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Lung alert

Inflammation caused by radiofrequency ablation for lung cancer is worse after radiotherapy and in large tumours

The use of radiofrequency ablation (RFA) of solid primary and metastatic pulmonary tumours in poor-risk surgical patients is increasing. The authors report on percutaneous RFA with particular reference to inflammation-related complications in a series of 130 patients undergoing 327 ablation sessions using C-reactive protein (CRP) as a marker for inflammation. RFA was performed with CT guidance using the internally-cooled impedance-modulated Cool Tip system (Valleylab, Boulder, CO, USA). The mean lesion size was 2.4 cm and 71% were metastases. Two hundred and seventeen of the 327 sessions were preceded by previous surgery (n = 34), external beam radiotherapy (EBRT) (n = 17) or chemotherapy (n = 198).

Following RFA the mean CRP value increased from 1.3 mg/dl to 3.4 mg/dl. The reported incidence of inflammation-related complications was 1.2%, although five cases of abscess formation were not included in this group (revised incidence 2.7%). This is lower than previously reported and could be due to continuing antibiotics 24–48 h after the procedure. There were two deaths (0.6%) 8 and 69 days after the procedure, both ascribed to radiation pneumonitis based on the clinical symptoms and distribution of pneumonic change on CT in patients who had previous EBRT. Using multiple logistic regression analysis, large tumour size and previous EBRT were significant risk factors while the number of punctures, type of tumour, chemotherapy or previous surgery were not.

The authors suggest that mechanical lung injury with RFA may worsen development of radiation pneumonitis, although the incidence here is very low. This is important, as there is increasing evidence of improved outcome in sequential treatment with EBRT and RFA. Based on these findings, it might be prudent to perform the EBRT after RFA. If performed afterwards, monitoring of KL-6 and cytokine levels may also be used to predict radiation pneumonitis before referral for RFA.

- Nomura M, Yamakado K, Nomoto Y, *et al*. Complications after lung radiofrequency ablation: risk factors for lung inflammation. *Br J Radiol* 2008;**81**:244–9.

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