E-070

TRENDS IN PEDIATRIC NEUROINTERVENTIONAL RADIOLOGY: A SURVEY OF A 23-YEAR EXPERIENCE IN INFANTS LESS THAN ONE YEAR OF AGE

A Baker*, M Caton, K Narsinh, D Cooke, M Amans, C Dowd, V Halbach, R Higashida, S Hetts. *University of California, San Francisco, San Francisco, CA*

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Background and Purpose Pediatric neurointerventional radiology is an evolving subspecialty with growing indications and technological advancement such as miniaturization of devices. The ability to perform these procedures is continuously balanced with necessity given the inherently higher risks of radiation^{1,2} and cerebrovascular injury in infants. Endovascular treatment of arteriovenous shunting lesions including vein of Galen malformations (VOGM), arteriovenous malformations (AVM) and arteriovenous fistulas (AVF) has been well established in pediatric patients including those of a very young age.^{3–5} More recently, intra-arterial chemotherapy (IAC) for the treatment of retinoblastoma has been used in this age group. The purpose of this study is to review our institution's neurointerventional experience in infants less than 1 year of age in order to elucidate trends in this delicate patient population.

Methods We retrospectively identified 123 patients from a neurointerventional database spanning 23 years (January 1997–October 2020) who underwent 209 procedures. Treatment type, indication, and location as well as patient demographics were extracted from the medical record. We excluded 7 patients with an age of greater than one year at the time of procedure as well as those with procedure requests without completion.

Results Neurointerventional procedures were performed as early as day of life 0 in a patient with an AVM resulting in hydrops fetalis. Average age of intervention in the first year of life is 5.8 months, and 37 of 209 procedures were completed in neonates (less than one month of age). IAC for the treatment of retinoblastoma comprised 33% of neurointerventional procedures completed in infants less than one year of age followed by lymphatic malformations (19%), VOGM (13%), and dural AVF (10%). Less frequent indications include non-Galenic pial AVF (4%) and tumor embolization (2%). Only 4 of 209 angiograms were negative. The total number of interventions has increased which is likely secondary to the onset of retinoblastoma treatment in 2010 at our institution.

Conclusion The introduction of IAC for the treatment of retinoblastoma in the last decade is the primary driver for the increased trend in neurointerventional procedures completed in patients less than one year of age from 1997 to 2020.

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E-071

NEUTROPENIA AFTER INTRA-ARTERIAL CHEMOTHERAPY FOR THE TREATMENT OF RETINOBLASTOMA

¹A Baker*, ²S Ammanuel, ¹M Caton, ¹K Narsinh, ³A Ashfar, ⁴A Banerjee, ¹D Cooke, ¹C Dowd, ¹M Amans, ¹V Halbach, ¹R Higashida, ¹S Hetts. ¹Department of Radiology and Biomedical Imaging, University of California, San Francisco, San Francisco, CA; ²University of California, San Francisco, San Francisco, CA; ³Department of Ophthalmology, University of California, San Francisco, San Francisco, CA; ⁴Department of Neurosurgery, University of California, San Francisco, San Francisco, CA

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Background and Purpose Intra-arterial chemotherapy (IAC) infusion for the treatment of intraocular retinoblastoma is an effective and relatively safe therapeutic option.^{1–3} However, one of the well described systemic complications following IAC is neutropenia.⁴ The purpose of this retrospective study is to examine the incidence of neutropenia over the course of treatment for each patient, and to further analyze if the incidence is affected by systemic chemotherapy or number of chemotherapeutic agents used for IAC.

Methods We retrospectively identified 76 patients from a neurointerventional database spanning 10 years (March 2010 – August 2020) who underwent 214 cycles of IAC. Patient demographics, treatment course, angiographic technique as well as pre and post procedural complete blood counts were extracted from the medical record. Neutropenia, including all grades I–IV, is defined by an absolute neutrophil count (ANC) equal to or less than $1.5 \times 10^9/L$. Eleven patients who did not obtain a post-procedural complete blood count during their treatment course were excluded. The presence of postprocedural neutropenia was further subdivided based on whether systemic intravenous chemotherapy was administered as well as according to the number of intra-arterial chemotherapeutic agents.

Results The overall incidence of neutropenia was 62% in our total patient cohort. There was no statistically significant difference between the incidence of neutropenia in patients who did and did not receive systemic chemotherapy. The majority of patients received two chemotherapeutic agents (melphalan and topotecan), of which 58% and 54% of patients experienced neutropenia with and without systemic chemotherapy, respectively. The highest incidence of neutropenia was 100%, in five patients who received systemic chemotherapy and a three agent intra-arterial regimen (melphalan, topotecan, carboplatin).

Conclusion Neutropenia is a systemic toxicity in more than half of patients who receive IAC infusion for intraocular retinoblastoma, and does not significantly differ in patients who do and do not receive systemic chemotherapy.

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