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Introduction

- Third cranial nerve palsy (CN3 Palsy) is characterized by damage to the main ocular motor nerve, which controls muscles responsible for eyelid elevation, eye movement, and pupillary function
- Causes of CN3 Palsy range from benign conditions (microvascular injury) to life-threatening diseases (expanding cerebral aneurysm)
- Diagnostic error is responsible for a great deal of medical error.
- This study seeks to identify cases of overdiagnosis of 3rd nerve palsy and to analyze the diagnostic error which likely led to them

Methods

- Retrospective chart review of new patient encounters from January 2014 to January 2017 were reviewed
- Included: New patients with scheduling comments were searched for variations of “3rd Nerve Palsy”
- Excluded: Patients with inadequate referral documentation and patients with a longstanding history of 3rd nerve palsy and a known compressive brain lesion.
- Exam findings including extraocular movement exam, external lid exam, and pupil exam were collected
- Final diagnosis was determined by a neuro-ophthalmologist based on physical exam, laboratory data, and imaging studies.
- The Diagnosis Error Evaluation and Research (DEER) taxonomy tool was utilized to identify the causes of misdiagnosis.
- Statistical analyses were performed using SAS version 9.4; SAS Inc, Cary, North Carolina.

Results

- CN3 was overdiagnosed in 28.6% of included patients.
- Patients diagnosed with CN3 palsy were more likely to have adduction, elevation, and depression deficits as well as exotropia to alternate cover test.
- Ophthalmologists were the most common referring provider, and optometrists had the highest overdiagnosis rate of CN3 palsy.
- The most common error in misdiagnosed cases was failure to correctly interpret the physical exam.

Discussion

- Consideration of the typical pattern for CN3 Palsy should always be a part of diagnosis.
- Most patients in the study were imaged before referral with MRI. This represents a target area of excess healthcare spending.
- The study is limited by a small sample size. It is also limited by a subjective grading scale.
- The study may over-exaggerate the true rate of CN3 palsy as referral providers may have sent proportionally more challenging cases that had a more difficult diagnosis.

Learning Objectives

By the conclusion of this session, participants should be able to appreciate the frequency of third nerve palsy misdiagnosis and the most common causes of this misdiagnosis.