

Use of medical informatics for management of multiple sclerosis using a chronic-care model

Michael Hatzakis Jr, MD, et al.

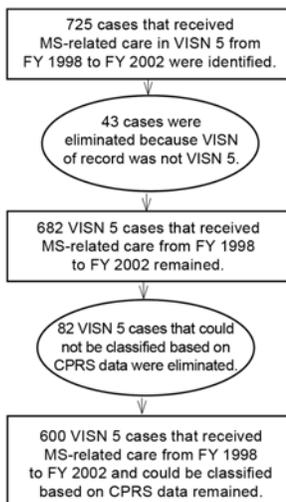
Has Disease Present in Registry TRUE POSITIVE [a]	Does Not Have Disease Present in Registry FALSE POSITIVE [b]
Has Disease Not Present in Registry FALSE NEGATIVE [c]	Does Not Have Disease Not Present in Registry TRUE NEGATIVE [d]
Sensitivity = $\frac{a}{a+c}$ Specificity = $\frac{d}{a+d}$ Positive Predictive Value = $\frac{a}{a+b}$	

The authors describe how the Multiple Sclerosis (MS) Centers of Excellence use healthcare information technology to care for veterans with MS. The approach is based on a chronic-disease model that was effective for diabetes, asthma, and depression. In this model, the approach to healthcare delivery focuses

on two essential elements: “prepared, proactive, practice teams” who use tools such as evidence-based guidelines, and patients who actively participate in their healthcare. Through use of an organized healthcare information system, this model will capitalize on the advantages of information technology and lead to improved healthcare outcomes.

Veterans Health Administration multiple sclerosis surveillance registry: The problem of case-finding from administrative databases

William J. Culpepper II, MA, et al.



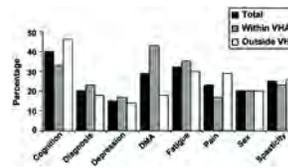
The authors discuss the development of a Veterans Health Administration (VHA) multiple sclerosis (MS) surveillance registry. Numerous VHA registries target specific patient populations as part of programs for improving the quality and availability of veteran care. These registries are often compiled from administrative data based on diagnostic codes that rarely precisely identify veterans in the target patient population. In this study, the authors compare classification of patients (not MS vs

MS/possible MS) by chart review and by application of a statistical database algorithm. Results suggest that the algo-

rithm reliably eliminates non-MS cases from the initial surveillance registry and is a reasonable case-finding method.

Exploring educational needs of multiple sclerosis care providers: Results of a care-provider survey

Aaron P. Turner, PhD, et al.



Multiple sclerosis (MS) care providers were surveyed on ongoing professional education needs. At a national conference, providers from various disciplines were queried about areas

in which they needed clinical consultation and continuing education; their preferred education modalities; and their confidence in providing care related to disease-modifying agents (DMAs), fatigue, depression, spasticity, and bladder management. Areas of greatest interest for clinical consultation and continuing education were identical and included cognition, fatigue, DMA use, spasticity, pain, sex, MS diagnosis, and depression. Participants preferred live and interactive continuing-education modalities. Enhanced continuing medical education should improve provider practice and facilitate better care of MS patients.

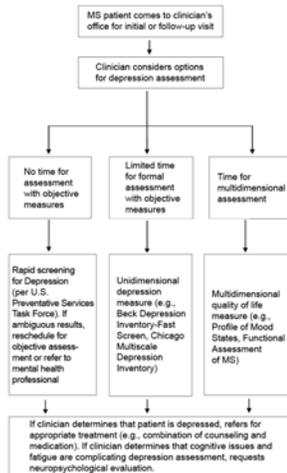
Quality of life for veterans with multiple sclerosis on disease-modifying agents: Relationship to disability

Joseph B. Guarnaccia, MD, et al.

Do current therapies for multiple sclerosis (MS) improve quality of life? To answer this question, 204 veterans completed a widely used quality-of-life scale, the Veterans Short Form 36 [VSF-36], and a standard neurological examination (the Kurtzke Expanded Disability Status Scale [EDSS]) at the start of therapy and every 6 months for 3 years. The study showed that the VSF-36 correlated well with the Kurtzke EDSS. Quality-of-life and EDSS scores did not change significantly over the course of the study. The degree of switching or discontinuation of therapy was also high. Although this study could not confirm the benefits of therapeutic MS interventions, it suggests that quality of life is a worthwhile measurement in pharmacological studies of MS.

Depression and multiple sclerosis: Review of a lethal combination

Mitchell T. Wallin, MD, MPH, et al.



The authors review published studies on depression in patients with multiple sclerosis (MS). Assessment and treatment of depression in MS are discussed. Depression is the most frequent psychiatric disorder in MS patients. Proper diagnosis and severity assessment are critical prior to the initiation of therapy. Patients with suicidal thoughts should be referred for immediate psychiatric consultation and closely monitored. MS is the most common progressive neuro-

logical disease of young adults and is an important cause of disability in the veteran healthcare system.

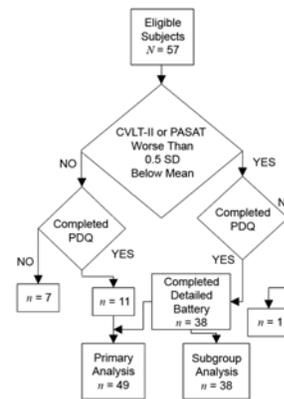
Cognitive dysfunction in multiple sclerosis: Assessment, imaging, and risk factors

Mitchell T. Wallin, MD, MPH, et al.

Assessment, imaging characteristics, and risk factors of cognitive dysfunction in patients with multiple sclerosis (MS) are reviewed. Neuropsychological test batteries have been developed for assessing cognitive dysfunction in patients with MS. Modern imaging techniques provide a more complete picture of MS-related central nervous system damage, a major cause of cognitive dysfunction. Possible risk factors have been identified that may predict which patients will develop cognitive dysfunction. Cognitive dysfunction can dramatically affect activities of daily living, employment, and socialization. The cognition of patients with MS, therefore, should be monitored. New risk factors and treatments should be identified so that morbidity from cognitive dysfunction is minimized.

Correlations of Perceived Deficits Questionnaire of Multiple Sclerosis Quality of Life Inventory with Beck Depression Inventory and neuropsychological tests

Jesus Lovera, MD, MSPH, et al.



Data from this study suggest that self-perceived cognitive dysfunction relates more to depression than to objective cognitive dysfunction. The Perceived Deficits Questionnaire (PDQ) is part of the Multiple Sclerosis Quality of Life Inventory that assesses self-perceived cognitive difficulties. In this study, investigators used baseline data from 49 MS subjects participating in a clinical

trial to evaluate the correlation of the PDQ with two cognitive impairment measures (Paced Auditory Serial Addition Test and California Verbal Learning Test, 2nd edition) and with a depression measure (Beck Depression Inventory-Amended).

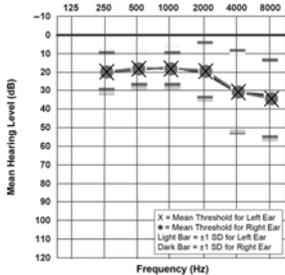
Cognition and fatigue in multiple sclerosis: Potential effects of medications with central nervous system activity

Barry S. Oken, MD, et al.

The influence of medications with central nervous system (CNS) effects on cognitive function and fatigue in multiple sclerosis (MS) was evaluated. Investigators compared assessments of cognitive function and fatigue for 70 volunteers. Results showed that MS patients widely used CNS-active medications and only 15 percent did not take any CNS-active medications. Of the participants, 29 percent were taking a selective serotonin reuptake inhibitor, commonly used for depression, and 17 percent were taking an antiepileptic drug, usually to help control pain. Participants who took CNS-active medications were more likely to have cognitive problems, especially with cognitive functions dependent on speed. Ratings of fatigue were also greater in volunteers taking CNS-active medications.

Some effects of multiple sclerosis on speech perception in noise: Preliminary findings

M. Samantha Lewis, PhD, et al.

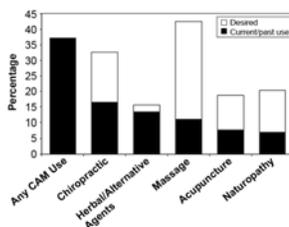


This investigation examined the speech perception in noisy backgrounds of adults with and without multiple sclerosis (MS). Sentences were presented at a constant level from a loudspeaker located directly in front of the listener. Multitalker babble was presented from four

loudspeakers in the four corners of the room. The level of babble was increased in 1 dB steps until the listener could not correctly identify any keywords in the sentences. Compared with listeners without MS, listeners with MS reported that they had greater difficulty hearing in everyday listening environments and understanding speech in background noise.

Complementary and alternative medicine use in veterans with multiple sclerosis: Prevalence and demographic associations

Duncan G. Campbell, PhD, et al.



More than one-third of the veterans with multiple sclerosis (MS) in this study reported using complementary and alternative medicine (CAM). A total of 451 veterans with MS completed written self-report surveys. Of

these respondents, 37 percent reported current or past CAM use and 40 percent desired interventions that they were not currently using. Although CAM may potentially reduce symptoms, it may also introduce harm directly or through interactions with more traditional therapies. Because so many veterans currently use CAM or express interest in future CAM use, traditional care providers are encouraged to learn more about CAM and routinely ask patients about CAM use.

Voltage-gated potassium channels in multiple sclerosis: Overview and new implications for treatment of central nervous system inflammation and degeneration

Susan I. V. Judge, PhD, et al.

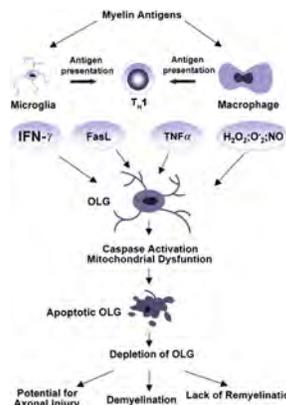
T Lymphocytes (T Cells)
—K _v 3.1 (intermediate K _v , IKCa1, IK1, SK4 or KCNN4)
—K _v 2.2 (small K _v , SK2 or KCNN2)
—K _v 1.1 (large K _v , BK, maxi K or KCNMA1)
—K _v 1.3 (delayed rectifier, Kv1.3 or KCNA3)
Macrophage
—K _v 2.1 (inward rectifier, IRK1 or KCNJ2)
—K _v 3.1 (intermediate K _v , IKCa1, IK1, SK4 or KCNN4)
—K _v 1.1 (large K _v , BK, maxi K or KCNMA1)
—K _v 1.5 (delayed rectifier, Kv1.5 or KCNA5)
—K _v 1.3 (delayed rectifier, Kv1.3 or KCNA3)
Microglia
—K _v 2.1 (inward rectifier, IRK1 or KCNJ2)
—K _v 3.1 (intermediate K _v , IKCa1, IK1, SK4 or KCNN4)
—K _v 1.1 (large K _v , BK, maxi K or KCNMA1)
—K _v 1.5 (delayed rectifier, Kv1.5 or KCNA5)
—K _v 1.3 (delayed rectifier, Kv1.3 or KCNA3)
—K _v 11.1-like (HERG-like or KCNH2-like)
Dendritic Cells
—K _v (inward rectifier likely to be K _v 2.1)
—K _v 1.5 (delayed rectifier, Kv1.5 or KCNA5)
—K _v 1.3 (delayed rectifier, Kv1.3 or KCNA3)

In multiple sclerosis (MS), various immune cells are mistakenly triggered to orchestrate an attack against the myelin wrapping on nerve fibers, which leads to impaired nerve function. This review discusses how drugs that block proteins known as potassium channels in the outer membranes of T cells, macrophages, microglia, and dendritic cells may help regulate the detrimental inflammatory immune response underlying MS.

Two potassium channels are primary potential therapeutic targets: the K_v1.3 potassium channel that is expressed in each of the fully activated immune cells and the K_v1.5 channel that appears only in activated microglia and dendritic cells. Research in this field focuses on the role of immune cell potassium channels in inflammation and on better drugs for blocking these channels, which will lead to new or improved clinical treatments for MS patients.

Oligodendrocyte cell death in pathogenesis of multiple sclerosis: Protection of oligodendrocytes from apoptosis by complement

Cornelia Cudrici, MD, et al.



In this article, investigators review the development of multiple sclerosis (MS) lesions. They discuss myelin-forming cells called oligodendrocytes and how death of these cells relate to the development of MS. They also review how different cells (T and B cells, macrophages, microglia) and the complement system promote demyelination of and injury to axons, which leads to oligodendrocyte death. Sublytic activation of complement C5b-9 proteins may help preserve axons and promote remyelination, thereby preventing oligodendrocyte death. The identification of this new therapeutic target may lead to new strategies that promote oligodendrocyte survival and enhance axonal remyelination in MS.