



WORKS-IN-PROGRESS

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**(W2) ALTERNATIVE/COMPLEMENTARY MEDICINE USE IN VETERANS WITH MS:
PREDICTORS & PREVALENCE**

OBJECTIVE:

The literature suggests that many Americans regularly seek treatment from alternative/complementary medicine (CAM). Among patients with Multiple Sclerosis (MS), the prevalence of CAM has been estimated at around 33%, possibly reflecting the inability of allopathic medicine to cure MS symptoms. The present study investigated the use of CAM among veterans with MS. We investigated demographic, disease-related and psychosocial predictors of CAM using logistic regression. Method: We identified 1032 veterans receiving medical services for MS using a large Veterans Health Administration database. Participants included 451 veterans who returned mailed surveys (44% response rate).

OUTCOME MEASURE:

A self-report assessment instrument was designed specifically for this study. CAM included chiropractor, naturopathy, massage therapy, acupuncture, and herbal/alternative medications.

RESULTS:

CAM use for MS care was widespread; 37.3% of respondents reported use of CAM interventions. To facilitate logistic regression, we recoded the five CAM interventions into a dichotomous variable (i.e., presence v. absence of CAM). Education level (Adjusted OR=1.21, 95% CI=1.05-1.39, $p<.01$) and disease subtype (Adjusted OR=1.55, 95% CI=1.02-2.35, $p<.05$) were independently associated with CAM use. Higher levels of education and disease subtypes with an initial and consistently progressive course were associated with greater use of CAM. Demographic variables that did not predict CAM use included age, ethnicity (Caucasian vs. Other), gender, and income. A number of other, disease-related and psychosocial variables did not predict CAM use (e.g., number of years since diagnosis, self-reported health in the past year, level of depressive symptoms, satisfaction with MS care, etc.).

CONCLUSIONS:

As reported in other populations, CAM use is prevalent among veterans with MS. In line with other authors' recommendations, this suggests that health care providers should be educated about the risks and benefits of CAM. Moreover, MS care providers should routinely assess and discuss CAM use with their patients.

Study supported by Department of Veterans Affairs

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(W3) AN EXPLORATION OF FACTORS RELATED TO HEALTHY AGING WITH MS

BACKGROUND:

We are seeing more older individuals with MS, yet there is little research on this population. Recently, we found older individuals (mean age=66.1) were more impaired than younger individuals (mean age=47.3); however, they did not report lower quality of life. This is consistent with the literature on aging with disability, which finds that older persons adjust well. To date, however, there has been limited research on adjustment in older persons with MS. Because of this lack of research, we designed a qualitative study to identify factors related to adjustment in older individuals. The interview is based on themes related to optimal aging in healthy individuals: hope and faith; determination, independence and control; pleasure, purpose, and imagination; competence and work; values and sense of self; love and friendship; care and productivity; and wisdom and perspective.

METHODS:

Participants are persons over age 60 from our prior study. Interviews require one hour—questions are posed and participants answer without guidance. A sample question is “What has made it a good life?” To date, five interviews have been audiotaped, transcribed, and analyzed.

Responses are analyzed using content analysis. Interviews are coded and key words tagged. Coded segments are linked to categories. The frequency and sequence/location of key words are examined. A data display and matrix, which allow conclusions to be drawn and theory building, are developed.

RESULTS:

Preliminary analyses found the following themes to be consistent across participants: care and productivity; purpose; love and friendship; and values and sense of self. We will continue interviewing until the point of saturation (no additional themes emerge).

CONCLUSIONS:

Results will have important implications. Identifying factors related to successful aging with MS will provide information that can be incorporated into clinical practice, and research can be designed to quantitatively assess the relationships between the identified factors and adjustment.

Study supported by the National Multiple Sclerosis Society, Grant # PPO845

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**(W4) CORRELATION OF BLADDER AND SEXUAL FUNCTION
IN WOMEN WITH NEUROLOGICAL DISABILITIES**

INTRODUCTION

Genitourinary dysfunction is common in women with neurological disabilities, yet few studies have evaluated the correlation between bladder and female sexual dysfunction in this population. We aim to describe and test the association between sexual function and bladder symptoms in these women.

METHODS

Bladder function and sexual function questionnaires were administered to women. Health status and medication use were also assessed. Percentages were calculated to describe the distribution of responses to the bladder and sexual function questionnaires. Multi-nominal logistic regression analyses were performed to collectively examine variables affecting sexual function.

RESULTS

133 women completed the study. 85% of the sample indicated they had a problem with bladder control. The mean age (+/- SD) of the women was 48.31 +/- 10.47 (range 20 -77). The sample was comprised mostly of women with MS. 14% of respondents have at least one of the following co-morbid diseases: CAD, DM, HTN, or vascular disease. 55% of sample were either menopausal or s/p hysterectomy, 26% use hormonal replacement therapy. 40% described themselves as depressed or being treated for depression. Urinary urgency (84%), incontinence (72%), and frequency (67%) were reported. 70% of the sample acknowledge that their neurological problems affected their sexual life. Over 78% of the women indicated that they enjoyed, felt aroused and experienced orgasm with sexual activity, despite 78% reporting dyspareunia. Chi square Analysis revealed that women who were bothered sexually by their neurological problems had proportionally lower levels of arousal and orgasm, and enjoyed sexual activity less than women who were not bothered sexually by their neurologic problems. We found that women with urge incontinence had a higher than expected proportion of experiencing arousal and orgasm. Conversely, a lower than expected proportion of women without urge incontinence reported no or minimal ability to achieve arousal or orgasm with sexual activity.

CONCLUSIONS

Both Bladder and sexual dysfunction can affect the quality of life of patients with neurologic disabilities. Simultaneously assessing sexual and bladder function in women with neurological disorders may help document the impact of their bladder symptoms on their sexual function. We are presently assessing if improving bladder control will also improve sexual function.

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(W5) CORRELATIONS OF INJECTION REACTIONS TO BMI AND TO ANTHROPOMETRIC MEASURES

Previous research has indicated that injection site reactions have been one of the major reasons for discontinuation of Interferon beta-1b (Betaseron®) treatment for MS. Low body mass and female gender may be correlated with more severe injection site reactions (Gaines & Varricchio, 1998). It was also suggested that a higher proportion of reactions occur when injections are given in arms or thighs, possibly because these areas have less subcutaneous fat. Moore (2002) found an alternative method of injection technique that statistically reduced the skin site reactions in those who had already tried auto injectors and other methods of decreasing site reactions. This technique involved the use of 0.1 cc air added to the syringe prior to injection and positioned in the syringe so that it followed the injection of the active medication. Since there were still some minimal injection site reactions, secondary data analysis was conducted to determine if injection site and amount of subcutaneous fat predicted the severity of site reactions. Ten participants acted as controls and then 34 participants utilized the new technique for four weeks. Results regarding anthropometric measures for specific injection sites will be presented which help to predict sites with the least reaction to interferon beta injections.

Study supported by Berlex paid for release time for study

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(W6) DEPRESSION AND MULTIPLE SCLEROSIS

Multiple Sclerosis (MS) is associated with a high risk of depression. The Beck Depression Inventory (BDI) is a 21-item self-report instrument that is frequently employed to measure level of depression since it is easy to administer and its reliability and validity are well documented. NARCOMS is a large MS database. NARCOMS contains numerous self-report questions that examine MS symptomology, including a single item on depression. The objective of the current study is to compare the level of depression measured by the BDI to the reported level of depression on the self-report NARCOMS depression question. Since the BDI is well validated for measuring depression in MS, the present study evaluates the NARCOMS question by analyzing it with the BDI.

Method: Every patient that has an appointment at the Bernard Gimbel Multiple Sclerosis Center is given the BDI and NARCOMS question to fill out. An ANOVA was run on a preliminary sample (n=40). However, data collection is still occurring and the present sample is consistently expanding (N > 175 and still increasing). The preliminary research showed that 58 percent of the NARCOMS response was captured in the BDI. In other words, 58 percent of the total variance in the BDI score is captured by the single NARCOMS question. Overall, there was a moderately high correlation between the BDI and NARCOMS question, but the BDI gives more information than the NARCOMS item. NARCOMS is a valid item with a good correlation with the BDI. The question may be a good screening measure for depression, although more research is required.

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(W7) DETECTION OF POSTURAL CHANGES IN WHEELCHAIR: USE OF A SELF-REPORTING SCREENING TOOL

Many individuals who have multiple sclerosis (MS) rely on the use of a wheelchair as their primary mobility. Once the wheelchair is issued, there is often no consistent method of follow-up with the wheelchair user until problems occur. Early detection of seating and wheelchair issues can lead to early intervention, and prevention of significant and/or permanent health complications such as poor posture, skin breakdown, impaired upper extremity and respiratory function.

Subjects will be 20 individuals with MS who have an Expanded Disability Status Scale (EDSS) score of 7 or higher, and have used a wheelchair for more than four hours a day for a minimum of one year. Each subject will complete a wheelchair-screening questionnaire and return it to the VA. Individuals who identify problems with their wheelchair positioning and/or wheelchair use, and who have consented to being involved in the study will be scheduled for a one-hour appointment at the VA wheelchair clinic. The subject will undergo a standard seating evaluation including posture, pressure mapping, and functional mobility in the wheelchair.

Statistical analysis will be completed using a paired t-test to compare results of each individual's screening form to the therapist's screening form. Relationship between the individual's screening form and clinical measures used during the seating evaluation will be determined by a correlation coefficient.

Results of the study will provide information on the effectiveness of using a self-report screening tool to identify problems with seating and wheelchairs. Early detection of wheelchair seating and postural problems for individuals in wheelchairs can decrease the degree of intervention needed, prolong the individual's health in areas such as respiratory capacity and spinal alignment, and customize seating to meet the individual's needs. Availability of a wheelchair-screening tool can assist clinicians in meeting individual patients' needs in a timely and cost effective manner.

Study supported by Multiple Sclerosis Center of Excellence West

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(W8) EDUCATION FOR PEOPLE NEWLY DIAGNOSED WITH MS IMPROVES LIFE IN TERMS OF WELLBEING

INTRODUCTION

Multiple Sclerosis (MS) is a chronic neurological condition which has a progressive and often unpredictable course. The diagnosis is characterised by a period of uncertainty, which is compounded by a bewildering array of information on therapy, theories and treatments for the conditions.

The object of the study was to evaluate the impact of an education programme on people who had been newly diagnosed with MS in the previous 12 months in terms of quality of life and wellbeing.

24 people who had been diagnosed with MS in the previous 12 months were randomly allocated to one of two groups.

The intervention group attended 8 weekly sessions based on the Canadian Wellness Programme.

The control group received the standard information presently given at the time of diagnosis.

Both groups were asked to fill in pre and post programme questionnaires.

OUTCOMES

Outcomes were measured using the pre and post test questionnaires used to evaluate the Wellness Programme in Canada and the functional assessment of MS quality of life instrument (FAMS 4).

Despite the small numbers in the pilot study the results of the analysis of the wellness programme showed a considerable improvement in the intervention group in relation to physical and occupational wellbeing, self worth, emotional wellbeing and nutrition and health.

In relation to the functional assessment of MS there was some positive clinical significance in relation to general contentment, fatigue, mobility and emotional wellbeing in the intervention group.

Study supported by MS SOCIETY GREAT BRITAIN

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The Spectrum of Multiple Sclerosis Care



(W9) EFFECT OF BETASERON DOSE TITRATION ON SIDE EFFECT PROFILE IN SECONDARY PROGRESSIVE MULTIPLE SCLEROSIS PATIENTS

Betaseron, or interferon beta-1b, is a medication that has been approved for use in Canada since 1999 in the treatment of secondary progressive Multiple Sclerosis (MS). Empirical evidence suggests that a slow dose titration may decrease the frequency and severity of side effects, thereby improving adherence.

A small pilot study was conducted at the Dalhousie MS Unit to attempt to determine if indeed the titration protocol affected side effect profile. The hypothesis being that the slower titration produced fewer side effects. The target number of participants was fourteen. There were two titration protocols; the expectation was to have equal numbers in each protocol. Participants were randomly assigned to group A or B after consenting to participate in the study. There was no blinding in the study.

This presentation will focus on the data obtained in this study. Data obtained from participants daily diaries, nursing notes of phone conversations with participants and family members.

The preliminary work on this study was presented at the CMSC in June 2000; this presentation will present the completed study results with recommendations for future considerations.

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**(W10) EFFECTS OF IMMUNOMODULATING MEDICATIONS
ON QUALITY OF LIFE ISSUES IN MULTIPLE SCLEROSIS**

Immunomodulating medication has been proven to decrease the number of relapses, lessen the severity of attacks and increase time to progression. However, the effect that these injectable therapies have on the patients Quality of Life is less clear.

The Dalhousie Multiple Sclerosis Research Unit has collected Quality of Life Indices on all patients beginning therapy and at intervals as designated in the protocol for our unit as part of routine follow-up and care. Areas evaluated with the index are as follows; social support, fatigue, pain, sexual satisfaction, bladder control, bowel control, visual impairment, perceived deficits and mental health.

Data will be presented from patients receiving immunomodulating therapy for at least one year and for as long as four years. The data will be analyzed for the group in its entirety and then specific to each therapy. We will also provide data at timed intervals during the patient's treatment with these agents (i.e. 1 month, 6 months and yearly). It is anticipated that this data will provide insight into the impact that immunomodulating therapies have on patients Quality of Life.

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(W11) HIGH PREVALENCE OF REDUCED BONE MASS IN MEN WITH MULTIPLE SCLEROSIS

OBJECTIVES:

To determine the prevalence of osteoporosis in males with Multiple Sclerosis (MS) at the Baird MS Center and to identify the factors associated with the reduction in bone mass.

BACKGROUND:

Males were considered to experience bone loss about ten years later than females, but in recent studies up to 20% of healthy males aged 55-64 were found to be osteopenic. Emerging data suggests an increased prevalence of osteoporosis in men and women with MS, but no specific clinical testing recommendations are available for men.

METHODS:

Consecutive MS male patients seen at our MS clinic during a 6-month period were screened with DEXA scan (dual-x-ray absorptiometry) to determine bone mineral density (BMD). The findings were compared to a healthy age matched reference population using the Z score. Calcium, total testosterone, sex-hormone binding globulin, 25(OH) vitamin-D, and parathyroid hormone were evaluated in patients with decreased BMD. All patients had neurological evaluation (EDSS) and body mass index (BMI) evaluation. Relevant data on medication, diet, alcohol, smoking, and sexual dysfunction were recorded.

RESULTS:

Forty-two consecutive patients, age mean of 51 ± 8.6 , and mean EDSS of 6, were evaluated with DEXA scan. Of these, 17% were RRMS, 52% SP and 31% PP. The overall prevalence of osteoporosis and osteopenia were 43% (18 patients) and 36% (15 patients), respectively. There were significant negative correlations between EDSS and femur T score ($r_s = -0.43$; $p=0.004$), and between the EDSS and the lumbar T score ($r_s = -0.36$, $P = 0.021$). EDSS was significantly correlated with disease duration ($r_s = 0.44$, $p = 0.004$). Low levels of 25(OH) vitamin-D were seen in 37.5% of patients with decreased BMD.

CONCLUSION:

There is a high prevalence of reduced bone mass in men with MS, disproportionate to their age and ambulation. Further analysis will be performed to identify the predisposing factors for bone loss.

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(W12) LEISURE PAIN MANAGEMENT

Approximately 30% of people with MS experience chronic pain, including that of dysesthesias, spasticity, musculoskeletal, migraine and secondary complications. Chronic pain can cause feelings of helplessness, triggering the person to assume a role of being sick and leading to isolation and feelings of worthlessness, just as MS does. Thus, these feelings are often multiplied in those with both MS and chronic pain. Various studies show those who remain active and maintain a positive attitude are able to reduce the impact of their pain. Anecdotal evidence indicates the perception of pain is decreased when one is involved in enjoyable activity.

Recreation therapy (RT) provides active and relaxing opportunities to express feelings and experience enjoyment and humor. Evidence supports the following RT benefits:

- * Positive attitude development
- * Blood pressure reduction
- * Muscular tension decline
- * Creation of a sense of relaxation
- * Personal control perception enhancement
- * Worth and self-esteem amplification
- * Development of skills to cope with chronic disease and pain
- * Social isolation prevention or reduction
- * Negative thinking reduction
- * Secondary disability, often a source of chronic pain, prevention or reduction
- * Drop in symptoms of inflammation
- * Distraction

Presented is a case study illustrating the outcomes of a patient participating in a Leisure Pain Management protocol.

Study supported by VA Puget Sound Health Care System

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(W13) MINDFULNESS-BASED HEALING: ENHANCING WELLNESS FOR PERSONS WITH MS

Persons with Multiple Sclerosis may experience a wide range of problems from impaired physical function and cognition to increased emotional distress and strain in relationships. Loss of social roles and spiritual demoralization may occur. Any of these difficulties can be stressful and may further exacerbate the disease process. Medications and/or various therapies may be useful to address specific problems. Coping skills training may help ameliorate stress effects. Rather than compartmentalizing therapeutic components, an integrated approach that cuts across problems and dimensions may offer a more beneficial outcome.

Shapiro and Schwartz (2000) have proposed an integrated, holistic approach to address health problems (and outcomes) that are multidimensional in nature. Their model utilizes mindfulness as the foundation. Mindfulness is non-judgmental attention to the present moment. It promotes the development of acceptance, gratitude, openness and kindness toward oneself and others. Mindfulness entails a deepening awareness of the interconnection of dimensions of living and enables a more flexible responsiveness to life's challenges.

Mindfulness-based stress reduction programs have proven helpful for persons with chronic pain and excessive anxiety. There has been little work done with persons with neurological impairment.

The Good Shepherd MS Wellness Program is a thirteen-week, biweekly outpatient program that employs a 90-minute core mindfulness session each week. The core sessions focus on specific aspects of mindfulness and are anchored by experiential exercises that demonstrate the concepts in ways accessible to physically and cognitively impaired persons. The exercises and concepts are related to specific life experiences and stresses encountered by the participants. Data collection is in process. Initial feedback from the participants has supported the utility of the mindfulness approach to enhance positive adaptation and constructive coping efforts in the face of a significant chronic neurological disorder. The presentation will provide the program outline and practical demonstrations of the utility of the approach.

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**(W14) MS THERAPY ADHERENCE AND TOTAL HEALTH CARE COSTS:
A SPECIALTY PHARMACY'S ROLE**

OBJECTIVE:

To measure through retrospective claims analysis the effect of specialty pharmacy on Glatiramer Acetate (Copaxone) therapy adherence for a Multiple Sclerosis (MS) population. Additionally, to identify the effect of adherence and type of pharmacy delivery on total health care costs.

METHODOLOGY:

Participant episodes were identified as participants receiving Glatiramer Acetate (08/98 - 12/00) where therapeutic agent and pharmacy delivery, Caremark (CMX) or Non-Caremark (OTH), were constant. Descriptive differences on adherence, therapy duration and medical costs, were calculated using chi-square tests. Further sub-analysis on associated total health care costs included participants having continuous accessible medical claims with constant therapeutic agent and pharmacy delivery, over the aforementioned time period. Descriptive differences were calculated using bootstrap methods.

RESULTS:

1516 participants identified incurred 1706 delivery episodes (CMX 74%, OTH 26%). Adherence to Glatiramer Acetate therapy was 93.2% (se 0.008) for CMX and 84.2% (se 0.014) for OTH ($p < 0.0001$). The duration of drug therapy regimen was longer (427.1 days, se 8.454) for CMX episodes vs. OTH (384.6 days, se 16.591, $p = 0.0142$). In the health care cost sub-analysis, 53 participants incurred 53 delivery episodes. Adherence rates were 91.0% (se 0.0162) for CMX and 53.9% (se 0.2061) for OTH, (Bootstrap $p = 0.0021$). The observed differences in pharmacy costs per day were not significant (CMX=\$26.61 se 0.5313, OTH=\$21.83 se 4.3256, Bootstrap $p = 0.1153$), yet tests showed significant differences in total health care costs between the two groups. The overall health care costs per day were significantly lower for participants receiving therapy dispensed through Caremark (CMX=\$41.93 se 4.5103, OTH=\$256.98 se 173.21, Bootstrap $p = 0.0092$) with no significant differences in length of therapy.

CONCLUSION:

Caremark specialty pharmacy services were associated with higher adherence rates and longer lengths of continuous therapy than other pharmacy distribution channels. Furthermore, by increasing therapy adherence, Caremark can help decrease the overall medical spend for the MS population.

Study supported by Caremark, Inc

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The Spectrum of Multiple Sclerosis Care



(W15) MS-PAWS:
A SUPPORT PROGRAM FOR PEOPLE WITH MS AND THEIR COMPANION ANIMALS

Pets are a vital part of the lives of many people living with Multiple Sclerosis (MS). The possibility of inadequate care of, loss of, or unwarranted euthanasia of a companion animal has caused people with MS to avoid necessary hospitalization for care of medical needs related to or independent from MS. We have developed a program to educate people with MS about these potential needs and meet these needs when necessary. We describe aspects of this program with special attention to practical and legal issues. This program is known as MS-PAWS (Pets Are Wonderful Support) and is patterned after similar programs that assist people who are living with HIV infection. Many people with MS have pets who enhance their quality of life. Most people have friends or family who can assist with care of their pets when the need arises, however a significant number of people have support systems that are inadequate or cannot accept responsibility for care of a pet. The likelihood of loss of the pet, suffering of the pet, or damage to the individual from postponed or missed medical care is great in these circumstances. Our program educates the pet owning MS community to plan ahead and provides assistance to those in need. Restrictions on program availability include only that the pet owners have MS, reside in our NMSS chapter area, require medical treatment (not vacation boarding), have exhausted other avenues, and be recommended by a health care or social service provider. Duties of the pet owner include registration (signing a contract and release, providing a vaccination record) and remaining in contact with the program during their illness. Emergency assistance is available and the program is free. Program information has been disseminated by the local NMSS. Shelter service or foster home care is provided by a local animal shelter.

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(W16) PREVIOUS EXPERIENCE DOES NOT IMPACT PATIENTS' PERCEPTIONS WITH REBIF

OBJECTIVE:

Determine whether previous treatment experience affects patients' perceptions of convenience and satisfaction with Rebif therapy.

BACKGROUND:

The current standard of care for relapsing sclerosis includes several disease modifying drugs (DMD): Rebif, Avonex, Copaxone, Betaseron and Novantrone. Understanding whether previous therapy affects patients' perceptions of their new treatment may help caregivers counsel patients. Therefore, we investigated patients' perceptions of convenience and treatment satisfaction with Rebif therapy in patients who had previously undergone other DMD therapies and those who had not.

METHODS:

As part of a US multicenter clinical trial, Rebif patients who had previously been treated with a DMD (n=1077) and those who had not (n=448) were surveyed 1 and 3 months after beginning Rebif. A 10-point ordinal scale was used for assessment with a rating of 1 indicating negative responses to treatment and 10 indicating positive responses. A response of 5.5 (predicted mean) was considered as no change. Only statistically significant ($p < 0.001$) deviations from this predicted mean are reported below.

RESULTS:

DMD-naive (N) and DMD-experienced (E) patients reported very high levels of treatment convenience with Rebif at both the 1- and 3-month reporting periods. In addition, they indicated that it was very quick to prepare (X1mo.=8.6 (N), 8.9 (E); X3mo.= 8.7 (N), 8.9 (E)) and inject (X1mo.=8.6 (N), 8.7 (E); X3mo.= 8.4 (N), 8.6 (E)). DMD-naive and DMD-experienced patients also reported that Rebif improved their ability to perform activities of daily living at both 1 (X=7.2 (N); 7.3 (E)) and 3 (X=7.2 (N); 7.0 (E)) months. Consistent with these data, DMD-naive (X1mo.=8.7, X3mo.=8.4) and DMD-experienced (X1mo.=8.3, X3mo.=7.7) patients reported satisfaction with Rebif treatment.

CONCLUSIONS:

Previous treatment experience was found not to impact patients' perceptions of convenience and satisfaction with a new therapy. Both DMD-naive and DMD-experienced patients reported satisfaction with Rebif treatment. These perceptions were maintained over a 3-month period.

Study supported by Serono, Inc.

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(W17) RELATING COGNITIVE FUNCTIONING AND FUNCTIONAL STATUS IN MS

The NMSS has proposed that the Multiple Sclerosis Functional Composite (MSFC) be used as a quick screening for estimating level of functional status in persons with Multiple Sclerosis (MS). The MSFC is comprised of the Nine Hole Peg Test (9HPT), the 3-second trial of the PASAT, and the Timed 25 foot walk. To investigate the validity of this quick measure of functional status, we examined the relationship between the MSFC variables and the Executive Functional Performance Test (EFPT), which is an objective, structured assessment of everyday functional status used by Occupational Therapists, but never before with people with MS. Participants with MS (n=48) and healthy controls (n=21) matched for age and level of education received standardized neuropsychological tests, including estimates of premorbid cognitive ability, screening for cognitive status (CCSE), and tests of memory, executive functioning, and upper and lower-body functioning (9HPT and Timed 25 foot walk, respectively). Participants also underwent the EFPT, in which they were required to complete tasks of everyday living that vary in their cognitive complexity from very simple (e.g., hand washing) to complex (e.g., cooking a simple meal and paying two bills with insufficient funds). The 25_ walk and 9HPT did not correlate with performance on the EFPT tasks. As expected, correlations between the PASAT and hand washing were also not significant, as this task is highly routinized and does not require substantial cognitive effort. PASAT did correlate with performance on the more complex cooking and bill-paying tasks. These findings suggest that the cognitive component of MSFC does predict cognitive functional status as measured by the EFPT. This investigation lends support to the use of both of these measures: The MSFC as a screening device, and the EFPT as an objective measure for assessing functional status in MS.

Study supported by NMSS

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**(W18) THE CONTRIBUTION OF INFORMATION PROCESSING SPEED
TO NEW LEARNING ABILITIES IN MS**

Because deficits in new learning and memory constitute one of the most common and disabling cognitive deficits accompanying MS, identifying factors that contribute to learning problems is a major goal. The current study examines the relationship between information processing speed, working memory and new learning abilities in an MS sample.

Forty participants with clinically definite MS were administered a brief neuropsychological test battery. To evaluate the relationship between working memory, information processing speed, and new learning a linear regression was performed with the Open Trial Selective Reminding Test (Open Trial SRT) as the dependent variable. New learning was measured by the number of trials required to reach criterion on the Open Trial SRT. Predictor Variables were entered in a blocked fashion. To control for age and education these variables were entered in Step 1. The total score on the Cognitive Capacity Screening Examination was entered on Step 2 to control for general cognitive functioning. Finally, to examine the relationship between working memory, information processing speed and new learning, total scores on the Symbol Digit Modalities Test (measure of information processing speed), the WAIS-III Letter Number Sequencing Test (measure of working memory) and the WAIS-III Digit Span Backward Subtest (measure of working memory) were entered on step 3. Step three produced the only significant change in the model (F Change = 5.36, R Square = .24, $p < .05$). The Symbol Digit Modalities Test was the only significant variable in this step ($t = -2.31$, $p < .05$). The WAIS-III Letter Number Sequencing and Digit Span Backward scores were not significant. These results indicate that speed of information processing is a significant factor in performance on tests of new learning, while tests of working memory appear to be less important in predicting new learning abilities.

Study supported by the National Multiple Sclerosis Society

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(W19) THE EFFECT OF ERT ON POSTMENOPAUSAL WOMEN WITH MS (PILOT STUDY)

Recent studies have suggested that forms of estrogen may favorably impact disease expression in MS. This good news is balanced by a major study that has indicated that postmenopausal use of combined estrogen-progestin products may increase the risk of heart disease and breast cancer. Thus postmenopausal women with MS are left with uncertainty as to the benefit of estrogen replacement therapy (ERT) for them. This ongoing pilot study is investigating the potential neuroprotective role of ERT in postmenopausal women with MS. We are using 1H Magnetic Resonance Spectroscopy (MRS) to compare the concentrations of metabolites in normal appearing brain tissue in women with MS who are on ERT and women with MS who are not using estrogen products. Recent MRS studies support a strong correlation between concentrations of particular brain metabolites and neurologic disability in MS. However, these studies have not focused exclusively on postmenopausal women nor have they specifically examined the relationship between estrogen and 1H MRS findings. A number of studies have demonstrated that healthy postmenopausal women on ERT perform better on cognitive tests than age-matched women without ERT. We will compare cognitive functioning in our two groups and correlate performance on cognitive tests with MRS results. Other studies have demonstrated that specific metabolite ratios correlated with measures of cognitive functioning in individuals with MS, but again it is not yet clear if this relationship is true for postmenopausal women. We expect that the results from this pilot study will complement recent studies investigating the possible immunomodulatory role of estradiol in women with MS.

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(W20) THE RELATIONSHIP BETWEEN DEPRESSION AND COPING IN INDIVIDUALS WITH MS

Depression is one of the more common symptoms in MS with 50% lifetime prevalence of major depressive disorder after diagnosis. Untreated depression can impair work performance, disrupt social relations, and result in poorer adherence with medications including those prescribed in the treatment of MS. Research has also shown the importance of coping styles as mediators between antecedent stressful events such as the diagnosis of physical illness and consequences such as anxiety, depression, and somatic complaints.

The present study investigated the relationship between depression and coping in 79 adults with MS. At the Mellen Center, all individuals undergoing psychological evaluations complete self-report measures of depression (Beck Depression Inventory-II, BDI-II), anxiety (Beck Anxiety Inventory, BAI), and coping (Coping Inventory for Stressful Situations, CISS). The CISS is a multidimensional measure of coping styles: task-oriented (e.g., outline priorities, analyze the problem before reacting), emotion-oriented (e.g., self-blaming, worry), and avoidance-oriented (consisting of two subscales: distraction [e.g., watch T.V] and social diversion [e.g., phone a friend]) coping.

Results indicated that depressive symptoms were differentially related to coping strategies. BDI-II scores were negatively correlated with task-oriented coping ($r=-.28$, $P<.05$) and social diversion ($r=-.31$, $p<.05$) but positively correlated with emotion-oriented coping ($r=.72$, $p<.001$). This finding suggests that individuals who are more depressed are less likely to use task-oriented strategies aimed at solving the problem and person-oriented strategies to alleviate stress but are more likely to rely on emotion-focused strategies including emotional reactions, self-preoccupation, and fantasizing that may increase stress.

These results emphasize the importance of identifying and treating depression as well as assessing coping as part of routine clinical care for individuals with MS. Case examples demonstrating the relationship between depression and coping will be reviewed. Implications for the treatment of depression will be addressed.

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(W21) USEFULNESS OF DEPRESSION SCREENING PROTOCOL IN MS CLINIC SAMPLE

INTRODUCTION:

Depression is very common among persons with MS and is associated with increased disability and decreased quality of life. This study examines the usefulness of a screening tool in facilitating the treatment of depression in an MS clinic. Specifically, we were interested in seeing if those who screened positive for depression were referred for treatment.

METHODS:

Fifty-four consecutive patients at an MS clinic completed a brief, self-administered psychosocial screen after checking in for a routine clinic visit. Depressive symptoms were measured using the 20-item Centers for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). A trained assistant scored the screen and reported clinically significant depressive symptoms (CES-D score > 16) to clinic physicians as part of the intake information.

RESULTS:

Fifty-four subjects completed the questionnaire. Thirty-two (59.3%) subjects screened positive for clinically significant depressive symptoms. Of the 32 subjects who screened positive for depression: 17 (53.1%) reported current use of antidepressant medication and 1 (3.1%) reported current counseling. Two (6.3%) subjects were given a psychiatric referral, 3 (9.4%) were given a counseling referral, and none were started on a new antidepressant medication. Overall, 17 of the 32 (53.1%) depressed subjects were being treated or received new treatment for their depression.

CONCLUSIONS:

- 1) Depression is common in MS patients seen in an outpatient clinic.
- 2) Screening for depression can be effectively done in a brief period of time using a standardized depression screen.
- 3) This brief screening reveals that over half of the subjects who screened positive for depression are currently being treated, either through on-going use of antidepressant medication or referrals to specialty providers.
- 4) Ideally, everyone experiencing depressive symptoms should be treated, suggesting that improvements to this screen would increase its usefulness in an MS clinic.

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