Can Presenting Symptoms be Associated with Long-Term Disease Severity in Patients with MS

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INTRODUCTION

Multiple sclerosis (MS) is an autoimmune demyelinating disease of the central nervous system. The disease is manifested in the inception and progression of such symptoms as declining visual acuity, sensory loss, motor weakness, and imbalance. Expanded Disability Status Scale (EDSS) scores and lesion volumes have historically been used as measures of the disease’s severity.

OBJECTIVES

The current study aimed to establish an association between presenting symptoms and measures of disease severity (lesion volume, EDSS scores) and lab values (Vitamin A, Vitamin D, Beta carotene, and lipid panel levels) in Multiple Sclerosis patients.

METHODS

EDSS scores, vitamin A levels, retinal binding protein, beta carotene, vitamin D, lipids, and lesion volume were analyzed in 19 patients with RRMS. Patients were divided into four groups based upon their first presenting symptoms: visual (n=8), motor (n=3), sensory (n=3), and balance (n=5). Patients were then further subcategorized into racial groups (Hispanic white [n=6], non-Hispanic white [n=4], non-Hispanic black [n=7]). Average values of the lab values and lesion volumes were compared between the four groups. T-tests and ANOVA tests were performed. Correlation between vitamin A level and EDSS scores, lesion volumes, and lab values were also assessed. Lesion volume was calculated by processing MRI’s of the brain in the software MIPAV.

RESULTS

T-tests and ANOVA tests garnered no significant differences in EDSS scores, lesion volumes, or lab values across all presenting groups. In general, correlations between vitamin A level and other biomarkers and measures of disease severity were insignificant. The only exceptions were positive correlations seen between vitamin A levels and retinal binding protein levels in the visual group (Correlation: 0.97188, P=5.50E-05) and in the balance group (Correlation: 0.96089, P=0.033674). All other correlation scores were insignificant (P>0.05).

CONCLUSION

Overall, significant differences were not seen across the four presenting symptom groups. Lab values taken at baseline did not correlate to vitamin A level in any meaningful way with respect to presenting symptoms, nor did measures of disease severity. Further analysis is required to determine if statistically significant differences truly exist, as the sample size involved was low (n=20), and some groups having less than five subjects.

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REFERENCES