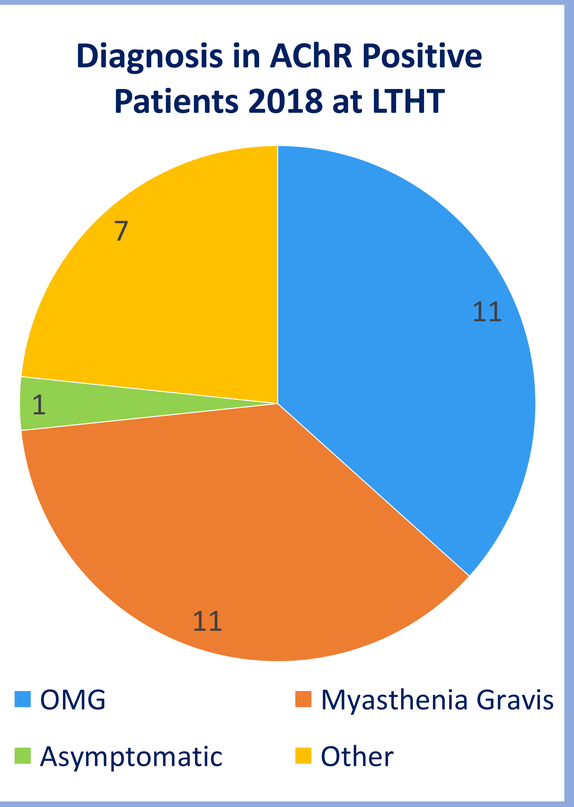
Clinical utility of Anti-Muscle-Specific Kinase (anti-MuSK) as a first-line diagnostic test in Ocular myasthenia gravis (OMG)

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Introduction: Diagnosis of OMG can be difficult due to variability of symptoms[1]. Detection is commonly guided by blood tests. Many clinicians perform acetylcholine receptor (AChR) antibody and anti-MuSK routinely. However anti-MuSK is mainly useful in diagnosing anti-AChR-seronegative myasthenia gravis (SNMG) where it is positive in 40-70% cases[2,]. We studied whether excluding anti-MuSK as a first-line test for OMG was a safe and cost-effective measure.

Methods: A retrospective review was performed of all first-line anti-AChR and anti-MuSK results requested in Leeds Teaching Hospitals (LTHT) between January and December 2018. Electronic patient records and immunology results were used to confirm the clinical diagnosis, test outcome and cost-benefit.



Result Set	Total for 2018	Positives	Negatives	Cost/test	Total cost/year
AChR	286	30	256	£33.43	£9,560.98
MuSK	158	0	158	£47.03	£7,430.74

Results: Anti-MuSK and anti-AChR were simultaneously requested in 94% of cases. 10.5% (30/286) of anti-AChR tests were positive, but all 100% (158/158) of anti-MuSK tests were negative. Excluding anti-MuSK as a first-line investigation, could lead to future annual savings of £7,430 locally. When extrapolated to the UK population, this could save the NHS £645,000 per annum.

Discussion: The Association of British Neurologists recommend that anti-MuSK is only performed in anti-AChR-SNMG[3], it is often requested first-line. In our study, anti-MuSK was negative in 100% of cases. With NHS funding pressures, reducing unnecessary investigations whilst maintaining high value care is vital. We propose that large cost savings can be made across the UK by advocating that anti-MuSK only be used in cases of anti-AChR-SNMG.

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2. *Meriggioli MN et al. Muscle autoantibodies in myasthenia gravis: beyond diagnosis?.Expert Review of Clinical Imm. 2012. 1;8(5):427-38.*
3. *Sussman J et al. Myasthenia gravis: Association of British Neurologists' management guidelines. Practical neurology. 2015 1;15(3):199-206.*