

## عنوان مقاله:

Design and Implementation of a Complementary Treatment Planning Software for the GZP6 HDR Brachytherapy  
(System (GZP6 CTPS

## محل انتشار:

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## خلاصه مقاله:

**Introduction:** Brachytherapy is one of the most common treatment modalities for gynecological cancer. The GZP6 brachytherapy system is one of the devices utilized in Iran. It has been considered particularly due to its low cost compared to other more complete and established systems. This system has some deficiencies including lack of a treatment planning software for non-predefined treatments, inability to change the gradually changeable dosimetric variables and using a point source estimation in dose calculation. This report presents a complementary treatment planning software (CTPS) to the system's own dedicated program. **Material and Methods:** First, the dosimetric characteristics of three GZP6 sources were calculated based on the TG-43 protocol using the MCNP4C Monte Carlo code. Then, the calculated dose distribution around the implanted applicators, based on the selected dwell positions and dwell times, was shown in a graphical user interface (GUI) written using the MATLAB software. **Results:** The computation uncertainty in the resulting TG-43 parameters was about 1% and the calculated parameters were in good agreement with similar studies on cobalt-60 source dosimetry. Furthermore, the GUI is prepared as a user-friendly executable file which can be installed on any operating system. **Discussion and Conclusion:** Since different patients have distinct anatomy and physical conditions, a program for non-predefined situations of source arrangement is necessary. Using GZP6 CTPS can satisfy this requirement.

## کلمات کلیدی:

Brachytherapy, GZP6 System, Treatment Planning Software, TG-43

## لینک ثابت مقاله در پایگاه سیویلیکا:

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