Survival disparities for some childhood brain tumors exist when defined by race/ethnicity and sex

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ABSTRACT:
There are documented differences in pediatric brain tumor survival by race/ethnicity. We previously reported on sex differences in pediatric ependymoma survival. However, it is unknown whether there are pediatric cancer survival disparities when defined by race/ethnicity and sex categories. Using SEER (2000-2014) data, we estimated survival differences between race/ethnicity-sex groupings (non-Hispanic White [NHW], non-Hispanic Black [NHB], Hispanic, and Asian/Pacific Islander [API], males and females) for 4 brain tumors diagnosed in children aged 0-19 years. Kaplan-Meier curves (Log-Rank p-values) were evaluated, and Cox regression was used to estimate hazards ratios (HRs) and 95% confidence intervals (95% CIs) between race/ethnicity-sex and each cancer (NHW-females as referent). There were differences in survival by race/ethnicity-sex for astrocytoma, ependymoma, and PNET (all $p<0.01$) but not medulloblastoma (Figure 1). When examining sex differences in survival by racial/ethnic groups, only API males had worse survival than females ($p<0.01$). We identified significant racial/ethnic-sex differences in the risk of death when compared to NHW-females for ependymoma (Hispanic-females: 1.65, 95% CI: 1.02-2.67; Hispanic-males: 2.23, 95% CI: 1.42-3.5; NHB-males: 3.31, 95% CI: 1.90-5.77), astrocytoma (Hispanic-females: 1.37, 95% CI: 1.06-1.77; Hispanic-males: 1.48, 95% CI: 1.16-1.89; NHB-females: 1.90, 95% CI: 1.42-2.54, NHB-males: 1.98, 95% CI: 1.48-2.66; API-males: 1.74, 95% CI: 1.18-2.56), and PNET (NHB-females: 2.21, 95% CI: 1.27-3.84, NHB-males: 1.76, 95% CI: 1.00-3.11; API-males: 3.06, 95% CI: 1.62-5.78). Our findings suggest that race/ethnicity has a stronger role in the observed survival disparities in brain tumors than sex and merit investigations into the environmental, clinical and genetic underpinnings in these survival differences.

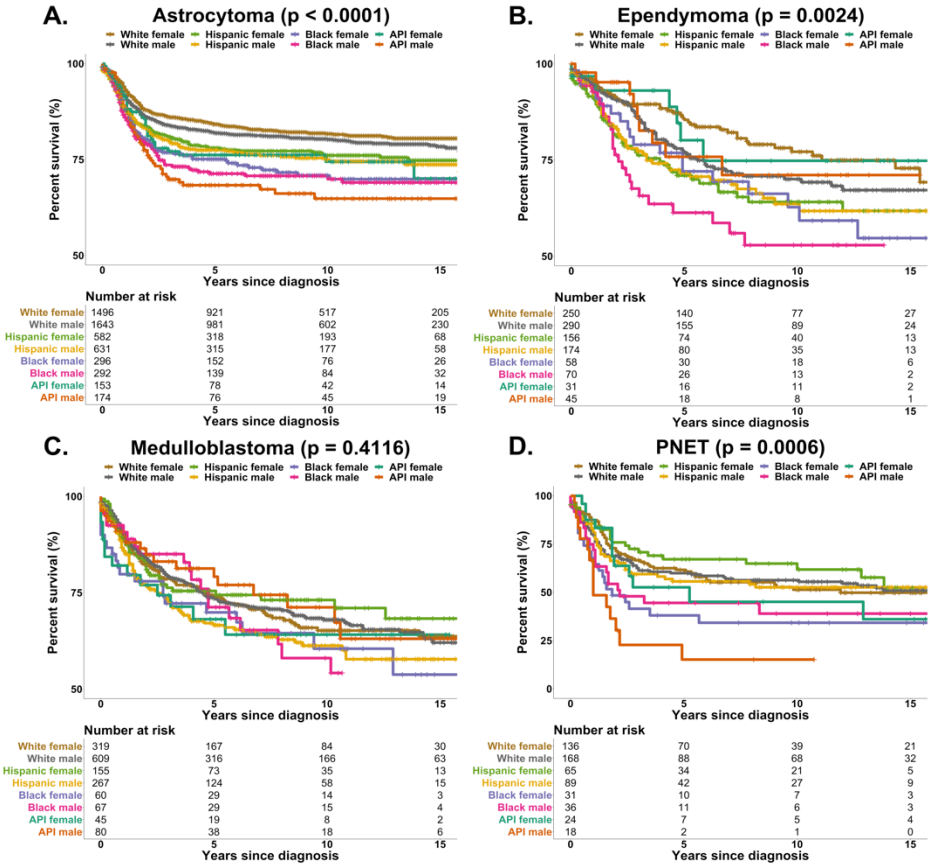

Figure 1: Kaplan-Meier survival curves (Log-Rank p-values) for pediatric brain tumors by race/ethnicity and sex, SEER (2000-2014).