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Useful References on the Diagnosis and Management of Multiple System Atrophy

Introduction

The following list is not exhaustive but is a starting point for understanding more about Multiple System Atrophy (MSA).

Natural History

Wenning GK, Geser F, Krismer F, et al & European Multiple System Atrophy Study Group. The natural history of multiple system atrophy: a prospective European cohort study
Lancet Neurol. 2013; 12: 264-274 *Free PMC article*
<http://www.ncbi.nlm.nih.gov/pubmed/23391524>

Low PA, Reich SG, Jankovic J, et al. Natural history of multiple system atrophy in the USA: a prospective cohort study. Lancet Neurol. 2015; 14: 710-9.
<http://www.ncbi.nlm.nih.gov/pubmed/26025783>

Figueroa JJ, Singer W, Parsaik A, et al. Multiple system atrophy: prognostic indicators of survival. Mov Disord. 2014; 29:1151-7. *Free PMC article* <http://www.ncbi.nlm.nih.gov/pubmed/24909319>

MSA Useful references

Coon EA, Sletten DM, Suarez MD, et al. Clinical features and autonomic testing predict survival in multiple system atrophy. Brain. 2015;138: 3623-31. <http://www.ncbi.nlm.nih.gov/pubmed/26369944>

Calandra-Buonaura G, Guaraldi P, et al. Multiple system atrophy with prolonged survival: is late onset of dysautonomia the clue? Neurol Sci 2013; 34: 1875-8. <http://www.ncbi.nlm.nih.gov/pubmed/23728718>

Petrovic IN, Ling H, Asi Y, et al. Multiple system atrophy-parkinsonism with slow progression and prolonged survival: a diagnostic catch. Mov Disord 2012; 27: 1186-90 <http://www.ncbi.nlm.nih.gov/pubmed/22806758>

Wenning GK, Ben Shlomo Y, Magalhaes M, et al. Clinical features and natural history of multiple system atrophy. An analysis of 100 cases. Brain 1994; 117: 835-45. <http://www.ncbi.nlm.nih.gov/pubmed/7922469>

Schrag A, Wenning GK, Quinn N, et al. Survival in multiple system atrophy. Mov Disord 2008 ; 23 : 294-6 <http://www.ncbi.nlm.nih.gov/pubmed/18044727>

Seppi K, et al. Progression of parkinsonism in multiple system atrophy. J Neurol 2005; 252: 91-96 <http://www.ncbi.nlm.nih.gov/pubmed/15654560>

Testa D, et al. Comparison of natural histories of progressive supra nuclear palsy and multiple system atrophy. Neurol Sci 2001; 22: 247-251 <http://www.ncbi.nlm.nih.gov/pubmed/11731878>

Diagnosis

Koga S, Aoki N, Uitti RJ, et al. When DLB, PD, and PSP masquerade as MSA: an autopsy study of 134 patients. Neurology 2015; 85: 404-12. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/26138942>

Joutsa J, Gardberg M, Røyttä M, et al. Diagnostic accuracy of parkinsonism syndromes by general neurologists. Parkinsonism Relat Disord. 2014; 20:840-4. <http://www.ncbi.nlm.nih.gov/pubmed/24816002>

Kim HJ, Stamelou M, Jeon B. Multiple system atrophy-mimicking conditions: Diagnostic challenges. Parkinsonism Relat Disord. 2016; 22 Suppl 1:S12-5. <http://www.ncbi.nlm.nih.gov/pubmed/26365777>

Gilman S, Wenning GK, Low PA, et al. Second consensus statement on the diagnosis of multiple system atrophy. Neurology 2008; 71: 670-6. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/18725592>

Koga S, Aoki N, Uitti R, et al. When DLB, PD, and PSP masquerade as MSA. Neurology 2015; 85: 404-12 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/26138942>

Kollensperger M, et al. Presentations, diagnosis and management of MSA in Europe: Final analysis of the European multiple system atrophy registry. **Mov Disord** 2010; 25 : 2604-12 <http://www.ncbi.nlm.nih.gov/pubmed/20922810>

MSA Useful references

Schrag A, et al. Cross sectional prevalence survey of idiopathic Parkinson's disease and parkinsonism in London. *Br Med J*, 2000; 321:21-22 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/10875828>

Wenning G, et al. What clinical features are most useful to distinguish definite multiple system atrophy from Parkinson's disease? *J Neurol Neurosurg Psychiatry* 2000; 68: 434-440 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/10727478>

Cognition

Stankovic I, Krismer F, Jesic A, et al and Movement Disorders Society MSA (MODIMSA) Study Group. Cognitive impairment in multiple system atrophy: a position statement by the Neuropsychology Task Force of the MDS Multiple System Atrophy (MODIMSA) study group. *Lancet Neurol*. 2013; 12: 264-74 *Free PMC article* <http://www.ncbi.nlm.nih.gov/pubmed/24753321>

Brown RG, Lacomblez L, Landwehrmeyer BG, et al for the NNIPPS Study Group. Cognitive impairment in patients with multiple system atrophy and progressive supranuclear palsy. *Brain* 2010; 133: 2382- 93 <http://www.ncbi.nlm.nih.gov/pubmed/20576697>

Treatment and management

Colosimo C and Pezzella FR. The symptomatic treatment of multiple system atrophy. *Eur J Neurol*, 2002; 9:195-199 <http://www.ncbi.nlm.nih.gov/pubmed/11985626>

Kaufmann H, Freeman R, Biaggioni I, et al and NOH301 Investigators. Droxidopa for neurogenic orthostatic hypotension: a randomized, placebo-controlled, phase 3 trial. *Neurology*. 2014; 83: 328-35 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/24944260>

Poewe W, Mahlkecht P, Krismer F. Therapeutic advances in multiple system atrophy and progressive supranuclear palsy. *Mov Disord*. 2015; 30: 1528-38. Review <http://www.ncbi.nlm.nih.gov/pubmed/26227071>

Novak P, Williams A, Ravin P, et al. Treatment of multiple system atrophy using intravenous immunoglobulin. *BMC Neurol*. 2012; 12: 131. *Free PMC article* <http://www.ncbi.nlm.nih.gov/pubmed/23116538>

Bensimon G, Ludolph A, Agid Y, et al & NNIPPS Study Group. Riluzole treatment, survival and diagnostic criteria in Parkinson plus disorders: the NNIPPS study. *Brain* 2009; 132: 156-71 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/19029129>

Quinn N, Barker RA, Wenning GK. Are trials of intravascular infusions of autologous mesenchymal stem cells in patients with multiple atrophy currently justified and are they effective? *Clin Pharm Ther* 2008; 83:663-5 <http://www.ncbi.nlm.nih.gov/pubmed/18425088>

Lee PH, LeeJE, Kim HS, et al. A randomized trial of mesenchymal stem cells in multiple system atrophy. *Ann Neurol* 2012; 72: 32-40 <http://www.ncbi.nlm.nih.gov/pubmed/22829267>

Hussain IF, Brady CM, Swinn MJ, et al. Treatment of erectile dysfunction with sildenafil citrate (Viagra) in parkinsonism due to Parkinson's disease or multiple system atrophy with

MSA Useful references

observations on orthostatic hypotension. *J Neurol Neurosurg Psychiatry* 2001; 71: 371-4. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/11511713>

Young TM, Mathias CJ. The effects of water ingestion on orthostatic hypotension in two groups of chronic autonomic failure: multiple system atrophy and pure autonomic failure. *J Neurol Neurosurg Psychiatry* 2004; 75: 1737-41 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/15548493>

Low PA, Gilden JL, Freeman R, et al. Efficacy of midodrine vs placebo in neurogenic orthostatic hypotension. A randomized, double-blind multicenter study. Midodrine Study Group. *JAMA* 1997; 277: 1046-51. <http://www.ncbi.nlm.nih.gov/pubmed/9091692>

Meissner W, Laurencin C, Tranchant C, et al Outcome of deep brain stimulation in slowly progressive multiple system atrophy: A clinico-pathological series and review of the literature. *Park Relat Disord* 2016 e-pub Jan 7 <http://www.ncbi.nlm.nih.gov/pubmed/26778473>

Mathias CJ. Autonomic Diseases: Clinical features and laboratory evaluation *J Neurol Neurosurg Psychiatry* 2003; 74(Suppl 3); iii31-iii41 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/12933912>

Mathias CJ. Autonomic Diseases: Management *J Neurol Neurosurg Psychiatry* 2003; 74(Suppl 3); iii42-iii47 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/12933913>

Bunting-Perry L. Palliative care in Parkinson's disease. *J Neurosci Nurs* 2006; 38: 106-112 <http://www.ncbi.nlm.nih.gov/pubmed/16681291>

Jain S, et al. Occupational Therapy in Multiple System Atrophy: A Pilot Randomized Controlled Trial. *Mov Disord* 2004; 19: 1360-1364 <http://www.ncbi.nlm.nih.gov/pubmed/15389983>

Investigations:

Imaging

Umemura A, Oeda T, Hayashi R, et al. Diagnostic accuracy of apparent diffusion coefficient and 123I-metaiodobenzylguanidine for differentiation of multiple system atrophy and Parkinson's disease. *PLoS One.* 2013; 8: e61066. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/23613784>

Massey L, Jager HR, Paviour DC, et al. The midbrain to pons ratio: a simple and specific MRI sign of progressive supranuclear palsy <http://www.ncbi.nlm.nih.gov/pubmed/23616165>

Schrag A, Good CD, Miskiel K, Morris HR, et al. Differentiation of atypical parkinsonian syndromes with routine MRI. *Neurology* 2000; 54: 697-702. <http://www.ncbi.nlm.nih.gov/pubmed/10680806>

Schocke MFH, Seppi K, Esterhammer R, et al. Diffusion-weighted MRI differentiates the parkinson variant of multiple system atrophy from PD. *Neurology* 2002; 58: 575-580. <http://www.ncbi.nlm.nih.gov/pubmed/11865135>

MSA Useful references

Seppi K, Schocke MF, Esterhammer R, et al. Diffusion-weighted imaging discriminates progressive supranuclear palsy from PD, but not from the parkinson variant of multiple system atrophy. *Neurology* 2003; 60: 922-7. <http://www.ncbi.nlm.nih.gov/pubmed/12654954>

Kraft E, Trenkwalder C, Auer DP. T2*-weighted MRI differentiates multiple system atrophy from Parkinson's disease. *Neurology* 2002; 59: 1265-7. <http://www.ncbi.nlm.nih.gov/pubmed/12391363>

Brooks DJ, Seppi K & Neuroimaging working group on MSA. Proposed neuroimaging criteria for the diagnosis of multiple system atrophy. *Mov Disord* 2009; 24: 949-64 <http://www.ncbi.nlm.nih.gov/pubmed/19306362>

Hotter A, Esterhammer R, Schonke MF, et al. Potential of advanced MR imaging techniques in the differential diagnosis of parkinsonism. *Mov Disord* 2009; 24 Suppl 2:S71120 <http://www.ncbi.nlm.nih.gov/pubmed/19877241>

Pirker W, Asenbaum S, Bencsits G, et al. [¹²³I]beta-CIT SPECT in multiple system atrophy, progressive supranuclear palsy, and corticobasal degeneration. *Mov Disord* 2000; 15: 1158-1167. <http://www.ncbi.nlm.nih.gov/pubmed/11104200>

Teune LK, Bartels AL, de Jong BM, et al. Typical cerebral metabolic patterns in neurodegenerative brain diseases. *Mov Disord* 2010; 25: 2395-404 <http://www.ncbi.nlm.nih.gov/pubmed/20669302>

Rascol O, Schelosky L. 123I-metaiodobenzylguanidine scintigraphy in Parkinson's disease and related disorders. *Mov Disord* 2009; 24 Suppl 2: S732-41 <http://www.ncbi.nlm.nih.gov/pubmed/19877202>

Treglia G, Stefanelli A, Cason E, Cocciolillo F, Di Guida D, Giordano A. Diagnostic performance of iodine-123-metaiodobenzylguanidine scintigraphy in differential diagnosis between Parkinson's disease and multiple-system atrophy: A systematic review and a meta-analysis. *Clin Neurol Neurosurg* 2011; 113:823-9 <http://www.ncbi.nlm.nih.gov/pubmed/21962800>

Cardiovascular autonomic features and testing

Baschieri F, Calandra-Buonaura G, Doria A, et al. Cardiovascular autonomic testing performed with a new integrated instrumental approach is useful in differentiating MSA-P from PD at an early stage. *Parkinsonism Relat Disord*. 2015; 21: 477-82 <http://www.ncbi.nlm.nih.gov/pubmed/25749354>

New insights into orthostatic hypotension in multiple system atrophy: a European multicentre cohort study. Pavy-Le Traon A, Piedvache A, Perez-Lloret S, et al & European MSA Study Group. *J Neurol Neurosurg Psychiatry*. 2015 May 14 Epub ahead of print <http://www.ncbi.nlm.nih.gov/pubmed/25977316>

Riley DE, Chelimsky TC. Autonomic nervous system testing may not distinguish multiple system atrophy from Parkinson's disease. *J Neurol Neurosurg Psychiatry* 2003; 74: 56-60. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/12486267>

MSA Useful references

Reimann M, Schmidt C, Herting B, et al. Comprehensive autonomic assessment does not differentiate between Parkinson's disease, multiple system atrophy and progressive supranuclear palsy. *J Neural Transm* 2010; 117: 69-76. <http://www.ncbi.nlm.nih.gov/pubmed/19763772>

Urogenital features and testing

Kirchhof K, Apostolidis AN, Mathias CJ, et al. Erectile and urinary dysfunction may be the presenting features in patients with multiple system atrophy: a retrospective study. *Int J Impot Res*. 2003; 15: 293-8. <http://www.ncbi.nlm.nih.gov/pubmed/12934060>

Sakakibara R, Uchiyama T, Yamanishi T, et al. Sphincter EMG as a diagnostic tool in autonomic disorders. *Clin Auton Res*. 2009; 19: 20-31. Review
<http://www.ncbi.nlm.nih.gov/pubmed/18780143>

Beck R, Betts C, Fowler C. Genitourinary dysfunction in multiple system atrophy: clinical features and treatment in 62 cases. *J Urol* 1994; 151: 1336-41.
<http://www.ncbi.nlm.nih.gov/pubmed/8158782>

Paviour DC, Williams D, Fowler CJ, et al. Is sphincter electromyography a helpful investigation in the diagnosis of multiple system atrophy? A retrospective study with pathological diagnosis. *Mov Disord* 2005; 20:1425-30.
<http://www.ncbi.nlm.nih.gov/pubmed/16007638>

Oertel WH, Wachter T, Quinn NP, et al. Reduced genital sensitivity in female patients with multiple system atrophy of parkinsonian type. *Mov Disord*, 2002; 18: 430-432
<http://www.ncbi.nlm.nih.gov/pubmed/12671951>

Uchiyama T, Skakaibara R, Asahina M, et al. Post-micturitional hypotension in patients with multiple system atrophy. *J Neurol Neurosurg Psychiatry* 2005; 76: 186-190
Free PMC Article <http://www.ncbi.nlm.nih.gov/pubmed/15654029>

Other clinical features

Anderson T, Luxon L, Quinn N, et al Oculomotor function in multiple system atrophy: clinical and laboratory features in 30 patients. *Mov Disord* 2008; 23: 977-84
<http://www.ncbi.nlm.nih.gov/pubmed/18383533>

Salazar G, Valls-Solé J, Martí MJ, et al. Postural and action myoclonus in patients with parkinsonian type multiple system atrophy. *Mov Disord* 2000; 15: 77-83.
<http://www.ncbi.nlm.nih.gov/pubmed/10634245>

Klein C, Brown R, Wenning G, et al. The 'old hands sign' in multiple system atrophy. *Mov Disord* 1997; 4: 514-8. <http://www.ncbi.nlm.nih.gov/pubmed/9251069>

Santens P, Crevits L, Van der Linden C. Raynaud's phenomenon in a case of multiple system atrophy. *Mov Disord* 1996; 5: 586-8. <http://www.ncbi.nlm.nih.gov/pubmed/8866508>

Boesch SM, Wenning GK, Ransmayr G, et al. Dystonia in multiple system atrophy. *J Neurol Neurosurg Psychiatry* 2002; 72: 300-303. *Free PMC Article*
<http://www.ncbi.nlm.nih.gov/pubmed/11861684>

MSA Useful references

Wenning GK, Geser F, Poewe W. The *visus sardonius* of multiple system atrophy. *Mov Disord* 2003; 10: 1211. <http://www.ncbi.nlm.nih.gov/pubmed/14534935>

Quinn N. Disproportionate antecollis in multiple system atrophy. *Lancet* 1989; 1: 844
<http://www.ncbi.nlm.nih.gov/pubmed/2564927>

Colosimo C. Pisa syndrome in a patient with multiple system atrophy. *Mov Disord* 1998; 3: 607-9. <http://www.ncbi.nlm.nih.gov/pubmed/9613765>

Kollensperger M, Geser F, Seppi K et al. Red flags for multiple system atrophy. *Mov Disord* 2008; 23: 1093-9 <http://www.ncbi.nlm.nih.gov/pubmed/18442131>

Gurevich T, Giladi N. Freezing of gait in multiple system atrophy (MSA). *Parkinsonism Relat Disord*, 2003; 9: 169-174 <http://www.ncbi.nlm.nih.gov/pubmed/12573873>

Kluin KJ, Gilman s, Lohnman, et al. Characteristics of the Dysarthria of Multiple System Atrophy. *Arch Neurol*, 1996; 53: 545-458 <http://www.ncbi.nlm.nih.gov/pubmed/8660157>

Hughes T. Neurology of swallowing and oral feeding disorders: assessment and management. *J Neurol Neurosurg Psychiatry*, 2003; 74 (Suppl III): iii48-iii52 *Free PMC Article*
<http://www.ncbi.nlm.nih.gov/pubmed/12933914>

Sleep

Cormican LJ, Higgins S, Davidson AC, et al. Multiple system atrophy presenting as central sleep apnoea. *Eur Resp J*, 2004; 24: 323-325 *Free Full Text*
<http://www.ncbi.nlm.nih.gov/pubmed/15332405>

Ghorayeb I, Yekhlef V, Chryatostome, V, et al. Sleep disorders and their determinants in multiple system atrophy. *J Neurol Neurosurg Psychiatry* 2002; 72: 798-800 *Free PMC Article*
<http://www.ncbi.nlm.nih.gov/pubmed/12023429>

Iranzo A, Santamaria J, Tolosa E, & Barcelona Multiple System Atrophy Study Group. Continuous positive air pressure eliminates nocturnal stridor in multiple system atrophy. *Lancet* 2000; 356: 1329-30. <http://www.ncbi.nlm.nih.gov/pubmed/11073029>

Iranzo A, et al. Long-term effect of CPAP in the treatment of nocturnal stridor in multiple system atrophy. *Neurology*, 2004; 63: 930-932 <http://www.ncbi.nlm.nih.gov/pubmed/15365155>

Plazzi G, Corsini R, Provini F, et al. REM sleep behavior disorders in multiple system atrophy. *Neurology* 1997; 48: 1094-7. <http://www.ncbi.nlm.nih.gov/pubmed/9109907>

MSA-C

Teive HA, Arruda WO, Moro A, et al. Differential diagnosis of sporadic adult-onset ataxia: The role of REM sleep behavior disorder. *Parkinsonism Relat Disord*. 2015; 21:640-3
<http://www.ncbi.nlm.nih.gov/pubmed/25899546>

Lin DJ, Hermann KL, Schmahmann JD. Multiple system atrophy of the cerebellar type: Clinical state of the art. *Mov Disord* 2014; 29: 294-304
<http://www.ncbi.nlm.nih.gov/pubmed/24615754>

Gilman S, Little R, Johanns J, et al. Evolution of sporadic olivopontocerebellar atrophy into multiple system atrophy. *Neurology* 2000; 55: 527-532.
<http://www.ncbi.nlm.nih.gov/pubmed/10953186>

Abele M, Bürk K, Schöls L, et al. The aetiology of sporadic adult-onset ataxia. *Brain* 2002;125: 961- 968. <http://www.ncbi.nlm.nih.gov/pubmed/11960886>

Klockgether T. Sporadic ataxia with adult onset: classification and diagnostic criteria. *Lancet Neurol* 2010; 9: 94-104 <http://www.ncbi.nlm.nih.gov/pubmed/20083040>

Watanabe H, Saito Y, Terao S, et al. Progression and prognosis in multiple system atrophy. An analysis of 230 Japanese patients. *Brain* 2002; 125: 1070-1083.
<http://www.ncbi.nlm.nih.gov/pubmed/11960896>

Pathology & Alpha-synuclein

Papp M, Kahn JE, Lantos PL. Glial cytoplasmic inclusions in the CNS of patients with multiple system atrophy (striatonigral degeneration, olivopontocerebellar atrophy and Shy Drager syndrome). *J Neurol Sci* 1989; 94:79-100. <http://www.ncbi.nlm.nih.gov/pubmed/2559165>

Burn DJ, Jaros E. Multiple system atrophy: cellular and molecular pathology. *J Clin Path* 2001; 54: 419-426 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/11724918>

Peelaerts W, Bousset L, Van der Perren A, et al. α -Synuclein strains cause distinct synucleinopathies after local and systemic administration. *Nature*. 2015; 522(7556):340-4
<http://www.ncbi.nlm.nih.gov/pubmed/26061766>

Prusiner SB, Woerman AL, Mordes DA, et al. Evidence for α -synuclein prions causing multiple system atrophy in humans with parkinsonism. *Proc Natl Acad Sci U S A*. 2015; 112(38):E5308-17.
<http://www.ncbi.nlm.nih.gov/pubmed/26324905>

Wakabayashi K, Yoshimoto M, Tsuji S, et al. Alpha-synuclein immunoreactivity in glial cytoplasmic inclusions in multiple system atrophy. *Neurosci Lett* 1998; 249: 180-2.
<http://www.ncbi.nlm.nih.gov/pubmed/9682846>

Kiely AP, Asi YT, Kara E, et al. Alpha-synucleinopathy associated with G51D SNCA mutation: A link between Parkinson's disease and multiple system atrophy? *Acta Neuropathol* 2013; 125: 753-69 *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/23404372>

MSA Useful references

Wenning G, Jellinger KA. The role of alpha-synuclein in the pathogenesis of multiple system atrophy. *Acta Neuropathol.* 2005;109:129-40 <http://www.ncbi.nlm.nih.gov/pubmed/15666181>

Reviews and History

Fanciulli A, Wenning GK. Multiple system atrophy. *N Engl J Med* 2015; 372: 249-63
Review. <http://www.ncbi.nlm.nih.gov/pubmed/25587949>

Quinn N. A short clinical history of multiple system atrophy. *Clin Aut Res* 2015; 25: 3-7
<http://www.ncbi.nlm.nih.gov/pubmed/25578151>

Quinn N. Multiple system atrophy--the nature of the beast. *J Neurol Neurosurg Psychiatry* 1989; 52 (suppl):78-89. *Free PMC Article* <http://www.ncbi.nlm.nih.gov/pubmed/2666581>

Stefanova N, Bucke P, Duerr S, et al. Multiple system atrophy: an update. *Lancet Neurol.* 2009; 8: 1172-8. <http://www.ncbi.nlm.nih.gov/pubmed/19909915>

Genetics

Sailer A, Scholz SW, Nalls MA , et al & the EMSA & UK MSA Study Groups.
A genome-wide association study in Multiple System Atrophy (MSA) (submitted to *Neurology* Jan 2016)

Multiple System Atrophy Trust

51 St Olav's Court, Lower Road, London, SE16 2XB

T: 0333 323 4591 | E: support@msatrust.org.uk | W: www.msatrust.org.uk

MSA Nurse Specialists

Samantha Pavey (South East & East England): T: 0203 371 0003 |

E: samantha.pavey@msatrust.org.uk

Katie Rigg (Scotland, Ireland and North England): T: 01434 381 932 |

E: katie.rigg@msatrust.org.uk

Jill Lyons (Wales & South West England): T: 01934 316 119 |

E: jill.lyons@msatrust.org.uk

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