Management of Retinoblastoma in Older Children (>5 years) Using Intra-Arterial Chemotherapy: Comparison of Outcomes to Pre-Chemotherapy and Intravenous Chemotherapy Eras

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Management of Retinoblastoma in Older Children (>5 years) Using Intra-Arterial Chemotherapy: Comparison of Outcomes to Pre-Chemotherapy and Intravenous Chemotherapy Eras

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**Introduction:** Intra-arterial chemotherapy (IAC) has emerged as an effective treatment for retinoblastoma (RB), but little information exists regarding its use in older patients (>5 years). We evaluate the use of IAC (2008-2018) for RB in older patients and compare outcomes to those in the pre-chemotherapy (<1994) and intravenous chemotherapy (IVC) (1994-2007) eras.

**Objective:** To evaluate the hypothesis that IAC is effective in managing RB in older patients.

**Methods:** We performed a retrospective analysis of all patients older than 5 years who were treated with IAC for RB from 2008-2018 on the Ocular Oncology Service at the Wills Eye Hospital. Comparisons were made to historic, published data using Fisher’s exact test.

**Results:** Tumor response was achieved in all 13 eyes analyzed at a median interval of 1.13 months from first IAC. Globe salvage was achieved in 8 eyes with 5 requiring enucleation. There was no instance of metastasis or death at a median follow-up of 15 months. Compared to the pre-chemotherapy era, these patients demonstrated significant reduction in need for enucleation (p=0.0007) and EBRT or enucleation (<0.0001). Compared to the IVC era, there was significant reduction in need for EBRT (p=0.02) and EBRT or enucleation (p=.03) and similar avoidance of metastasis (p=1.00) and death (p=1.00).

**Discussion:** IAC is effective for management of RB in patients older than 5 years, even those with advanced Groups D or E, with globe salvage in 62% cases, avoidance of EBRT in 100% cases, and no instance of metastasis or death.