Researchers at the University of South Florida have developed novel applicators and methods for administering therapeutic agents to cancerous tissue. This invention will improve the process of radiation therapy by customizing the procedure to suit the patient’s needs.

In radiation therapy, brachytherapy is a commonly used form of treatment for cervical, prostate, breast and skin cancer that applies precisely delivered radiation sources to treat cancer within patients. This practice requires the placement of small applicators, or catheters, in close proximity to cancerous tissue. With the applicator in such a tumor-specific area of the body, doctors are able to deliver higher doses of radiation than more conventional forms of radiation therapy that project radiation from outside the body. However, the applicators are not optimized for distributing novel, adjunctive therapeutic agents within the cancer tissue that is being irradiated.

Our researchers have devised an improved method and device for the delivery of additional therapeutic agents into cancerous tissue coordinated with the radiation treatment. This method is embodied in various forms of device order to tailor the procedure to meet the needs of the novel treatment strategies. The number of openings and the length of the region along the applicator can be varied depending on the tumor type and size being treated. Also, the size of the openings may vary to accommodate the therapeutic agent being used and with regards to previous or future treatment regimens. Additional therapeutic agents, including immunotherapy agents, dendritic cells, chemotherapy, antibodies, vaccines and others, can be incorporated into the treatment in order to maximize the therapeutic effect.

ADVANTAGES:
- Customizes medical procedures with new adjunctive agents
- Administer additional agents to complement irradiation

Illustrations of example devices for delivering a therapeutic agent to a subject

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