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Late Morbidity and Mortality Among Medulloblastoma Survivors Diagnosed Across Three Decades: A Report From the Childhood Cancer Survivor Study.

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PURPOSE: Treatment of medulloblastoma has evolved from surgery and radiotherapy to contemporary multimodal regimens. However, the impact on long-term health outcomes remains unknown.

METHODS: Cumulative incidence of late mortality (5 or more years from diagnosis), subsequent neoplasms (SNs), and chronic health conditions were evaluated in the Childhood Cancer Survivor Study among 5-year survivors of medulloblastoma diagnosed between 1970 and 1999. Outcomes were evaluated by treatment exposure, including historical therapy (craniospinal irradiation [CSI] ≥ 30 Gy, no chemotherapy), high risk (CSI ≥ 30 Gy + chemotherapy), standard risk (CSI < 30 Gy + chemotherapy), and by treatment decade (1970s, 1980s, 1990s). Rate ratios (RRs) and 95% CIs estimated long-term outcomes using multivariable piecewise exponential models.

RESULTS: Among 1,311 eligible survivors (median age, 29 years [range, 6 to 60 years]; median time from diagnosis, 21 years [range, 5 to 44 years]), the 15-year cumulative incidence rate of all-cause late mortality was 23.2% (diagnosed 1970s) versus 12.8% (1990s; P = .002), with a recurrence-related mortality rate of 17.7% versus 9.6% (P = .008). Lower late mortality rates as a result of other health-related causes were not observed. Among 997 survivors who completed a baseline survey, the 15-year cumulative incidence of SNs was higher among survivors with multimodal therapy (standard risk, 9.5%; historical, 2.8%; P = .03). Survivors treated in the 1990s had a higher cumulative incidence of severe, disabling, life-threatening, and fatal chronic health conditions (56.5% in 1990s v 39.9% in 1970s; P < .001) and were more likely to develop multiple

conditions (RR, 2.89; 95% CI, 1.31 to 6.38). However, survivors of standard-risk therapy were less likely to use special education services than high-risk therapy survivors (RR, 0.84; 95% CI, 0.75 to 0.93).

CONCLUSION: Historical changes in medulloblastoma therapy that improved 5-year survival have increased the risk for SNs and debilitating health conditions for survivors yet reduced the need for special education services.

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