

## Lessons Learned After 500 Cases of Intra-Arterial Chemotherapy for Retinoblastoma

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### Introduction

Intra-arterial chemotherapy has been used in early-childhood retinoblastoma. We present some pearls and pitfalls of this technique in a sizable cohort of retinoblastoma patients.

### Methods

A retrospective, non-comparative cohort of 500 patients with retinoblastoma was grouped between January 2009 and September 2016. Melphalan was infused under fluoroscopic guidance through the ophthalmic artery with supplementary topotecan or carboplatin or both, for a mean of 3 cycles. The mean follow-up was 20.3 months (SD=11.3). The International Classification of Retinoblastoma (ICRB) was implemented in the assessment of ocular globe preservation and of the tumor's response to treatment. Grade E patients were almost always treated concomitantly with IV chemotherapy.

### Results

Of 500 patients (mean of age 35 months), we treated 520 eyes. (n1= 236; [(67) A, (83) B, (48) C, (18) D and (20) E]) received a primary treatment, (n2= 95) were treated for their advanced disease, (n3= 67) had bilateral retinoblastoma and (n4= 55) were treated for a recurrence after conventional intravenous chemotherapy. Globe preservation was achieved in 87% of primary-treated cases (A [100%]; B [100%]; C [100%]; D [92%]; E [46%]) and in 69% of secondary-treated patients. Postprocedural complications were vitreous hemorrhage (3.2%), retinal artery branch occlusion (0.75%), ophthalmic artery (OA) occlusion (1.7%) and spasm (2.2%), limited choroidal ischemia (1.8%) and optic neuropathy (0.7%). 478 (92%) patients had complete regression: small tumors 99% [201/203]; well-defined tumors 97% [173/178] and poorly defined tumors 92% [88/97]. There was no motor, sensitive or ictal complications after the intervention. Patients manifested none of the systemic side effects of the dispensed chemotherapy.

### Learning Objectives

intra-ophthalmic chemotherapy for retinoblastoma is safe and efficacious with a very low risk of morbi-mortality.

### Conclusions

Selective intra-ophthalmic chemotherapy has become a gold standard in the treatment of retinoblastoma, with very low mortality, morbidity related to the procedure and a very high cure rate.

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