

## **Outpatient interstitial thermoradiotherapy**

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### **Keywords**

hyperthermia; interstitial thermoradiotherapy; microwave hyperthermia; brachytherapy

### **BACKGROUND**

Hyperthermia enhances the cytocidal effect of ionizing radiation. Several pilot studies demonstrated that the combination of interstitial hyperthermia and interstitial radiotherapy (interstitial thermoradiotherapy) is safe and effective. However, these studies mainly utilized low dose rate brachytherapy, and therefore, required hospitalization. With the availability of median or high dose rate brachytherapy devices, we piloted a study to evaluate the feasibility, toxicity and efficacy of interstitial thermoradiotherapy performed in an outpatient setting.

### **METHODS**

Between 1989 and 1993, 27 patients with a diagnosis of carcinoma of the head and neck region (n = 23), carcinoma of the breast (n = 3), or malignant melanoma (n = 1) received 1 or 2 sessions of interstitial thermoradiotherapy. Median patient age was 66 years (range: 37-83 years). Treatment consisted of 60 minutes of 915 MHz microwave interstitial hyperthermia, followed by iridium-192 seed implants, either by Micro-Selectron HDR (10-12 Gray [Gy] in 8.5-21 minutes) or high activity (5-8 mCi per seed) seeds (10-15 Gy in 2-4 hours). In addition to interstitial temperature measurements, a real-time thermal camera was used to monitor the surface temperature spatial distribution. Power supply and/or position of interstitial microwave applicators was adjusted when appropriate. All but one patient also received external beam irradiation prior to implants.

### **RESULTS**

Patients tolerated treatments well although 16 (59%) of them required analgesics during hyperthermia sessions. Skin blisters or ulcerations occurred in only 6 (22%), and all but 2 healed. Complete response occurred in 24 patients (89%), partial in 3 (11%). With a median follow up of 16 months (range: 3-43 months), the 2-year actuarial local control rate was 74%.

### **CONCLUSIONS**

The results of this study indicate that outpatient interstitial thermoradiotherapy is convenient, safe, and efficacious for treating human neoplasms. **Cancer** 1996;77:2363-70.

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