Weakness in a Myasthenic Patient: Avoiding Early Closure and Anchoring

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Learning Objectives:
This patient's first words to the admitting team were “Docs I'm tired. I have myasthenia and need plasmapheresis.” A thorough hypothesis-driven physical exam helped the team avoid diagnostic pitfalls, ultimately distinguishing between a myasthenic crisis and a more grave etiology.

Differential:
myasthenic crisis, progression of known IPF, anemia likely due to GI malignancy

Course of Illness:
With an exam less convincing for a myasthenic crisis or progression of his IPF, attention was turned towards the tarry stools, RLQ pain and acute on chronic anemia. A large, ulcerated mass was found on colonoscopy, and biopsies were consistent with lymphoma. Due to the patient’s preference, age and comorbidities, in addition to the extent of disease, the patient, his family and the medical team elected to pursue palliative treatment without aggressive interventions. He was discharged to home hospice and died one week later.

Discussion:
This patient presented a convincing history for a myasthenic crisis, and multiple clinical biases nearly lead to treating the wrong disease. The urge to diagnose this man with a crisis stemmed from anchoring and premature closure bias. With low negative likelihood ratios, the ice test (0.16), Anticholinergic test (0.11), and the Sleep test (0.01) are the most helpful in ruling out Myasthenia Gravis.

The negative result of the highly sensitive ice test allowed the team to investigate alternative etiologies for his progressive weakness. Digging further ultimately led to an accurate diagnosis, informed decision making, and prevention of an expensive procedure (plasmapheresis) without benefit. Furthermore, the patient spent more time at home with family during his final days.

References:

Clinical Signs and Symptoms of MG

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<thead>
<tr>
<th>Positive Likelihood ratio</th>
<th>Negative Likelihood Ratio</th>
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<td>Food in mouth after swallowing</td>
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<td>Unintelligible speech after prolonged talking</td>
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<td>Peak sign</td>
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<td>Quiver eye movements</td>
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<td>Ice test</td>
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Clinical Bias important to this case

Anchoring: Persisting too early on certain features of a case, and not incorporating new data into the thought process
Ascertainment: Pre-shaped expectations for findings
Confirmation: Weak data confirms reasoning, while stronger data is ignored/dismissed
Premature Closure: Accepting a diagnosis prior to verification
Yin-yang Out: Pre-existing condition extensively worked up, so further investigation not pursued

Peek sign: orbicularis oculi weakness after gently closing eyelids; sclera visible within 30 seconds