

UltraRad – A Method and Probe to Enhance Radiation Delivery

Published date: Feb. 1, 2012

Technology description

Summary

A catheter like probe equipped with an ultrasound transducer for precise local imaging of the tumor, and proprietary radiation dosimeters for measuring the amount of radiation delivered by the external beam. The probe would also be equipped with a flow-through drug delivery system that could provide radiation opaque material to protect the area surrounding the tumor from radiation damage. It is envisioned that controlling the external radiation beam will be in response to radiation detected by the probe. Of interest is the utility of the probe in phantom models and prostate cancer. The method and apparatus utilizes a radiation-detecting array of radiation sensitive dosimeters for the real-time remote measurement of radiotherapy at the radiation-detecting array. The radiation-detecting array is positioned within the patient's body along the treatment path before or after the identified radiotherapy target or the device may be positioned beyond the patient to measure transit dose. A radiation source for emitting radiation for radiotherapy along a treatment path through the patient to the identified radiotherapy target is utilized. The method includes generating a predicted dose pattern of radiation at the placed radiation-detecting array. The predicted dose pattern assumes an on-target radiation source emitting the radiotherapy beam along the treatment path through the patient to the identified radiotherapy target. Gating of the radiation source can occur responsive to the comparing of the predicted dose pattern of radiation to the real-time dose pattern at the radiation-detecting array. Radiation intensity can vary between low levels to a treatment level responsive to coincidence of the predicted dose pattern of radiation to the real-time dose pattern at the radiation-detecting array.

Institution

[NIH - National Institutes of Health](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com