

Radiofrequency ablation. A new and promising approach for inoperable stage I non-small cell lung cancer

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Lung cancer is one of the leading causes of cancer death in the world. Although the standard treatment of stage I non-small cell lung cancer (NSCLC) is surgical resection, there will always be a group of patients not suitable for surgery, mainly because of coexistent morbid medical conditions. For these patients, the current data suggest the use of external radiotherapy (ERT) with or without chemotherapy, with an overall 5-years survival rate of 15% for all stages combined.

The purpose of this study was to demonstrate the benefit of a novel therapy combination, in order to improve the poor response of lung cancer to the best current treatment strategies: radiofrequency ablation (RFA) followed by conventional XRT. This approach was applied to a group of twenty-four patients (14 women and 10 men), not suited for surgical resection, with biopsy-proven stage I NSCLC. RFA is a minimally invasive technique, based on the tissue local heating, after the insertion of an radiofrequency electrode into the tumor bed; the heating leads to coagulation necrosis and induces cell death in a controlled manner.

All the twenty-four patients underwent CT-guided RFA followed by conventional ERT and had a mean follow-up period of two years. There were no treatment related deaths or cases of acute pulmonary toxicity due to radiotherapy. The cumulative survival rates were 50% and 39% at the end of 2 years and 5 years, respectively. Two patients had local recurrence (8,3%), while nine patients had systemic metastatic disease. Pneumothorax developed in seven patients, but only three required chest tube drainage (12,5%); pleural effusions followed the treatment in six patients (25%), only one being malignant. Only one patient had one episode of transient hemoptysis.

The poor response of lung cancer to the conventional treatment schemes lead to the need of developing alternative methods that would improve life quality and survival rate in nonsurgical stage I non-small cell lung cancer patients. The use of RFA followed by conventional radiotherapy seems to be safe and promising, with encouraging outcomes when compared to radiotherapy alone. Long-term studies need to validate the promising first time use of this novel combination.

Comment on the paper:

Dupuy DE, DiPetrillo T, Gandhi S, Ready N, Ng T, Donat W, Mayo-Smith WW – Radiofrequency Ablation Followed by Conventional Radiotherapy for Medically Inoperable Stage I Non-small Cell Lung Cancer. *Chest* 2006; 129:738-745