The Association Between Race and Diagnostic Delay of Retinoblastoma in US Children

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Objective: Explore associations between race and age at diagnosis of retinoblastoma in children in the United States between 1988-2018.

Methods: An analytical non-concurrent cohort study was conducted using the Surveillance, Epidemiology, and End Results (SEER) database from 1988-2018. The cohort includes children ages 0-17 diagnosed with retinoblastoma. The exposure was race and the outcome was age at diagnosis. Primary diagnosis after two years old was considered diagnostic delay. Covariates include sex, rural-urban continuum, ethnicity, decade of diagnosis, and disease laterality. Unadjusted and adjusted logistic regression analysis were performed to calculate odds ratios (OR) and 95% confidence intervals (CI).

Results: In total, 747 participants met inclusion criteria. By racial group, 70.15% of participants were white, 16.33% black, 10.98% Asian/Pacific Islander and 2.54% American Indian/Alaska native. By ethnicity, 84.34% were non-Hispanic. No statistically significant associations between racial or ethnic groups and age at diagnosis compared to the non-Hispanic white control group (black OR 0.92; 95% CI 0.58-1.54, Asian/Pacific Islander OR 1.15; 95% CI 0.50-19.95, American Indian/Alaska native OR 0.61; 95% CI 0.20-1.85, Hispanic OR 0.86; 95% CI 0.52 -1.41) were found. Females were significantly more likely to be diagnosed under age two compared to males (OR 0.62; 95% CI 0.44-0.88).

Conclusion: While many variables affect development of retinoblastoma, this nationwide study of US children suggests that timely identification of retinoblastoma does not differ based on race or ethnicity.

Keywords: retinoblastoma, race/ethnicity, epidemiology