Hybrid Intracavitary and Interstitial Brachytherapy for Cervical Cancer in the Outpatient Setting

Gabriella L. Smith, MD, University of Arizona College of Medicine Phoenix

Topic: Cervical

Objectives
Image-guided hybrid intracavitary and interstitial brachytherapy (HBT) for the treatment of locally advanced cervical cancer may improve outcomes compared to intracavitary brachytherapy alone. Pain control is usually achieved with general anesthesia (GA), which increases both treatment duration and the risk of complications with each treatment. Here we detail the results of our institution’s protocol with CT-guided interstitial needle placement, utilizing minimal sedation.

Methods
A single-institutional database of patients who underwent HBT for cervical cancer from June 2018 to May 2020 was queried. Patterns of anesthesia usage, step-by-step procedural times, medication usage, and treatment-related complications were reviewed. All patients had a Smit sleeve placed in the OR under GA days before their first HBT treatment. Prior to HBT, patients received minimal sedation, composed of oral lorazepam and hydrocodone/acetaminophen. Tandem and ovoids were inserted and interstitial needles were placed under CT guidance. The patients were moved from the CT table to a surgical bed, and then to the radiation vault for treatment delivery. The applicator was then removed and vaginal packing was inserted if any bleeding occurred.

Results
A total of 244 implants were placed in 63 patients under minimal sedation. 61 patients (96.8%) tolerated the procedure, 2 (3.2%) required epidural anesthesia, and 0 required transition to GA. The median time for the entire procedure (CT room entry to exit of the HDR room) was 70.0 mins (mean 70.3 mins, range 54-100 mins). The median time for the interstitial needle insertion portion was 9.0 mins (mean 9.8 mins, range 4-24 mins). Bleeding occurred in 54 (22.1%) implants, which resolved after 3 minutes of vaginal packing (mean 3.33 mins, range 1-8 mins).

Conclusions
Our outpatient HBT protocol was efficient and well-tolerated, with reasonable bleeding rates which were minimal and quickly resolved. HBT with minimal sedation was achievable at a high percentage (96.8%). The performance of HBT without GA may reduce treatment time, costs, and anesthesia-related adverse effects. Treatment with minimal sedation has the potential to enable more universal use of HBT, improve brachytherapy dosimetry, and enhance patient outcomes. Further investigation is warranted.