This is a digest of selected articles published in peer reviewed journals over the last quarter relevant to health and social care professionals working to support people with MS.

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Symptoms and symptom management


Prevalence and characteristics of tremor in the NARCOMS multiple sclerosis registry: a cross-sectional survey.

In three of the biannual NARCOMS (North American Research Committee on Multiple Sclerosis) surveys, participants were asked if they had tremor. Those that had a score of 1 (minimal tremor) or more, completed an additional questionnaire that collected further information about the tremor, including body part affected, any family history of tremors and treatments used. The study found that approximately 45% of people with MS reported having some level of tremor, which mostly affected the upper body, particularly the arms, although tremors were also reported to affect the legs, head, body and voice. A quarter reported that they experienced a tremor that had an impact on their daily lives. Mild tremor was most often reported by women and men were more likely to report severe or totally disabling tremors. The authors highlight that the study is the largest examining MS tremors performed to date and conclude that tremor is common in people with MS.

http://tinyurl.com/QMSRU-19-2-1

Braley TJ, Segal BM, Chervin RD.

Hypnotic use and fatigue in multiple sclerosis.

190 people with MS were recruited to take part in the study. Participants completed several questionnaires including dedicated surveys on sleep and use of hypnotic drugs, the Fatigue Severity Scale (FSS), Epworth Sleepiness Scale (ESS) and the Insomnia Severity Index (ISI). 89 participants reported using hypnotics, 50 were using prescription medications and 59 used over the counter products, some participants used both. The study found that more people who were suffering with fatigue were using hypnotics at least on an occasional basis and those taking hypnotics had higher scores on the FSS. Further analysis determined that higher levels of fatigue were associated with over the counter products containing diphenhydramine, but not prescription hypnotic medications. The authors conclude that further research would be needed to confirm the contribution of diphenhydramine to MS fatigue and recommend alternative approaches and treatments should be considered in the meantime.

Sleep Med 2015;16(1):131-7. [Ref 19-2-2]

MS relapses

Tallantyre EC, Causon EG, Harding KE, et al.

The aetiology of acute neurological decline in multiple sclerosis: experience from an open-access clinic.

Outlines the results of a review of data from an open, rapid access MS relapse clinic to determine the nature of the attendances and the impact on disease management. During the study period 1,027 patients contacted the telephone triage service and of those 238 attended the rapid access clinic on 371 occasions. The most common presenting symptoms were limb sensory, limb motor, pain and balance/incoordination. A new relapse was diagnosed in 216 presentations and steroids prescribed for 205. In a further 73 cases it was determined that the symptoms were unrelated to MS and so 26 were referred to other specialities for further assessment. In 28% of presentations changes to disease modifying therapies were considered and 25% of patients were referred for therapies. Recommendations are made for future research to fill gaps in knowledge.

Mult Scler 2015;21(1):67-75. [Ref 19-2-3]
Disease modifying treatments


Efficacy and safety of delayed-release dimethyl fumarate in patients newly diagnosed with relapsing-remitting multiple sclerosis (RRMS).

The study integrated data from the DEFINE and CONFIRM studies for a post-hoc analysis. 678 people with RRMS diagnosed within the preceding 12 months and naive to disease modifying therapy, received either placebo, delayed-release dimethyl fumarate (DMF) 240mg twice a day (BID) or three times a day (TID) for two years. Treatment with DMF significantly reduced the annualised relapse rate, risk of relapse and the proportion of participants with confirmed 12-week disability progression when compared to placebo. Participants taking DMF also had significantly reduced numbers of new and enlarging lesions. The most common adverse events were flushing, nasopharyngitis, headache, diarrhoea, nausea, and abdominal pain. The authors conclude that DMF is a safe and effective treatment for people with RRMS.

http://tinyurl.com/QMSRU-19-2-4

Assessment tools

Bosma LV, Sonder JM, Krugt J, et al.

Detecting clinically-relevant changes in progressive multiple sclerosis.

132 people with PPMS or SPMS, with two assessment visits four to six years apart, were selected from a larger cohort of prospectively-followed people with MS. Each assessment included the EDSS, Timed 25-Foot Walk (T25FW), 9-Hole Peg Test (9HPT), Guy’s Neurological Disability Scale (GNDS) and Multiple Sclerosis Impact Scale (MSIS-29). The MSIS-29 was used as an anchor for a clinically-relevant change as experienced by the person with MS. The study found that the T25FW and GNDS were the most sensitive outcome measures. The EDSS and 9HPT were not clearly associated with changes experienced by the participant. However, in a subgroup of participants, a worsening of performance on the T25FW was not accompanied by an increase in reported disease impact, this was related to disability, disease duration and impact at the baseline timepoint. The authors conclude that their results support the use of the GNDS and T25FW as outcome measures in progressive MS.


Moore F, Vickrey B, Fortin K, Lee L.


334 people with MS were included in the study. Participants completed the Multiple Sclerosis International Quality of Life (MusiQoL) and Multiple Sclerosis Quality of Life-54 (MSQOL-54) questionnaires at baseline and months 6, 12, 18 and 24. These scores were compared with health-related quality of life scores over time and other measures including clinical assessment. The study found that completion time was significantly shorter for MusiQoL, participants also considered this was easier to use, however they preferred the MSQOL-54 as it was more thorough. The authors conclude that both instruments are valid and appropriate for assessing quality of life in people with MS although the MusiQoL may be more practical to use.


Causes of MS

Scheller NM, Svanström H, Pasternak B, et al.

Quadrivalent HPV vaccination and risk of multiple sclerosis and other demyelinating diseases of the central nervous system.

Using data from the national registers of Sweden and Denmark, four million females aged between 10 and 44 were identified. Information on who received the Gardasil HPV vaccination as well as diagnoses of MS or another demyelinating disease was obtained. The two years after vaccination was considered to be the risk period where any side effects as a result of the vaccination would most likely be seen. The study found that between 2006 and 2013, 789,082 women had been vaccinated against HPV and there were 4,322 diagnoses of MS. Of these 73 were diagnosed within the two year risk period. An analysis comparing vaccinated and unvaccinated women found there were no differences in the number of women diagnosed with MS. The authors conclude that the results provide good quality evidence for the safety of the HPV vaccine and that it does not cause MS.

JAMA 2015;313(1):54-61. [Ref 19-2-7]

Belbasis L, Bellou V, Evangelou E, et al.

Environmental risk factors and multiple sclerosis: an umbrella review of systematic reviews and meta-analyses.

44 meta-analyses, including 416 primary studies examining risk factors for the development of MS were identified and met the criteria for this review. The included studies covered a wide range of risk factors including: comorbid diseases, vaccinations, infections, accidents and environmental agents. Only 11 of the meta-analyses had highly significant results and of these only three had more than 1,000 participants. The study found that the evidence was strongest and consistent for a biomarker of Epstein-Barr virus (anti-EBNA IgG seropositivity), infectious mononucleosis, and smoking. The authors suggest that further, better-designed studies are needed to establish more robust evidence.

Psychological aspects

Koch MW, Patten S, Berzins S, et al.

The study analysed data from a long-term observational study at the Calgary MS clinic. Data was collected between 2002 and 2012, including clinical assessments, EDSS scores, antidepressant use and Center for Epidemiological Studies Depression Scale (CESD) scores. 1,376 people with MS were included at baseline, falling to 238 at the four year follow up point. The study found that between 22% and 29% of participants were classified as depressed during the study. CESD scores remained stable or slightly decreased over time and EDSS scores significantly increased. The authors conclude that depressive symptoms in MS appear to be largely chronic suggesting it may have a different pathophysiology to depression observed in the general population.

Mult Scler 2015;21(1):76-82. [Ref 19-2-9]

McGuire KB, Stojanovic-Radic J, Strober L, et al.
Development and effectiveness of a psychoeducational wellness program for people with multiple sclerosis: description and outcomes.

72 people with MS completed the pilot study. 61 in the wellness treatment group and 11 in the control group. The wellness programme consisted of weekly 90 minute group sessions for 10 consecutive weeks. The programme aimed to increase awareness of various social, intellectual, emotional, and spiritual factors that can affect the overall wellbeing of people living with MS and included educational as well as interactive components. Participants completed eight questionnaires at baseline and at 10 week follow up. Participation in the wellness programme improved depression, anxiety, stress, overall mental health and pain. It did not improve fatigue, social support or cognition. The authors conclude that the wellness programme appears to be effective, however larger randomised control trials would be needed to confirm the effect was due to the programme and not the extra attention the treatment group received.

Int J MS Care 2015;17(1):1-8. [Ref 19-2-10]

Physical activity

Effects of functional electrical stimulation on gait function and quality of life for people with multiple sclerosis taking dalfampridine.

24 people with MS were included in the study, each had leg weakness, slowing of gait and footdrop as a result of MS and all had been taking a stable dose of dalfampridine for at least three months. Assessment was performed at screening, baseline with the FES device and at one month and three months. 20 participants completed the study. A significant improvement in the timed 25-Foot Walk, Multiple Sclerosis Walking Scale and 36-item Short Form Health Status Survey were observed. The authors conclude that FES can increase the pharmacological effects of dalfampridine and improve gait and quality of life for people with MS.

Int J MS Care 2015;17(1):35-41. [Ref 19-2-11]

Provision of care

Upton D, Taylor C.
What are the support needs of men with multiple sclerosis, and are they being met?

Overview which reviews the literature to identify the support needs of men. Research to date has predominantly focused on the experience of women with MS, but some studies suggest that men have different needs in terms of wellbeing, mental health and support. Overall men underuse health care services and men with MS are less likely to use support groups. The authors set out recommendations for future research to fill the gaps in knowledge.

Int J MS Care 2015;17(1):9-12. [Ref 19-2-13]
**Strickland K, Baguley F.**

The role of the community nurse in care provision for people with multiple sclerosis.

Overview which explores the approaches used by community nurses to care for people with MS and their families. Within the UK, care is becoming more community based and there is an increasing emphasis on shared decision making. This paper outlines how community based nurses are key to the coordination of care within a wider multidisciplinary team.

Br J Community Nurs 2015;20(1):6-10. [Ref 19-2-14]

**Prognosis**

**Rotstein DL, Healy BC, Malik MT, et al.**

Evaluation of no evidence of disease activity in a 7-year longitudinal multiple sclerosis cohort.

219 people who had been diagnosed with clinically isolated syndrome or RRMS were included in the study. Participants underwent clinical assessment every six months which included EDSS score evaluation and recording relapses. MRI scans were performed annually. No evidence of disease activity (NEDA) was defined as no relapses, no sustained increase in EDSS score, and no new or enlarging lesions on annual MRI scans. The study found that after one year 46% of participants had NEDA but at seven years only 8% of participants had NEDA. Participants were most likely to show disease activity by having a new lesion being visible on an MRI scan, followed by having a relapse; increases in EDSS score were the least likely to happen. 57% of participants had no evidence of progression after seven years. The authors conclude that NEDA is difficult to sustain in the long term, but NEDA status could be used as a prognosis tool and in future trials as a treatment goal for new drugs.


**Pregnancy and childbirth**

**Ebrahimi N, Herbst Herr, Gold R, et al.**

Pregnancy and fetal outcomes following natalizumab exposure in pregnancy. A prospective, controlled observational study.

Women with RRMS accidentally exposed to natalizumab during pregnancy were recruited to a pregnancy registry in Germany. The exposed group were compared to a disease matched group (DM) and a healthy control group (HC) from the Motherisk programme in Toronto, Canada. 101 exposed women were enrolled and there were 102 pregnancy outcomes, including one set of twins. The DM group included 78 women with 95 pregnancy outcomes and the HC group consisted of 97 women with 98 outcomes. In the exposed group there were 77 live births, four terminations and 17 miscarriages. 75% of those exposed had discontinued natalizumab by the tenth week of pregnancy. Higher miscarriage rates occurred in the exposed and DM groups when compared to the HC but there was no significant difference between the exposed and DM groups. The rates of birth defects, low birth weight and premature birth did not differ among groups. The authors conclude that the results suggest that there is no increased risk following exposure to natalizumab in early pregnancy.

Mult Scler 2015;21(2):198-205. [Ref 19-2-16]

**Stem cells**

**Nash RA, Hutton GJ, Racke MK, et al.**

High-dose immunosuppressive therapy and autologous hematopoietic cell transplantation for relapsing-remitting multiple sclerosis (HALT-MS): a 3-year interim report.

25 people with active RRMS were enrolled in the study and 24 received stem cell treatment. After three years all but two participants had showed no signs of progression, only three had had a relapse and 19 showed no loss of function, no relapses and no new lesions on MRI scans. None resumed disease modifying drugs after treatment. The authors conclude that stem cell therapy was effective for inducing a sustained remission of active RRMS.

JAMA Neurol 2015;72(2):159-69. [Ref 19-2-17]

**Burt RK, Balabanov R, Han X et al.**

Association of nonmyeloablative hematopoietic stem cell transplantation with neurological disability in patients with relapsing-remitting multiple sclerosis.

123 people with RRMS and 28 people with SPMS received nonmyeloablative hematopoietic stem cell transplantation (HSCT). This treatment regime used a different conditioning protocol which only reduced the number of cells in the immune system, reducing the risk of complications. Participants were assessed before HSCT and six months after, then every year for up to five years. HSCT resulted in a significant improvement in EDSS score, fewer lesions and improvements in physical and mental health and quality of life. Further analysis revealed that people with RRMS within 10 years of MS diagnosis were those who benefited most from treatment. Improvements were not seen in people with SPMS or those with a greater disease duration. The authors conclude the findings are encouraging but are only preliminary and subject to a number of limitations, so larger and randomised controlled trials would be needed to confirm the results.

JAMA 2015;313(3):275-84. [Ref 19-2-18]