[NM-219] Anesthetizing Light Sensitive Patients after Photofrin Therapy - An Initial Case Series of 3 Patients

Meinecke B, Varadarajan J
Children's Hospital of Wisconsin , Milwaukee , WI, USA

Introduction
We present a case series with our experience and recommendations after successfully anesthetizing 3 photosensitive patients during this phase 1 trial utilizing Photofrin (porfirmir sodium) and PDT at our institution. Patients undergoing PDT therapy are administered a dose of visible light spectrum sensitizing agent 24 hours prior to operation, as peak absorbance in malignant tissue occurs by that time. Light-exposure precautions start at the time of injection and are followed for up to 30 days post injection.

Case 1: 15-year old male with recurrent medulloblastoma, complicated by acquired hydrocephalus. He underwent suboccipital craniotomy with an operative time was 7 hours. He was extubated in the operating room without incident. No new neurological defects noted postoperatively.

Case 2: 2-year old male with recurrent ependymoma, complicated by acquired facial nerve dysfunction, possible hearing loss, and ataxia from prior treatment. He underwent resection of the posterior fossa, operative time was 5 hours. Operative course was uneventful and he was extubated in the operating room. No new neurological defects postoperatively.

Case 3: 5-year old female with recurrent ependymoma. She underwent extensive evaluation of her vocal cord function preoperatively and was found to have full right-side paralysis but no evidence of aspiration or respiratory compromise. She underwent posterior fossa resection with an operative time of 6 hours. She was extubated in the operating room without incident.

Discussion
Recurrent cancer presents many challenges to the provider team caring for the patient. In 1967, photodynamic therapy (PDT) was initially described in the detection of malignant lesions1. This method uses a hematoporphyrin derivative and fluorescence to identify malignant tissue. This was later used with a laser to activate the molecule and generate oxygen free radicals to destroy malignant tissue2. Renewed interest in PDT therapy has come about with increasingly difficult to treat recurrent cancers. The use of PDT has brought about several potential challenges to the anesthetic provider in particular. The laser used for the optimal tissue destruction operates at 630nm. This wavelength is close to that of a standard pulse oximeter (660nm) and the wee sight transilluminator (629nm). This was been reported to cause burns after exposure3. Near-Infrared Spectroscopy may also present a burn risk (800nm to 2500nm). Initial recommendations include minimizing pulse oximetry exposure (<15 minutes per site)4, which creates the need for alternate routes of monitoring. There are several other situations that could necessitate a prolonged exposure to light (difficult airway, difficult vascular access) that need to be examined in the preoperative period, and appropriately planned for. These patients also remain photosensitive for up to 30 days post-treatment5. This requires special precautions with transportation, postoperative imaging, and any emergency procedures arising after surgery.

1. Lipson, et al. Cancer 1967; 20:2255-7
2. Dougherty, TJ, Marcus SL. Eur J Cancer 1992; 28A:1734-42
3. Farber, NE, McNeely J. Anesthesiology 1996; 84: 983-5
4. Woehlck, H, et al. Anesth Analg 2003. 96:177-8
5. Protofrin package insert
