



SCHOOL OF MEDICINE

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UNIVERSITY

CRACKIN' THE CASE

CWRU PA Newsletter



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What is Crackin' the Case Newsletter?

Crackin' the Case is a CWRU newsletter created by physician assistant (PA) students and dedicated towards highlighting PA research relevant to current topics in the CWRU PA classroom. We hope to promote evidence-based medicine, student research, and disease awareness.

Telemedicine and Diabetic Retinopathy¹

One of the medical conditions we have talked about in our Diagnostic Methods course this summer is diabetes. Because this disease is so prevalent in American society and seems to be increasing in incidence every year, it is important we continue to study it extensively. Our introduction into diagnostic lab values and criteria has been a terrific kickstart into our early understanding of this complicated metabolic disorder.

This summary is going to introduce us to one of the most common and serious complications of chronic diabetes known as diabetic retinopathy, specifically focusing on using telemedicine to help screen patients for early detection to prevent vision loss. Why is this important? Diabetes is one of the leading causes of blindness in developed countries and in our current COVID-19 landscape, telemedicine is serving as a crucial link between patients and their healthcare providers.

To understand the symptoms of diabetic retinopathy, it helps to go over a little pathogenesis. First, our retina is the innermost, light sensitive layer of tissue in our eye containing photoreceptor cells known as rods and cones, which translate the light and images we see into neuronal synapses to be relayed to the visual centers of our brain to process perception. The retina is supplied by the retinal artery, a branch of the ophthalmic artery off the internal carotid. Occlusion of this artery will begin to cause visual disturbances progressing to complete blindness of the affected eye. This is exactly what is occurring in diabetic retinopathy, with damage to the small blood vessels and neurons of the retina. (*cont. pg. 2*)



Trigeminal neuralgia: Diagnosis and medical and surgical management³

Trigeminal neuralgia is an extreme, chronically painful condition caused by non-nociceptive stimuli in one or more divisions (most commonly V2 and V3) of cranial nerve 5, the trigeminal nerve. The pain experienced by trigeminal neuralgia is characterized by unilateral tic like spasms of pain that can be triggered by eating/chewing, talking, yawning, brushing the teeth, touching the face, and even a light breeze hitting the face, which all stimulate the sensory nervous system. This article states that it is important to note that chronic face pain or face pain with associated sensory loss or motor deficits is not consistent with trigeminal neuralgia and is likely a separate diagnosis. The incidence of the condition increases with age, rarely seen in patients younger than 40 years old, and is more common in females. (*cont. pg. 3*)

Telemedicine and Diabetic Retinopathy¹

(cont. pg. 1)

... Unfortunately, there are typically very few early signs of this and patients will not seek medical attention until they begin to have vision changes. Thus, early detection greatly reduces the risk of permanent blindness and can slow the progression of vision loss in patients who maintain good control of their glucose levels, blood pressure, and lipid levels.

All patients with diabetes should receive annual retinal exams using the gold standard dilated fundus examination in an ophthalmology office. This is a multistep examination, and while evaluation is better done in person to gain the best depth perception for accuracy, patients can be monitored and screened using telemedicine, known as “teleophthalmology”, without requiring their pupils to be dilated. Digital photographs of the patient’s retina taken, for example, at a primary care office by trained technicians, have been shown to be effective in screening, detecting, and grading retinopathy, making this much more convenient for the patient. This reduces the number of visits required to ophthalmology offices, travel time, expenses, and non-compliance, especially to those living in underserved areas where screening rates for diabetic retinopathy is typically low.

The ability to capture, store, and send clear fundoscopic imaging to ophthalmology specialists for evaluation will greatly increase the network of patients being screened, monitored, and treated for diabetic retinopathy. Ultimately, this will help reduce the widespread end-result of this terrible complication of vision loss and also help patients adhere to strict health regimens absolutely necessary to keep their diabetes under control and halt its progression. From a professional standpoint, providers in every socioeconomic setting will be more equipped to serve their patients, and as a whole, we can reduce the enormous financial burden that diabetes-related blindness has on our healthcare system.

Breaking bad news: Communication skills for difficult conversations²

There comes a time when every provider has to give bad news to a patient, which can be a difficult conversation for both parties. However, clinicians can learn communication skills that help patients feel more at ease and in control of their situations. Clinicians should not view these conversations as a challenge but rather as a way to guide patients and their families through confusing emotions and complex issues.

Clinicians know how to take medical history, but a spiritual history can be just as important, especially for patients who are high-risk for serious illnesses and/or events that would require discussion. Two models for taking a spiritual history include the **FICA** (**F**aith and beliefs; **I**mportance of spirituality in patient’s life; **S**piritual **C**ommunity of support; **A**ddressed) and **SPIRIT** (**S**piritual belief system; **P**ersonal spirituality; **I**ntegration with a spiritual community; **R**itualized practices and restrictions; **I**mplications for medical care; **T**erminal events planning). Besides medications, healing can come through spirituality and a clinician’s ability to understand his/her patient’s beliefs can increase their patient’s quality of care.

Another important guide to remember while dealing with difficult discussions is **SPIKES**, which stands for **S**etting, **P**atient knowledge, **I**nvitation, **K**nowledge, **E**mpathy, and **S**trategy and summary.

Clinicians should use open-ended questions, be nonjudgmental, and allow patients to show their feelings. Providers should keep in mind that people from different backgrounds and cultures can respond in ways that the clinician may not expect. Providers should also note the importance of including family members in their discussions.

With these tools, clinicians and students can connect with their patients on a more personal level that elevates their quality of care.



Photo 1: Diabetic retinopathy¹

Setting: Privacy, time, positioning and family presence

Patient knowledge: What does the patient know about his or her situation?

Invitation: What does the patient want to know about the disease?

Knowledge: Sharing the diagnosis, treatment plan, prognosis, support, and options

Empathy: Responding to the patient’s feelings and concerns

Strategy and summary: Creating a plan together; summarizing and creating a follow-through plan

Table 1: SPIKES guide²

Q&A with PA Student

This Q&A features Katherine Feng, PA Class of 2021, and focuses on her experience with research and current projects.



What was your experience getting involved in research before PA school and how did that help lead you into choosing a career as a PA?

My first job out of undergrad was in biomedical research. I worked on projects identifying biomarkers for pancreatic cancer and studied autophagy in acute kidney injuries. A few years later I had an opportunity to work on a Continuous Improvement project at the Cleveland Clinic aimed at improving patient safety. My last job before PA school was in clinical research at UTMCC working on clinical trials studying Diabetes, SLE, Systemic Sclerosis, Raynaud's and HIV. My biomedical research experience taught me the value of research in advancing medicine; I developed my interest for quality improvement research at CCF, and my experiences in clinical research helped me realize that my passion lies in educating and providing for patients. Knowing where my interests lie, I found the PA profession to be the best fit for me.

What is your knowledge of PAs being involved in research and how has that changed throughout school?

Prior to PA school, my knowledge of PAs in research mostly consists of their involvement in clinical trials. PAs often screen and recruit participants, implement protocols, sometimes serve as study coordinators and co-investigator. However since starting PA schools I found that PAs are also involved in curriculum research. This is important because continually to improve PA education is necessary for the advancement of our profession.

Briefly describe your research experiences during PA school (i.e. iSCTL, Capstone, etc.) and how you feel they will impact your career as a PA?

I'm a member of the Student Run Health Clinic's Quality Improvement Committee. Our committee is responsible for collecting, organizing and analyzing SRHC data in order to

identify and implement quality improvement initiatives. Our short-term goals include a publication of SRHC's work in the last few years and streamlining the SRHC's transition from the Circle Health location to Neighborhood Family Practice.

In iSCTL, my project is to develop an IPE curriculum using simulation-based training to improve students' use of collaborative practices and improve interprofessional communication. Through the iSCTL program I learned about the principles of curriculum building, qualitative and quantitative research, program evaluations, negotiation skills etc.

I think the value of research experiences goes beyond having the knowledge and skills to develop and carry out a research study. It's another opportunity to work on communication skills, scientific writing and critique, negotiation skills, task management ability, and stress management. All of which will be assets for a career as a PA.

Is there a favorite topic or field of medicine that interests you the most that you would like to contribute to from a research perspective?

In educational research I'm interested in incorporating different modalities of teaching into PA education, especially interactive teaching methods. On the clinical side I'm interested in genomics and precision medicine.

How do you believe PA advocacy in medical research can benefit the profession?

I think increasing research involvement in general will benefit the PA profession. Regardless of the realm of research (medical, educational, QI, public health etc.), progress does not take place without research and innovation. As PAs play a valuable part in medicine and in society, I think our continual participation and contribution to research and innovations will help advance the PA profession and medicine as a whole.

Trigeminal neuralgia: Diagnosis and medical and surgical management³

(cont. pg. 1)

... The cause of trigeminal neuralgia is thought to be associated with demyelination of the sensory fibers of CN5 either within the nerve root or at the brainstem secondary to long term compression of the trigeminal root. When first evaluating a patient with trigeminal neuralgia it is important consider underlying pathology such as aneurysm, arteriovenous malformation, tumors, neurofibroma, meningioma, and multiple sclerosis, and always take a thorough neurologic history and physical exam with neuroimaging.

Treatments are dependent on the severity of symptoms, patient profile, and what the patient desires in a prognosis. Trigeminal Neuralgia can be treated with anticonvulsants, usually starting with carbamazepine as the first-line treatment. Based on the cause of the condition and the patient's age and comorbidities, operative treatments may also be an option.

The symptoms of trigeminal neuralgia are severe and often leave patients eager for relief. PAs should be able to recognize the symptoms on presentation, get a thorough history and exam, and conduct appropriate testing in order to make the diagnosis and begin treating the patient.

Crack the Case - Parotidectomy

56 y/o male presents to the PCP with a right retroauricular mass. Patient denies pain with the lesion and hearing changes, and no facial weakness is present. The treatment for the patient involved a right, superficial parotidectomy with excision of the retroauricular skin malignancy. The pathology report showed evidence of a mucoepidermoid carcinoma. After a course of radiotherapy, an MRI showed recurrent presence of the carcinoma in the right parotid region. The patient then underwent a total parotidectomy with right resection of the facial nerve and mastoid tip due to tumor involvement.

1. What symptoms would the patient now experience?
2. Why is it important to diligently monitor and image pre- and post-auricular lesions?



Be the first to email the correct answers and win a prize! Email: aaron.harvey@case.edu

Summary References and Links

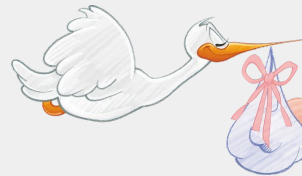
1. https://journals.lww.com/jaapa/Fulltext/2018/09000/T_elemedicine_and_diabetic_retinopathy.15.aspx
2. https://journals.lww.com/jaapa/Fulltext/2011/02000/Br_eaking_bad_news_Communication_skills_for.8.aspx?WT.mc_id=HPxADx20100319xMP
3. https://journals.lww.com/jaapa/Abstract/2011/07000/T_rigeminal_neuralgia_Diagnosis_and_medical_and.5.aspx?sessionEnd=true
4. <https://miamineurosciencecenter.com/en/conditions/trigeminal-neuralgia/>
5. <https://www.medicalnewstoday.com/articles/183417>

July Awareness



International Group B Strep Awareness

<https://www.acog.org/patient-resources/faqs/pregnancy/group-b-strep-and-pregnancy>



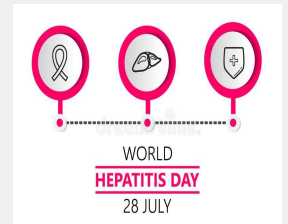
TOP FIVE WAYS TO PREVENT HEPATITIS C

- 1. Don't Share Needles**
Look, hopefully you're not using needles recreationally at all. But if you are, don't use one that's not your own. Hep C is spread through blood-to-blood contact.
- 2. Avoid Contact With Blood**
In the medical field this may be impossible, so make sure to always wear protective gear: gloves, masks, and scrubs.
- 3. Use Your Own Grooming Gear**
If you have a friend, partner, or family member with hep C, avoid using their toothbrush, razor, or nail clippers.
- 4. Research Your Tattoo Parlor**
Before getting that piercing or tattoo, confirm the shop is clean, licensed, check with your local health departments, and that the artists use new needles each time.
- 5. Practice Safe Sex**
While it is rare to transmit hep C via intercourse, there's an increased risk if you currently have HIV or another STI.

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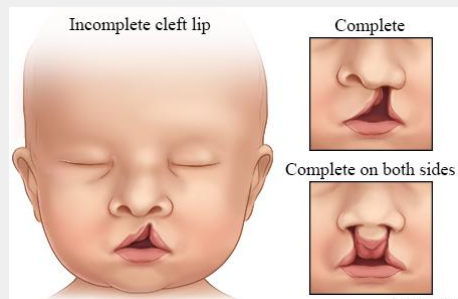
World Hepatitis Day

https://journals.lww.com/jaapa/Fulltext/2019/11000/A_clinical_review_of_viral_hepatitis.3.aspx



National Cleft and Craniofacial Awareness and Prevention

<https://www.plasticsurgery.org/reconstructive-procedures/cleft-lip-and-palate-repair>



Juvenile Arthritis Awareness

https://journals.lww.com/jaapa/Abstract/2011/01000/Juvenile_idiopathic_arthritis_Can_you_recognize.5.aspx

7 types of Juvenile Idiopathic Arthritis

- Systemic JIA**
- Oligoarthritis**
- Polyarticular negative**
- Polyarticular positive**
- Psoriatric negative**
- Enthesitis related**
- Undifferentiated**