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“How Race Effects Progression of Multiple Sclerosis”

HYPOTHESIS: To investigate the effect of race on the severity of Multiple sclerosis (MS), we analyzed different groups of patients with MS at the LSUHSC neurology clinic using the Montreal Cognitive Assessment (MoCA), Symbol Digit Modalities Test (SDMT), and King-Devick Test (KD test) to assess cognitive decline.

BACKGROUND: In this study, we used cognitive tests to investigate the rate of progression of MS depending on the race of participants. MS is an autoimmune disease of the central nervous system in which nerve damage disrupts information flow between different brain regions and the brain and the body. Symptoms vary, but may include pain, vision loss, fatigue, impaired strength and coordination, and cognitive decline. Race of patients can matter in the progression of MS. Demographics of MS have changed so that people of color (African Americans) Hispanic Americans, and Asian Americans), and White Americans have an increased risk of developing the disorder.

METHODS: The cohort in this study are adults with MS. Of the three tests we use, the MoCA screens for mild cognitive dysfunction through assessing cognitive domains such as attention, executive functions, and memory. The SDMT measures information processing speed. Finally, the KD test evaluates saccadic eye movements, processing speed, and visual tracking. We compare the participants within the MS cohort across racial groups to determine if they have different cognitive profiles.

RESULTS: Cohort: 38% African American and 61% White. In the ANOVA we look at demographic variables including: sex, education, age, and disease duration. The groups did not differ by sex, however, they did differ in regard to education White (mean:15.2 years, SD: 2.833) vs. Black (mean: 13.8 years, SD: 2.447, $p=0.059$), age White (50 y/o) vs. Black (40 y/o). We would expect based on education that the White cohort would perform better on the cognitive test, however, based on age we would expect white cohort to perform worse because they are 10 years older at the baseline assessment. The SDMT T- score takes into account age and education so it levels the playing field between groups in regard to these factors. The groups don't significantly differ in terms of their scores on the MoCA (White- \bar{x} :24.79,SD:3.347;Black- \bar{x} :23.42,SD:3.350, $p=0.057$), SDMT (White- \bar{x} :47.54,SD:12.221;Black- \bar{x} :45.40,SD:10.441, $p=0.391$),SDMT T-score (White- \bar{x} :40.53,SD:10.731;Black- \bar{x} :36.31,SD:9.712, $p=0.059$),KD (White- \bar{x} :66.7511,SD:19.9215;Black- \bar{x} :68.9226,SD:24.20279, $p=.645$). The two groups don't perform differently, however, the average T-score: White (40) vs. Black (36) are both considered mildly impaired. These results show that the Black cohort got to this level of impairment faster (referring to duration stats). The two groups performed didn't differ on the cognitive test, suggesting the Black cohort has a faster rate of cognitive decline.

DISCUSSION: Cognitively MS progresses quicker in Black people compared to White people.