Behavioral Medicine in Multiple Sclerosis: What Determines Who Receives Services?

Benjamin Greenberg1, Youran Fan2, Lucille Carriere1, Matthew Sacco1, and Amy Sullivan1

Mellen Center for Multiple Sclerosis1, Quantitative Health Sciences2

Abstract

Data for patients with multiple sclerosis (MS) who were seen at the Mellen Center for Multiple Sclerosis over the past 5 years was analyzed to determine factors which influenced whether or not they received psychotherapy services through the Behavioral Medicine (BM) department within the first year after their initial neurology appointment using logistic regression. Results revealed that marital status, course of multiple sclerosis, and depression at initial neurology appointment were all associated with patients receiving services through BM.

Method

Data for this study was retrospectively gathered from electronic medical records kept by the Cleveland Clinic as part of the Knowledge Program (Kattan, et al., 2011). Participants who were diagnosed with MS, were at least 18 years old, and who were seen at the Mellen Center for Multiple Sclerosis between 2010 and 2015 were included in the initial data pull. This resulted in a total of 9,571 eligible participants. This was reduced to include only 3,918 participants who had a specific score, marital status, and course of MS in their records. Of these 3,918 patients, 642 (16.6%) had received BM services at any point while 555 (12.8%) had done so within one year of their first neurology appointment. Descriptive statistics for included measures are listed below grouped by whether or not participants received psychotherapy services.

Results

Logistic regression was conducted with the dependent variable as a BM appointment within one year of the first appointment at the Mellen Center. Predictor variables included demographic information (age, sex, marital status), disease-specific characteristics (course of MS, ability to transfer, use of an assist device, length of time since symptom onset or diagnosis of MS, MSPPS, 25FVT, and 9HPT of dominant hand), and emotional functioning (EQ-5D, PHQ-9, GAD-7) were used in univariate logistic regressions to explore the association between dependent and independent variables. Odds ratios with 95% confidence intervals were reported. A multivariable logistic regression model that included the significant variables in univariate model were included in a full model using stepwise variable selection on the full model. The significance level for entry and exit from the model was 0.05. All analyses were conducted with SAS Version 9.4 (SAS Institute, NC).

Univariate results revealed age, MSPPS, EQ-5D, PHQ-9, sex, marital status, race, MS course, and use of an assist device were predictive of participants receiving BM services within one year. Stepwise multivariable logistic regression retained the PHQ-9 score, marital status, and course of MS as significant predictors in the final model.

Specifically, patients who were single were more likely to receive services than those who were married.

Discussion

Participants who were single were more likely to receive BM services within one year of their first neurology appointment than those who were married.

Participants who had Secondary Progressive MS (SPMS) without relapses or Primary Progressive MS (PPMS) were less likely to receive BM services than those who had Relapsing Remitting MS (RRMS). However, there was no difference between participants with MSPPS with relapses or Progressive Relapsing MS (PRMS) and RRMS.

Increased depression was associated with greater odds of receiving BM services.

Age, sex, race, use of an assist device, EQ-5D, and MSPPS score were ultimately not predictive of receipt of BM when considering marital status, depression, and course of MS.

Other measures of physical and emotional functioning (25FVT, 9HPT, ability to transfer GAD-7) were not associated at all with whether or not patients received BM within the first year following a neurology appointment.

These findings indicate that participants who have relapses associated with their disease course (SPMS with relapses, RRMS, and PRMS) are more likely to be identified to need BM services than those with a more progressive course (SPMS without relapses or PPMS). They also could indicate that being married acts as a protective factor which reduces the need for BM services. Finally, because increased depression was associated with odds of receiving BM services, this indicates the referral process may be appropriately selecting patients experiencing greater depression for additional support and treatment services.

Assessing participants marital status, course of MS, and depression at time of first neurology appointment could help improve the referral process to BM to identify participants who are most likely to require services in the future.

Future analysis will include investigating if attending neurologist plays a role in the referral process and will examine what factors influence time between first neurology appointment and first appointment with BM.