P-0786 | Eye Rescue in Patients with Retinoblastoma using Intravitreal Chemotherapy Injection in a Tertiary Institution at Mexico. Preliminary Report

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Background/Objectives: Retinoblastoma is the most common primary intraocular malignancy of infancy. Intravitreal chemotherapy is an effective modality for treating intravitreal disease. The purpose of this paper is to evaluate the efficacy and safety of intravitreal injection of melphalan for relapsed and refractory retinoblastoma in a period of two years (2014 -2016).

Design/Methods: This is a prospective cohort of patients with viable vitreous seeds of relapsed and refractory retinoblastoma. The patients received injections of melphalan 30 μg (range: 7-8 injections).

Results: All patients were at stage C (International Classification of Retinoblastoma). The follow up was at the interval of 9-23 months (median: 16 months) and ocular status response was classified in 3 groups: ocular rescue with active disease (n=1), ocular rescue with complete response (n=8), and failure with enucleation (n=1). Successful control of vitreous seeds was achieved in 8 of 10 patients. No one presented complications related to the procedure. There was no local tumour spread.

Conclusion: Intravitreal chemotherapy with melphalan is an effective treatment in patients with vitreous seeds for eye rescue, actually standardized in developed and developing countries. This treatment also avoids the use of radiotherapy with the known consequences.

P-0787 | Pharmacokinetics of Intra-Arterial Melphalan in Patients with Recurrent or Progressive Retinoblastoma Treated on Spog-Rb-2011, A National Phase II Study of the Swiss Paediatric Oncology Group

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Background/Objectives: Since the 1990s, intravenous (iv) chemotherapy has been the systematic first-line treatment used in the management of retinoblastoma, to reduce tumour volume and render it accessible to focal treatments as well as to avoid enucleation and/or radiotherapy. This approach has allowed globe preservation in the majority of group A-C tumors and in 19-60% of group D cases. Relapse or tumour progression in this group D patients constitute a major concern for globe salvage. Techniques of local administration of chemotherapy, such as Selective Ophtalmic Artery Chemotherapy (SOAC) administration offers an interesting alternative. We report here pharmacokinetic analysis of melphalan administered by SOAC in eight patients, their clinical response to SOAC and observed toxicities.

Design/Methods: Monocentric single arm, phase II prospective non-randomized study. Among included patients, plasma levels of Melphalan were determined by high-performance liquid chromatography/tandem mass spectrometry (LC-MS/MS) at 0, 0.5, 1.5, 3, 4 and 24 hours after unilateral SOAC administration of melphalan. Full blood counts were collected weekly.

Results: A total of 47 melphalan plasma concentrations from 8 consecutive patients were collected. Each patient received between 1 to 3 SOAC. Mean administered dose was 0.33mg/kg (SD: 0.05). Mean maximal concentration (Cmax) was 743 ng/ml (SD: 235) at 0.5 hour. Clearance was calculated at 0.24 L/h/kg (SD: 0.05) and mono-compartemental volume of distribution (Vd) was estimated at 0.27 L/kg (SD: 0.07). Six patient needed additional treatment. Seven patients had a favourable (no enucleation, no radiotherapy) final outcome whereas 1 had an enucleation. Two patients developed mild neutropenia (ANC 500-1000 G/L) 2 weeks after the administration, without fever or infection.

Conclusion: We report pharmacokinetic parameters of melphalan administered by unilateral SOAC in 8 patients. Whereas 6/8 patient needed additional treatment, final outcome was favourable in the majority (7/8) of patients. Two patients developed a mild neutropenia which did not seem to correlate with pharmacokinetic parameters.

P-0788 | Intra-Arterial Chemotherapy (IAC) in Children with Retinoblastoma: An Alternative to Avoid Enucleation and Radiotherapy

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Background/Objectives: To outline eye salvage rates, patient survival and adverse events of IAC for newly and relapsed retinoblastoma patients.

Design/Methods: Single institution retrospective review of all retinoblastoma patients treated with IAC from 01/2012 to 03/2016. One to 5 cyles every 3 weeks of IAC with melphalan for newly diagnosed patients or melphalan and topotecan for salvage treatment; with carboplatin to all patients with no response or progression after 2 drugs. 20% were group C, 51% group D and 13% group E. Local therapy as indicated between IAC, intravitreous was performed for all patients with vitreous seeds. Primary outcome was eye retention without need for radiotherapy. Toxicity was evaluated.

Results: Seventy one eyes (59 patients) that underwent IAC were included (average follow-up was 4.3 months, range 1-18 months). 29 were newly diagnosed and 42 eyes received prior treatment elsewhere. Median number of IAC cycles/eye as 3 (range 1-9). 71 eyes received intra-arterial melphalan, alone in 7 eyes. 35 eyes received carboplatin and 64 received topotecan. 12 eyes received intravitreous carboplatin due to vitreous seeds. 12 eyes (8 pretreated and 4 newly diagnosed) failed treatment and required enucleation. Radiotherapy was avoided in all cases. Toxicity Grade 3-4 (4 grade III and 8 grade IV) was more common in patients receiving treatment bilaterally. No child died of metastatic disease.

Conclusion: IAC is effective for treating retinoblastoma, achieving rates of eye salvage higher than systemic chemotherapy even in eyes previously treated and with international classification of retinoblastoma group D and E in most cases. It can be performed many times with multiple agents on one or both eyes. IAC with or without intravitreous chemotherapy can avoid external beam radiotherapy, reduced the use of systemic chemotherapy, and diminished enucleations without evidence of compromising patient survival. Toxicity is very mild.

P-0789 | Treatment of Retinoblastoma in Low Income Country Setting According to SIOP-PODC Guidelines – Interim Analysis

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Background/Objectives: Retinoblastoma is incurable in low income countries due to delayed diagnosis and poor access to health care.

Aim: To determine the outcome of children treated with low cost chemotherapy according to SIOP-PODC guidelines for low income countries.

Design/Methods: This is an interim analysis of 51 children recruited at Mbingo Baptist hospital, North-West Cameroon and treated with a modified treatment protocol for low income countries: surgery as indicated; Vincristine, Cyclophosphamide and Adriamycin on day 1 every 3-4 weeks if indicated. Ultrasound studies of the involved eye was done as other imaging studies were not available.

Results: Three patients were excluded due to toxoplasmosis retinitis. The male to female ratio was 1:1 and mean age 29 months (range 9 weeks -7 years). The majority (34%) had advanced disease (stages 3 and 4), followed by 29% with stage 1, stage 2 and 5 respectively 8 and 6%, stage 0 was 4%, and unknown stage in 19%. The left eye was most commonly involved (48%), while 16% were bilateral. Ultrasound was done in 46% of patients to determine the extent of disease prior to surgery and 73% had an enucleation done. The majority completed 6 cycles of chemotherapy (48%), while 10% received only pre-operative chemotherapy for tumour shrinkage before surgery and 10% were still on chemotherapy. A third are still alive, a third had died, while the rest were either still on treatment or being traced for final outcome.

Conclusion: Not all intraocular disease is retinoblastoma and in tropical regions toxoplasmosis must be excluded. Ultrasound may assist in determining extent of disease due to lacking of other imaging modalities. Chemotherapy is feasible for more extensive disease, especially for shrinking of large tumours prior to surgery. Final analysis will provide evidence for the efficacy of a modified treatment protocol.

P-0790 | Intra-Arterial and Intravitreal Chemotherapy for Advanced Intraocular Retinoblastoma: A Winning Combination

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Background/Objectives: To describe the efficacy of intravitreal chemotherapy (IViC) combined with intra-arterial chemotherapy (IAC) for the treatment of advanced stage retinoblastoma.

Design/Methods: This non comparative interventional case series retrospectively reviewed the medical records of ten patients who presented within months of each other with unilateral advanced intraocular retinoblastoma, Reese-Ellsworth (R-E) stage Vb/D of ABC Classification in the affected eye. After clinical and ophthalmoscopic evaluation, they underwent MRI to exclude local and CNS dissemination. The IAC was given to treat retinal masses and intravitreal injections to treat vitreous seeding. Patients had received 2 cycles (six infusions) of IAC (melphalan and topotecan), and from 6 up to 10 melphalan injections (20 μg) into the vitreous. No permanent complications of procedures have been reported. All patients underwent fundus examination every three weeks and bimonthly MRI examination during treatment and every 3 months for 1 year after last injection, to exclude orbital dissemination.

Results: Successful control (100%) of tumour masses and vitreous seeds was achieved in all cases at 12 months follow-up. Complications were posterior lens opacity, acute ischemic papillitis, partial CVR thrombosis, hypotonia (case 1), partial vitreous hemorrhage (case 4). No complications appeared in cases 2, 3, 5 and 6,7,8,9,10. No intraocular or orbital tumour recurrence or retinoblastoma metastases (follow-up range, 12 – 36 months) were observed.

Conclusion: Combined and alternated intra-arterial chemotherapy and intravitreal melphalan for advanced retinoblastoma allowed to provide retinal and vitreous seed control.

P-0791 | A National Retinoblastoma Patient Engagement Strategy for Research

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