Predictors of Polypharmacy in Multiple Sclerosis Patients: A Focus on Race, Socioeconomic Status and Beyond

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Background

Polypharmacy, defined as the use of multiple medications, has been known to lead to adverse health outcomes. It is a common phenomenon in the general population, but people with multiple sclerosis (PwMS) are at an increased risk due to the multitude of symptoms that they may experience. While some predictors of polypharmacy in PwMS have been elucidated, to our knowledge, the risk of polypharmacy as disease course progresses and the interplay between socioeconomic status and racial/ethnic variation has yet to be assessed.

Methods

A cohort of 819 randomly selected, confirmed MS patients between 01/2016 and 03/2023 from the Medical College of Wisconsin underwent a combination of retrospective and cross-sectional chart review to assess polypharmacy prevalence and associated risk factors. Following exclusions, 500 patients were included. Patients were excluded if they did not have a definitive MS diagnosis, were deceased, not in the system, were a research participant, or if medication or diagnosis information was unavailable. Data collected included area deprivation index (a nationwide metric of socioeconomic disadvantage by neighborhood, ranked on a scale of 1-100, with 100 being the most disadvantaged neighborhoods), race/ethnicity, diagnosis details, and medication history. Polypharmacy was defined as the use of ≥ 5 prescription medications daily for ≥ 30 days. The analysis utilized univariate and multivariate methods, using Pearson's Chi-squared and Wilcoxon rank sum tests with a 95% confidence interval.

Results

Among the 500 patients studied, 45% experienced polypharmacy. Socioeconomic status and medication addition emerged as significant predictors of polypharmacy, with a 10.4% increase in polypharmacy odds for every 5-unit ADI increase (p=0.036, 95% CI: 1.00-1.04) and an 80% increase in odds per each additional medication (p<0.001, 95% CI: 1.54-2.15). Race, ethnicity, and disease duration were not significant predictors of polypharmacy.

Conclusions

Low socioeconomic status and each additional medication were significant predictors of polypharmacy. Further research must be done to determine which components of socioeconomic status (health literacy, income, healthcare accessibility, or others) place patients at the greatest risk of developing polypharmacy, allowing for focused interventions.