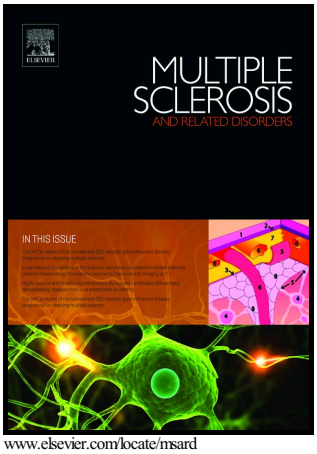

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Abstract

Background

The risk of falls in people with Multiple Sclerosis (MS) is much greater than that of the general population due to impaired coordination, gait, sensation, muscle tone, strength, and cognition. These MS related falls hamper the day to day living of these individuals and are one of the prime factors aggravating the disease related morbidity. The fear of falling itself may make these individuals more dependent and hinder their professional and leisurely activities. Hence, the significance of identifying individuals who are at risk of falling and instituting preventive counter-measures cannot be overemphasized. Various simple clinical tests and questionnaires have been recommended for this purpose, but are far from ideal.

Objective

The objective was to find accurate measures to predict a future fall in MS patients. We also aimed to enquire about the prevalence of falls in MS population and its clinical profile which included detailed history about the past falls, Expanded disability status scale (EDSS) scores, Timed 25 foot walk (T25FW) scores, Activities specific balance confidence (ABC) scores, Falls efficacy scale international (FESI) scores, Multiple Sclerosis Walking Scale 12 (MSWS12) questionnaire.

Design/Methods

This was a prospective cohort study conducted at the Institute of Neurology, Chennai from January 2015 to August 2017. MS patients of any subtype attending Neurology OPD satisfying revised 2010 McDonald criteria were recruited. 134 subjects with MS consented to participate in this study and 113 of them who met the criteria were included. Baseline history was obtained about the number of falls in the previous year. EDSS, T25FW, ABC, FESI, and MSWS12 scores were obtained at the baseline. VEMP and SEP tests were done and the baseline P13/N23 cVEMP latencies, N10 oVEMP latency, and P37 lower limb SEP latency were obtained. These subjects were followed up for one year and were enquired if they had fallen during that period and the number of falls was recorded. Logistic regression models were used to compute the area under receiver operating characteristic curve (AUC) for each variable tested. Pearson correlation coefficients were calculated for each variable with the number of future falls.

Results

Among the 113 patients, 72% (n = 81) had one or more falls during follow-up. Among all variables tested P13 cervical VEMP latency had the highest predictive accuracy (AUC = 0.820) followed by N10