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Epidural Steroid Injection for Cervical Radiculopathy Preceding a New Diagnosis of Multiple Sclerosis

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The Impact of a Dermatology Department on Basal Cell Carcinoma Diagnoses

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Mentor: Ashley Wysong

Program: Dermatology

Type: Original Research

Background: Basal cell carcinoma (BCC) accounts for approximately 4.3 million cases annually in the U.S., more common than any other cancer. The emergence of Mohs micrographic surgery as a treatment modality has had a profound impact on the way BCC is managed. Previous reports have studied the cost effectiveness of Mohs micrographic surgery in comparison to surgical excision and outpatient versus operating room setting. The objective of this study was to evaluate

trends in management of BCC before and after the initiation of a department of dermatology at our large academic medical center.

Methods: Cases of BCC, identified with ICD-9 and ICD-10 codes, from July 1st, 2013, (fiscal year (FY) 2013) to January 2020 were obtained via retrospective chart review. Variables collected included number of cases, service line, location (inpatient, outpatient), charges, costs, and expense net revenue, among others.

Results: The average number of cases per year from FY13-FY18 and FY19-FY20

increased. There were differences in charges per case, expense net revenue per case, percent managed outpatient versus inpatient (ambulatory versus main operating room), and service managing.

Conclusion: The addition of a department of dermatology at UNMC has significantly increased the total number of BCCs diagnosed and managed annually. Mohs micrographic surgery allows for complete margin assessment and is done in the outpatient setting, serving as a shift in management from surgical excision used more often in the operating room setting. ■

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Urology Medical Education: A Decade Later

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Mentor: Christopher Diebert

Program: Surgery, Division of Urologic Surgery

Type: Original Research

Background: Urological education for medical students is critical as we face a growing geriatric population with increasing urological needs. The past decade has seen many schools overhaul their medical curriculum and changes that impacts the quality of urological education. Urology medical student education was first examined in 2006 and then reevaluated in 2014.

Methods: We emailed all 164 listed urology program coordinators in the AUA residency

program directory to ask them to fill out an IRB approved 22 question survey in order to further examine the current status of urologic education in US allopathic schools.

Results: In total, 33/136 (24%) program directors responded with 84% stating that medical students receive formal exposure to urology through either lectures or clinical rotations. The average lecture hours spent during pre-clinical urology topics is 5 hours. 56% replied their school has a formal core curriculum for their clinical clerkship, with 70% based off the AUA national core curriculum. 100% offered a clinical rotation in urology. Research opportunities are available at 90% of programs. 55% report urology exposure remains stable compared to five

years ago. 27% think it has decreased, while 13% note increased interest. Urology student groups have increased from 29% of schools to 90%. 90% agree that students can graduate without Urology clinical exposure and 72% think urology education is inadequate.

Conclusion: More effort is needed so that students are exposed and ready to deal with the aging population. Possible solutions are increased push for pre-clinical education, visibility of AUA student education, and marketing of urology as a specialty. ■

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Epidural Steroid Injection for Cervical Radiculopathy Preceding a New Diagnosis of Multiple Sclerosis

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Mentor: Michael Lankhorst

Program: Anesthesiology

Type: Case Report

Background: Epidural steroid injections treat chronic spine pain and radiculitis. Commonly cited risks include hematoma, spinal cord trauma, abscess, unintentional dural puncture, and spinal cord ischemia. To our knowledge, there have been no previous case reports of an exacerbation of MS following an epidural injection of plain steroids. We present a

patient with no previous history of MS who, despite presenting with classic symptoms of cervical radiculopathy and correlative imaging, was subsequently diagnosed with MS after treatment with a cervical epidural steroid injection (CESI).

Methods: Patient informed consent was obtained for this case report.

Case Report: A 40-year-old male was referred with dull neck pain and associated right upper extremity numbness in a C6

dermatomal pattern. Cervical spine MRI was consistent with a diagnosis of cervical spondylosis with radiculopathy and he then underwent CESI at the C6-7 level. Within 48 hours his pain resolved but he developed pathologic upper and lower motor neuron signs. MRI revealed active spinal cord demyelination (Figure 1) and new brain lesions. He was subsequently diagnosed with MS.

Discussion: Although we saw a temporal relationship between the CESI and the



Figure 1. MRI of cervical spine 48 hours after cervical epidural steroid injection (C6-7 level) demonstrating a new, enhancing spinal cord lesion at C2 and C3 consistent with active demyelination.

onset of symptoms, we cannot infer a causal relationship between the two. While CESIs are a safe intervention, including in patients with multiple sclerosis, physicians must always be vigilant for red flag symptoms including fever, chills, worsening pain, loss of bladder or bowel function, weakness, and new onset of sensory deficits. Timely workup decreases the time between symptom onset and diagnosis which may reduce the risk of permanent neurologic deficits. ■

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Advance Care Planning: A Quality Improvement Project to Increase Patient Access and Provider Reimbursement

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Mentor: Richard Fruehling

Program: Family Medicine – Rural Medicine

Type: Original Research

Background: Advanced care planning (ACP) is an important intervention that improves end of life care. In 2016, CMS introduced new billing codes to reward providers already performing ACP, and to incentivize those who were not. In 2016 – the year the codes were introduced – national data indicated only 1.9% of Medicare beneficiaries over 65 had an ACP claim during any visit. In 2017 this increased to 2.2%. Among a group practice of

fourteen providers in Grand Island, Nebraska, no claims had ever been made before October of 2019.

Methods: A short, one hour information session provided guidance on the new ACP codes as well as evidence-based strategies for having these often difficult conversations. Claims made over the next two months were measured, along with corresponding data about setting, and patient characteristics.

Results: In just two months, over one hundred claims were made in this group practice, mostly during Medicare wellness visits but also across many settings including

nursing homes and inpatient admissions. Providers reported that after the information session they were better equipped and more willing to provide ACP and properly bill for the service.

Conclusion: ACP was already performed by these providers before the information session but after the session they were more willing to engage their patients in ACP and captured a significant amount of revenue. We believe this information session could be easily replicated to expand ACP and improve the dismal national reimbursement. ■

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Association of Agricultural, Occupational and Military Inhalants With Autoantibodies and Disease Severity in U.S. Veterans with Rheumatoid Arthritis

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Mentor: Bryant R. England

Program: Internal Medicine, Division of Rheumatology

Type: Original Research

Background: Cigarette smoke is a known inhalant exposure that contributes substantially to the risk and severity of rheumatoid arthritis (RA). Less is known about the link between other inhalant exposures and RA. The aim of this study

was to determine the association between occupational, agricultural, and military inhalant exposures with RA-related factors.

Methods: Participants at nine sites in the Veterans Affairs Rheumatoid Arthritis