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abstract

Intra-arterial chemotherapy in children with for retinoblastoma: experience from a tertiary cancer center in Saudi Arabia

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Intra-arterial chemotherapy in children with for retinoblastoma: experience from a tertiary cancer center in Saudi Arabia

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Introduction: Intra-arterial chemotherapy (IAC) for retinoblastoma (RB) involves direct delivery of chemotherapeutic agent(s) into the ophthalmic artery. Our aim was to report safety and efficacy of IAC in children with RB.

Methodology: This is a retrospective, interventional case series from 2018 to 2024. Children diagnosed with intraocular RB referred from King Khaled Eye Specialist Hospital underwent IAC at King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia. Treatment administered using melphalan with or without topotecan or carboplatin. Globe salvage rate, treatment complications and survival rate recorded.

Results: Total 32 eyes from 41 patients underwent 147 (mean: 4; range: 1 to 7) IAC procedures and three (3%) procedures aborted due to ophthalmic artery inaccessibility. Eyes classified as group B in 5 (12%), group C in 10 (24%) and group D in 26 (63%). Median patient age at IAC was 1.6 (0.15 to 8.9) years, offered as secondary treatment in 21 (51%) and primary treatment in 20

(49%) eyes. Melphalan administered as a single-chemotherapeutic agent in 23 (56%), with topotecan (double-agent) in 11 (27%) and including carboplatin (triple-agent) in 7 (17%) eyes.

At median follow-up of 20.7 (1.4 to 85.6) months, globe salvage rate of 78% (32) observed and was 100%, 90% and 69% in group B, C and D, respectively. Globe salvage rate by chemotherapeutic agents was 74%, 90% and 71% in single, double, and triple-agent groups, respectively, statistically insignificant. Complications recorded were central retinal artery occlusion (1), severe allergic reaction (1), localized hyperpigmentation (1), discoloration surrounding eye (1), ipsilateral hair loss (1), swelling (2). All patients remain alive at latest follow-up.

Conclusion: We were able to achieve domiciliation of this sub-specialized therapeutic modality, whilst establishing safety and efficacy profile of IAC in children with RB. Our outcomes are comparable to international experience; however, warrants careful selection of patients.