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<th><strong>Electrophysiologic evaluation for NMJ disorders including Myasthenia gravis</strong></th>
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| 1 | **Set up**  
- Ensure limb is warmed to at least 33°C  
- Immobilize the limb as best as possible |
| 2 | **Routine motor and sensory nerve conduction studies** (to ensure normal nerves)  
- Preferably a motor and sensory nerve in one upper and one lower extremity  
- CMAP amplitudes would be normal in MG  
- If CMAP amplitudes low/borderline, test for presynaptic NMJ transmission disorder (e.g., LEMS) by repeating distal stimulation immediately after 10 seconds of exercise. >40% increment above baseline is abnormal; >100% is highly suggestive of a presynaptic NMJ disorder. |
| 3 | **Repetitive nerve stimulation (RNS) at rest**  
- Using supramaximal stimulation  
- Slow RNS (2-3 Hz) x 5-10 impulses, 1 second apart, repeated x3 to ensure reproducibility  
- Choose at least one proximal and one distal motor nerve (always try to study weak muscles)  
- In a normal patient, there is <10% decrement between the 1st and 4th responses  
- If there is no significant decrement at baseline, have patient maximally exercise for 1 minute, then repeat slow RNS immediately, 1, 2, 3, 4 minutes afterward to demonstrate postexercise exhaustion  
- If there is significant decrement present at any point, have the patient maximally exercise for 10 seconds and immediately afterward, repeat slow RNS to look for postexercise facilitation/repair of the decrement |
| 4 | **Needle electromyography (EMG)**  
- Concentric needle EMG of proximal and distal muscles, especially weak muscles  
- Unstable or short, small, polyphasic motor unit action potentials may be seen in moderate-severe MG with normal or early recruitment  
- Note: any muscle with denervation or myotonia on needle EMG may demonstrate a decrement on RNS, in which case the decrement on RNS does not signify a primary NMJ disorder (may be a severe denervating or a myotonic disorder) |
| 5 | **Single fiber EMG (SF-EMG)**  
- If strongly suspect MG and the above findings are normal/equivocal, perform SF-EMG in the extensor digitorum (EDC) +/- one other muscle (always best to study a weak muscle)  
- Jitter and blocking indicate an NMJ disorder  
- A normal SF-EMG in a clinically weak muscle excludes an NMJ disorder |

Table 2. Protocol for electrodiagnostic evaluation for disorders of the NMJ including MG (adapted from Preston & Shapiro).