**CN-04. TREATMENT OF PEDIATRIC CEREBRAL RADIATION NECROSIS: A META-ANALYSIS**
Nicole Drezner, Elizabeth Wells, Gilbert Vezina, Cheng-ying Ho, Roger Packer, and Eugene Hwang; Children’s National Medical Center, Washington, DC, USA

**BACKGROUND:** Cerebral radiation necrosis (CRN) is a well-characterized toxicity of radiation therapy that can result in significant neurologic deficits and be life threatening. Treatment for CRN has included surgical resection, corticosteroids, hyperbaric oxygen therapy (HBOT), and bevacizumab among other modalities, but no consensus approach has been identified. Given the paucity of pediatric CRN data, we sought to codify the approaches to treatment of radiation necrosis in pediatric patients. **METHODS:** The Cochrane Central Register of Controlled Trials (CENTRAL) and Ovid MEDLINE were searched to identify all relevant pediatric reports. **RESULTS:** Thirty-one pediatric patients, twenty-six with primary central nervous system tumors and four with arteriovenous malformations developed CRN, diagnosed by characteristic MRI findings, most (n = 28) with accompanying neurologic deficits. Patients received treatment with steroids alone (n = 5) or steroids followed by bevacizumab (n = 11) or HBOT (n = 12). Three asymptomatic patients did not receive intervention. 10/11 patients treated with steroids and bevacizumab, and 11/12 treated with steroids and HBOT improved. In all cases of steroid-resistant CRN, addition of bevacizumab induced improvement except in one case of disease progression. One patient treated with steroids alone died with progressive neurologic deterioration. With the exception of steroid-related adverse events, there were no reported significant side effects. **CONCLUSIONS:** Due to the small numbers of pediatric patients with CRN, analysis of treatment modalities is confined to limited reports. Furthermore, cases of CRN are likely underreported as we have seen much higher rates of CRN than the 3-5% reported in the literature at our institution in the past five years. The most common treatment following steroid initiation is addition of either bevacizumab or HBOT with good success. However, larger randomized controlled trials are needed to establish a definitive treatment algorithm that can be applied to children affected by CRN.