FEATURE ARTICLE

The Use of Oral Transmucosal Fentanyl Citrate During High-Dose-Rate Gynecologic Brachytherapy

Carol Proud, RN, BSN, OCN®

Gynecologic brachytherapy is a form of cancer treatment in which radioactive sources are placed into the pelvic organs via specialized applicators. Traditional low-dose-rate (LDR) brachytherapy has been performed over several days in a hospital setting. Since the 1990s, high-dose-rate (HDR) brachytherapy has been used increasingly because of its decreased treatment time, outpatient administration, and equal or superior efficacy compared with LDR treatment. However, the management of procedural pain in the radiation oncology setting has not been studied extensively. The purpose of this article is to discuss the use of oral transmucosal fentanyl citrate (OTFC) for the management of pain during gynecologic HDR brachytherapy. OTFC provides noninvasive, rapid analgesia with a low incidence of side effects and may be appropriate for other forms of procedure-related cancer pain.

Since the 1990s, high-dose-rate (HDR) brachytherapy for the treatment of gynecologic malignancies has become increasingly available in the United States. This form of radiation therapy offers distinct radiobiologic, technologic, and economic advantages over traditional low-dose-rate (LDR) brachytherapy and usually is performed in outpatient settings (Nag et al., 2000). Gynecologic brachytherapy is initiated by the placement of intracavitary applicators into the uterus and vagina, a process formerly performed under general anesthesia (Gosselin & Waring, 2001; Velji & Fitch, 2001).

In radiation oncology settings, procedural pain is a relatively new phenomenon and has not been well documented or studied. The assessment and treatment of procedure-related cancer pain in outpatient environments pose unique challenges for clinicians. Analgesia is essential to patient comfort and facilitates correct applicator placement, thus improving dose delivery to the target area and decreasing potential toxicity to adjacent critical structures (Thomadsen et al., 1992). The purpose of this article is to discuss the use of HDR tandem and ovoid brachytherapy to treat gynecologic cancers, as well as the administration of oral transmucosal fentanyl citrate (OTFC) to treat pain associated with tandem and ovoid applicator insertion.

At a Glance

- High-dose-rate brachytherapy for gynecologic malignancies often is performed in outpatient settings.
- Few studies of procedural pain management for adults are available to guide clinicians who perform brachytherapy.
- Oral transmucosal fentanyl citrate is a novel opioid with a pharmacologic profile that matches the qualities needed to adequately manage pain in outpatient settings.

Brachytherapy for Gynecologic Malignancies

Radiation therapy is a major treatment modality for most gynecologic cancers. Often given in combination with surgery or chemotherapy, ionizing radiation damages RNA or DNA. Resulting mutations alter cell function or mediate cellular necrosis or apoptosis. Radiation therapy is given in divided doses (fractions) to allow restoration of normal cellular function in surrounding healthy tissues and organs; neoplastic cells have a more limited ability to regenerate following radiation exposure.

In addition to traditional external beam radiation therapy (EBRT), women with gynecologic malignancies often receive brachytherapy to enhance the possibility of cure (Ahamad & Jhingran, 2004). Brachytherapy is performed by placing radioactive

Carol Proud, RN, BSN, OCN®, is a clinical leader in radiation oncology at Abington Memorial Hospital in Pennsylvania. No financial relationships to disclose. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the *Clinical Journal of Oncology Nursing* or the Oncology Nursing Society. (Submitted August 2006. Accepted for publication December 3, 2006.)

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