

Pharmacologic interventions are often used to assist with immobilization and decrease anxiety in pediatric patients undergoing radiation therapy. For these patients, distraction can be an alternative to using pharmacologic measures to address anxiety. As a distraction technique, this pilot project placed pediatric patients aged 3 to 6 years in a remote-controlled ride-on car (RC-ROC) to enter and exit the radiation therapy treatment room. Evaluation of the effectiveness of this distraction technique included patient propofol dosing, time sedated, and time in the treatment room, as well as staff satisfaction with the technique.

#### AT A GLANCE

- For pediatric patients receiving radiation therapy, an RC-ROC can be an effective distraction technique.
- Using this RC-ROC before a child's radiation treatment session may reduce a patient's propofol induction dose, total dose, and time under sedation.
- Radiation therapy staff responded favorably to using this RC-ROC strategy during pediatric patient treatment sessions.

#### KEYWORDS

pediatric patients; anxiety; radiation therapy; procedure; nonpharmacologic

#### DIGITAL OBJECT IDENTIFIER

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# Reducing Pediatric Patient Anxiety

Implementing a nonpharmacologic intervention to aid patients undergoing radiation therapy

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Pediatric patients with cancer undergoing radiation therapy present a unique problem for healthcare professionals administering oncologic treatments. Young children do not have the coping skills afforded to adults (Ritchie et al., 1988), particularly during the use of tight-fitting immobilization techniques placed under or over the patient to maintain position (Hiniker et al., 2017; Osborn & Sandler, 2004; Owusu-Agyemang et al., 2014; Scott et al., 2016; Tsai et al., 2013; Willis & Barry, 2010). Being locked down or strapped down is challenging enough for adults, let alone young children who are developmentally and behaviorally immature (Nixon et al., 2019). In addition, exposure to threatening environments and separation from caregivers during treatment may cause separation anxiety. Unfamiliar people and medical equipment can lead to exacerbation of apprehension and anxiety for both the child and the caregiver, compounding the child's anxiety (Bearden et al., 2012; Felluga et al., 2016; Fortier & Kain, 2014; Salmela et al., 2009, 2011). These factors often require the child to receive anesthesia or sedation that may delay or extend treatment time and require higher-level nursing skills. The use of sedation medication can last for a period of as long as six weeks and may be administered twice daily in some instances (Bearden et al., 2012; Felluga et al., 2016; Fortier & Kain, 2014; Salmela et al., 2009, 2011). The correlation between successful management

of anxiety and adequate sedation in children, and the increased usage of anesthesia, has previously been demonstrated (Schreiber et al., 2006).

Sedatives or analgesics can lead to acute minimal, moderate, major, or long-term complications, particularly with recurrent administrations (Fortney et al., 1999; Ozer & Ozcan, 2017). Minimal risks include emergence agitation, nausea, cough, and vomiting with risk for aspiration. Moderate risks include bradycardia, tachycardia, ataxia, hallucinations, and hypercapnia. Major risks include laryngospasm apnea and need for airway support (Chidambaran et al., 2015; Kim et al., 2019). Impaired cognitive development may be a long-term risk from sedation or analgesia (Chidambaran et al., 2015).

Distraction techniques have been identified as measures that are effective in reducing apprehension, anxiety, and the need for pharmacologics or sedation for children undergoing radiation therapy (Barry et al., 2010; Hiniker et al., 2017; Scott et al., 2016; Tsai et al., 2013; Willis & Barry, 2010). Nonpharmacologic interventions used to reduce pediatric preprocedural anxiety may reduce risk for infection, exposure to medication side effects, delays in treatments, and associated healthcare expenditures (Hiniker et al., 2017; Osborn & Sandler, 2004). However, use of a remote-controlled ride-on car (RC-ROC) as a distraction technique for children receiving radiation therapy has not been evaluated.

The purpose of this pilot project was to evaluate the impact of a RC-ROC as a