the fundamental principles of Humanistic Medicine. The purpose of this poster will be to introduce a mentoring program developed for first year osteopathic medical students emphasizing humanism in medicine and aligning it with the core values of a partnership health network. The values emphasized are people, service, quality, and community. Data informing the net change from pre and post student exposure to topics associated with these core values during the program will be illustrated.

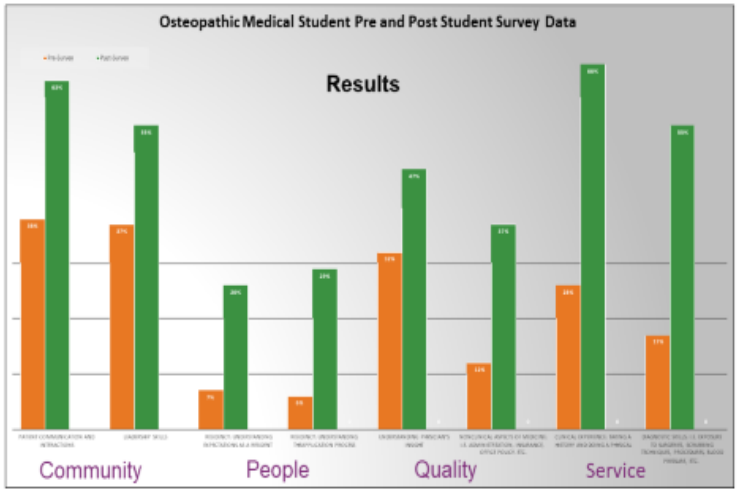
Hypothesis

Meaningful Medicine Mentoring Program will allow students to enhance and incorporate the importance of people, service, quality and community in both academic and interpersonal setting.

Methods

One hundred-thirty-eight first year osteopathic medical students were sent an electronic survey link using Qualtrics® via email containing Likert style questions at the beginning and end of fall semester 2014, respectively. Each question was assigned to a CHN Value, based on their definitions. Data were analyzed quantitatively using descriptive statistics

Results



Core Values Defined

COMMUNTY – The impact of volunteerism and fundraising upon the communities in which we live and work.

PEOPLE – Health care professionals that demonstrate high-levels of engagement by advancing knowledge through research and process improvement activities.

QUALITY – Research and practice that demonstrate the highest scientific quality and integrates new processes and knowledge.

SERVICE – Research, clinical trials and the application of the best available evidence in the provision of patient care.

Conclusions

Through the meaningful medicine mentoring program, students increased their exposure and training to people, service, quality and community.

Acknowledgements

Melita Schuster, DO, MUCOM Mentoring Program Co Director (2014-2015)
Stuart Brown, MD, Westview Osteopathic Family Medicine Residency Program Director

IRB Approval: "The Institutional Review Board at Marian University has reviewed your protocol and has determined the procedures proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol and you are cleared to proceed with your project. The protocol will remain on file with the Marian University IRB as a matter of record."

Community Health Network

Inflammatory Disorders: The Utility of Routine Autoimmune Surveillance

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ABSTRACT

Introduction: Introduction: Differentials for patients with chronic widespread pain, fatigue, and sleep disturbances often include fibromyalgia, chronic fatigue syndrome, systemic lupus erythematosus and polymyalgia rheumatica but less commonly as seronegative Rheumatoid Arthritis. In atypical presentations such as established fibromyalgia patients with worsening symptoms, an ESR and CRP are relatively sensitive markers for PMR with improvement in symptoms seen after systemic steroid treatment. In the primary care setting, a strong suspicion for undiagnosed RA warrants testing for anti-citrullinated peptide (anti-CCP) antibodies, rheumatoid factor and creatinine kinase at regular intervals.

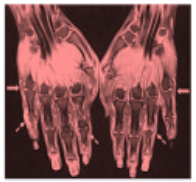
Case Presentation: Case Presentation: A 61 year old Caucasian female with a past medical history significant for fibromyalgia presented to the outpatient clinic with worsening shoulder stiffness and pain particularly on the right, and in the proximal arms bilaterally. She also complained of progressive loss of grip strength for the past several months. On physical examination, she appeared generally well. More tenderness than usual was noted over the trapezius muscles and both thighs without thickening of temporal arteries, arthritic joints nor lymphadenopathy. Family history was significant for mother with rheumatoid arthritis. Laboratory tests revealed white blood cell counts of 5.9 K/CUMM, hemoglobin of 15.2 g/dL, C-reactive protein of 1.0 mg/dL, and ESR of 39 mm/hour. Serum creatinine kinase (CK), rheumatoid factor (RF) and anti-CCP levels were found to be within normal limits. Based on myalgia, morning stiffness and shoulder girdle pain, 15mg/day of prednisone was initiated with gradual symptom improvement. At a follow up visit three months later, the patient presented with peripheral arthritis in both hands. Follow up with a rheumatologist several months later revealed bony erosions in her fingers on plain film radiographs and an elevated anti-CCP and RF.

Discussion: In summary, we presented a case of an older female with fibromyalgia who was initially diagnosed with PMR but developed rheumatoid arthritis despite initial seronegativity. Physicians should consider routinely testing with anti-CCP, RF and CK at regular intervals in patients with underlying inflammatory disorders to make a timely diagnosis of a disease that may cause undue distress from delayed treatment.

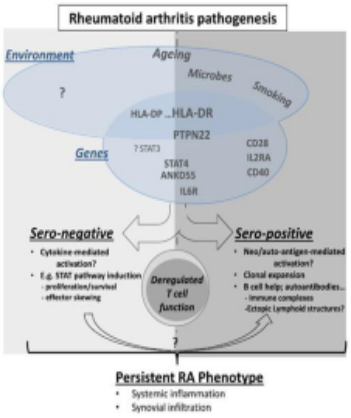
INTRODUCTION

Autoimmune disorders comprise a group of inflammatory conditions with overlapping symptoms, with SLE and RA as the major types. Typical symptoms of RA include joint pain and stiffness. More rarely, a patient may present musculoskeletal complaints of pain and stiffness as found in fibromyalgia and polymyalgia rheumatica. Seronegative RA in the outpatient setting may often go undiagnosed particularly with underlying conditions that mimic RA.

This case report will serve to emphasize the utility of autoimmune markers such as RF and CCP-ab and ESR and the importance of maintaining a high clinical suspicion for RA despite an initial negative work-up.



Bilateral MR images of the hand and wrist of a woman with early inflammatory arthritis with a disease duration of 3 months.



DISCUSSION

Rheumatoid factors occur in 70 to 80 percent of patients with RA. Their diagnostic utility is limited by their relatively poor specificity, since they are found in 5 to 10 percent of healthy individuals, 20 to 30 percent of people with SLE, virtually all patients with mixed cryoglobulinemia (usually caused by hepatitis C virus [HCV] infections), and in those with many other inflammatory conditions such as polymyalgia rheumatica and fibromyalgia. Despite an ever-growing appreciation of the role of circulating autoantibodies in the development of 'seropositive' disease, the pathogenesis of seronegative RA remains poorly understood.

If it is untreated or unresponsive to therapy, inflammation and joint destruction can lead to loss of physical function, inability to carry out daily tasks of living, and difficulties in maintaining employment. In the case presented, the decision to refer to a rheumatologist could have been done earlier in the timeline. Also, further investigation into the family history would have increased suspicion for the final diagnosis of rheumatoid arthritis.

Finally, in addition to the typical symptoms of joint and body aches of RA, there many immunological markers as well. In seronegative cases that usually include 15% of patients, the negative RF does not rule out RA during the early stages of the disease. While a diagnosis of fibromyalgia may encompass many of the overlapping symptoms of RA, a thorough history and physical examination can lead to better recognition of the uncommon presentation of seronegative RA.

CASE PRESENTATION

A 61 year old Caucasian female with presented to the outpatient clinic with worsening shoulder stiffness and proximal arms bilaterally over the last several months. Patient reported right shoulder pain, soreness in her trapezius and both legs. She denied any unintentional weight loss, changes in vision or temporal pain, shortness of breath, chest pain or any gastrointestinal complaints. Past medical history was significant for fibromyalgia and surgical history significant for cholecystectomy. Family history was positive for a mother with rheumatoid arthritis and a brother with diabetes. Patient was married and denies any tobacco or alcohol use. She had a borderline ESR.

After initiation of oral steroids, patient reported improvement in symptoms but presented at follow-up several months later with painful joints. It involved her right shoulder, morning stiffness and bilateral peripheral joint pain in her hands. Pain was described as moderate to severe in nature and not controlled with NSAIDs. Differentials included PMR, RA, SLE, reactive arthritis and osteoarthritis. Serum ANA was normal but repeat testing for CCP-Ab, RF, ESR and CRP were all elevated.

With high index of suspicion for rheumatoid arthritis, referral to rheumatology was initiated. Further radiographic evaluation revealed early joint erosions. Patient was diagnosed with Rheumatoid arthritis and was begun on DMARDs.

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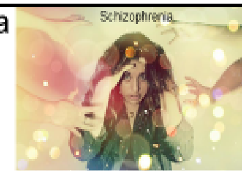
P15

Comorbidity of Autism and Schizophrenia in Adolescents

Magdoline Daas, MD
Ann Lovko, PhD
Benjamin Coplan, DO

Community Health Network



Learning Objectives

- To recognize that Autism and Schizophrenia can present comorbidly in some patients.
- To recognize that there are both clinical and biological links between Autism and Schizophrenia (22q 11DS)
- Care must be provided in an integrative manner—using a biopsychosocial model—for these multicomplex patients and their families.

Background

- The question regarding whether there is phenotypic overlap or comorbidity between autism and schizophrenia dates back to 1943.
- Kanner used the term "autism" to describe egocentricity.
- DSM-II included children with autism under the diagnostic umbrella of schizophrenia, childhood type.
- In 1971, Kolvin highlighted the distinction between autism and schizophrenia, which influenced the decision to include the disorders as 2 separate categories in DSM-III.
- Systematic studies of COS show high rates of the disorder being either preceded by or comorbid with autistic spectrum disorders (ASD).
- The first to describe the severity and frequency of prepsychotic developmental disorders in COS was Kolvin, who noted deficits in communication, motor development, and social relatedness.
- These deficits were found in 28% to 55% of children with ASD, and these observations have been replicated in multiple studies.

Case study (Dvir and Frazier)

- 14 year old boy diagnosed with ASD at 27 months and confirmed by later evaluations.
- Continue to show unusual behaviors and mood dysregulation difficulties
- Described an "other world" and friends from that world talked to him.
- Diagnosed also with bipolar with psychosis due to mood instability.
- Continued to have increasing AH despite atypical antipsychotics.
- Improved with a typical antipsychotic and diagnosis changed to schizophrenia.

Symptoms of autism		Symptoms of schizophrenia
Impairment in nonverbal communication	◄──►	Social withdrawal
Lack of social or emotional reciprocity	◄──►	Affective flattening
Stereotyped use of language	◄──►	Disorganized speech
Lack of varied, spontaneous play	◄──►	Disorganized behavior
Abnormal preoccupation with stereotyped interests	◄──►	Delusions
Stereotyped motor mannerism	◄──►	Disorganized/catatonic behaviours
General impairments in social communication	◄──►	Negative symptoms

Cognitive testing in children with ASD and schizophrenia

- Goldstein et al. (2002) compared children with ASD and those with four clusters of patients on a variety of cognitive tests, including WAISR and several neuropsychological measure of executive functioning.
- The study showed that individuals with carefully diagnosed high functioning autism had similar cognitive profiles to one of four empirically derived subgroups of patients with schizophrenia, which was characterized as the high functioning group.
- The performance of both groups was not normal but showed lower performance in subtests assessing psychomotor skills, abstracting and social judgment skills, indicating selective impairment in complex information processing and psychomotor speed tasks.

Psychotic symptoms in patients diagnosed with ASD

- Raja and Azzoni (2010) reported that between 1994 and 2010 they diagnosed 26 patients with ASD. Twenty one (21) of the patients manifested delusions and nineteen (19) reported hallucinations during their lifetime.
- Of the 22 reporting delusions or hallucinations, 16 received a concurrent diagnosis of schizophrenia and 6 of mood disorder.
- None of the patients had received an ASD diagnosis prior to the study but the symptoms were supported by relatives, suggesting that ASD is often missed in an outpatient adult mental health setting if patients also show psychotic symptoms.
- The authors suggest three possibilities: that ASD and schizophrenia share characteristics, that psychotic symptoms are belong to the symptoms spectrum of ASD or that psychotic symptoms in patients with ASD are related to earlier onset.

Studies Supporting Co-morbidity ASD & COS

- Watkins, et al. 1988:
- COS study - 39% of 33 pts had sx of autism years before onset of their COS
- Arsnow et al. 2008:
- Follow up COS study – 28 of 52 pts (55%) with COS met DSM III criteria ASD
- Rapoport et al. 2009:
- COS preceded by and comorbid with PDD in 30% to 50% of cases.
- Gadow et al. 2012:
- Youth with ASD (n = 147) had more severe global ratings of Schizophrenia Spectrum Disorder compared with youth control group without ASD (n = 335)

Discussion

- Research subsequent to DSM II and Kolvin has refined our understand of the relationship between Schizophrenia & Autism as NOT mutually exclusive
  - Shared genetic mutations & microdeletions: e.g. 22q11 Velocardiofacial syndrome
  - Overlapping developmental deficits in neuro-motor, language, and cognitive skills
  - Prospective studies recently indicate familial schizophrenia-like psychosis is a risk factor for ASD
- Diagnostic Challenges
  - Overlapping symptoms and onset timeline blur diagnostic clarity
  - Psychosis may go unrecognized in patients with ASD
  - Developmental deficits may go unrecognized in patients with COS
  - Low prevalence of COS comorbid with ASD result in low level clinical suspicion
- Clinical Relevance
  - Development of comorbid schizophrenia and Autism Spectrum Disorder requires comprehensive multi-disciplinary bio-psycho-social treatment and planning

- Given the shared clinical manifestations of SCZ and ASD, it is not surprising that the 2 disorders co-occur frequently. Nearly 30% of youth diagnosed with childhood onset SCZ in a large NIH cohort had co-morbid ASD, and both epidemiologic and retrospective clinical studies suggest an association between ASD diagnosis or childhood autistic traits and later psychotic experiences. Similar patterns of cognitive deficits have also been noted.

Conclusions:

- The key take-away point is that there are some individuals who may have both COS and ASD. Schizophrenia and ASD do have shared features and some studies show significant comorbidity (28% in NIMH study).
- Given the complex symptom profile in youths with schizophrenia spectrum disorders, there tends to be a delay in diagnosis, even when symptoms are present for years.
- Systematic long-term follow-up studies that include individuals with ASD and with COS are indicated to further inform the field regarding similarities and differences between autism and schizophrenia. These studies would benefit from the inclusion of genetics and characterization of family members to get a clearer sense of the genotype-phenotype associations and predictors of outcome.

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"Sweet Pain"

Yousef Mohammadi, MD, MPH

Community Health Network, Family Medicine Residency

Objective

The purpose of this study is to examine the effect of artificial sweeteners on pain perception in patients diagnosed with fibromyalgia. Fibromyalgia is a chronic, widespread non-inflammatory musculoskeletal pain syndrome with multisystem manifestations which is believed to be a disorder of altered central pain regulation.

Sweeteners contribute to the flavor and texture of our foods and are either natural (ie honey) or artificial (ie aspartame). They are also divided into two groups: nutritive and nonnutritive. The nutritive type provide us with calories while the nonnutritive group has little to no calories. Nutritive: honey, agave, fructose, high-fructose corn syrup. Nonnutritive: acesulfame-K, aspartame, neotame, saccharin, sucralose, stevia.

Null Hypothesis: elimination of artificial sweeteners will not statistically significantly reduce the subjective pain perception in fibromyalgia patients.

Design

This is randomized control study.

Setting

Participants will be recruited from one Rheumatology outpatient clinic site. Follow up once recruited will include three visits over two months. (Initial, at one month, and at two months).

Patients

Inclusion criteria include women aged >20 with diagnosis of fibromyalgia by a rheumatologist according to criteria of the American College of Rheumatology.

Exclusion criteria include men and those not diagnosed by a rheumatologist. Male patients were excluded from statistical analysis because of their small number.

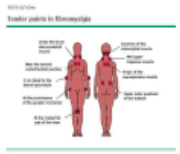
Intervention

Intervention includes: Elimination of artificial sweeteners

- Subjective average daily pain rating in a journal 0 (no pain) 10 (worst pain) for 8 weeks.
- Participants are educated on how to detect and read food labels and avoid artificial sweeteners.
- Participants are asked to keep a daily journal of foods and drinks for 8 weeks.
- Patients are randomly assigned to an experimental group where they are asked to stop eating out and cook all their meals and eliminate all sweeteners from diet except for honey, stevia, maple syrup, agave nectar or to a control group where no adjustment to daily diet is made.

Main outcome measure

The primary study outcome measure is the subjective pain scale for fibromyalgia patients.



Statistical test

The primary efficacy variable is the mean daily pain score which will be compared using the t-test between the pre and post dietary elimination.

Results and Discussion

This study is currently in progress.

Even-though non-nutritive sweeteners have limited calories their excessive use can lead to adverse effects like diabetes, obesity, and cardiovascular disease. Research has not shown any weight loss with non-caloric sweeteners.

Animal studies suggest in the short term artificial sweeteners reduce pain but in the long run leads to a chronic state of increased sensitivity to pain.

Based on human studies, a subset of fibromyalgia patients have less pain when aspartame was eliminated from their diet.

Fructose and high-fructose corn syrup can worsen irritable bowel syndrome and interstitial cystitis.

Conclusion

A great deal of contradiction in published research exists today. Excessive use of artificial sweeteners can lead to adverse effects like diabetes, obesity, and cardiovascular disease. Artificial sweeteners do not seem to help with weight loss or reduced sugar intake, they can lead to metabolic syndrome, infact in many cases worsened chronic pain. If sweeteners are to be used natural sources like honey and stevia are good options.

KEYNOTE SPEAKER

John J. Wernert, MD, MHA *Secretary of the Indiana Family and Social Services Administration*

Dr. Wernert has 30 years' experience as a psychiatrist, geriatrician and healthcare leader in Indiana. He currently serves the state of Indiana as Secretary of the Indiana Family and Social Services Administration (FSSA), appointed to this cabinet position in June 2014. This large multi-division state agency is responsible for the provision of social benefits and healthcare for 1.5 million Hoosiers in need. Dr. Wernert began the full-time medical practice of psychiatry in 1989. Dr. Wernert is a Distinguished Alumnus of Bellarmine University and obtained his M.D. degree from the University of Louisville School of Medicine in 1985. His postdoctoral training included an internship and residency at the Indiana University School of Medicine through the Department of Psychiatry. Dr. Wernert has practiced medicine in central Indiana since 1989, and is licensed in Kentucky and Indiana. He is a Clinical Associate Professor of Psychiatry, Indiana University School of Medicine. Dr. Wernert completed a Master's Degree in Health Administration from Indiana University in 1996. He is board certified in Adult Psychiatry, and has received added certification in Geriatric Psychiatry and Administrative Medicine. Dr. Wernert is a Certified Physician Executive, and has been awarded Distinguished Fellowship in the American Psychiatric Association.

Dr. Wernert also has a strong history of accomplishment and high-level executive leadership at the state and national levels. He has dedicated his professional career towards improved clinical care, administrative innovations and applied research, working to move ideas and theories to work in the real world. He previously served as the Medical Director of Medical Management at Eskenazi Health in Indianapolis. Dr. Wernert also has consulted as the Medical Director for Behavioral Health Integration for the Franciscan Alliance system in Indiana. He previously served as the Chief Medical Officer and Vice President of Medical Affairs for MDwise, Inc., a 300,000 member Medicaid Managed care plan covering the state of Indiana. In addition to his administrative duties, Dr. Wernert continues his clinical work performing Integrative Medicine consultations and Medical Management services for various facilities in central Indiana via Tele-Health applications.

Dr. Wernert has served in various leadership roles in medical professional organizations, including the AMA. John served as the past Chairman of the Drug Utilization Review Board for the Indiana Medicaid program. Dr. Wernert has also served on the Indiana Medical Licensing Board and various state committees related to mental health and Medicaid services in Indiana. He remains active with the American Psychiatric Association as a member of the AMA Delegation, consultant to the Budget and Finance Committee and the Board of the national Political Action Committee. John is a past President of the Indianapolis Medical Society and is the Past Speaker of the House of Delegates at Indiana State Medical Association (ISMA). He was elected President of the ISMA prior to stepping down to take the cabinet post with FSSA.

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