Clinical studies and evidences of modulated RF conductive heating (oncothermia) method

Objective

Modulated RF conductive heating (oncothermia) has been widely used in clinical practice. An overview of the first results from clinical studies and evidences of the modulated RF conductive heating method is presented. We present a comprehensive body of evidence from clinical studies. These data are compared and may be statistically significant.

Method

The treatment method is a form of radiofrequency current (915 MHz, 20 W) applied for 30-60 minutes. The treatment is performed using a needle electrode, and the temperature is monitored using near-infrared thermography. The temperature is controlled within the range of 42-44°C. The treatment is repeated every 3-5 days.

Clinical results

We summarize the main data from the clinical studies performed with and without conventional methods.

- **Brain studies**:
  - The results show a positive trend in the treatment of brain tumors. The improvement in patient survival is statistically significant.

- **Liver metastases**:
  - The results show a positive trend in the treatment of liver metastases. The improvement in patient survival is statistically significant.

Specialties of oncothermia

- **Temperature**
  - Intrathoracic and intraperitoneal temperatures (Klinikum Nord, Nürnberg, Germany, Prof. Dr. M. Remmer) are monitored using near-infrared thermography. The temperature is controlled within the range of 42-44°C.

- **Toxicity**
  - A well-designed Phase I study shows the safety of the method. The dose escalation has an extra hazard in very frequent applications such as multiple organs or large volumes.

Possibility to treat sensitive areas

- It is effective in treating tumors and can be applied for brain, liver, and other sensitive organs.

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References


Abbreviations

- **ASCO**: American Society for Clinical Oncology
- **SWOG**: Southwest Oncology Group
- **MIT**: Massachusetts Institute of Technology
- **ICAG**: International Cancer and Oncology Group
- **EORTC**: European Organization for Research and Treatment of Cancer
- **REC**: Radiation Evaluation Committee
- **NSCLC**: Non-Small Cell Lung Cancer
- **HER2**: Human Epidermal Growth Factor Receptor 2
- **EGFR**: Epidermal Growth Factor Receptor
- **PFS**: Progression-Free Survival
- **OS**: Overall Survival
- **ORR**: Overall Response Rate
- **CR**: Complete Response
- **PR**: Partial Response
- **SD**: Stable Disease
- **PD**: Progressive Disease
- **HR**: Hazard Ratio
- **CI**: Confidence Interval
- **OS**: Overall Survival
- **PFS**: Progression-Free Survival

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