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1: Surg Oncol. 1994 Feb;3(1):45-52.

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Combined hyperthermia and immunotherapy treatment of multiple pulmonary metastases in mice.

Strauch ED, **Fabian DF**, **Turner J**, **Lefor AT**.

Department of Surgery, University of Maryland, Baltimore 21201.

The combination of immunotherapy and hyperthermia results in a greater reduction in tumour growth compared to either therapy used alone in a murine subcutaneous tumour model. To evaluate this combination further we tested it in a murine pulmonary metastasis model. Mice were given 5 x 10(5) MCA-105 sarcoma cells on day 0 intravenously resulting in the formation of pulmonary metastases. Mice were treated with local hyperthermia to the left hemithorax with a transcutaneous microwave applicator or with whole-body hyperthermia to 41 degrees C for 30 min on days 3 and 6. Immunotherapy included 5 x 10(7) syngeneic LAK cells administered on days 3 and 6 and interleukin-2 given intraperitoneally three times daily on days 3-7. Animals were killed on day 12 and pulmonary nodules enumerated. While the addition of whole-body hyperthermia to immunotherapy had no significant effect on tumour growth, the combination of local hyperthermia and immunotherapy significantly decreased the number of pulmonary nodules by 94% compared to controls in combined experiments. The mechanism of this beneficial effect may be related to increased trafficking of immune active cells to the tumour-bearing site, an increase in the sensitivity of tumour cells to lysis, or perhaps a local release of cytokines induced by hyperthermia. This study established the efficacy of combined immunotherapy and hyperthermia for the treatment of visceral metastases and provides impetus for the initiation of clinical trials.

PMID: 8186870 [PubMed - indexed for MEDLINE]

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