P-12: Oliver Szasz, Gabor Andocs, Nora Meggyehazi, Andras Szasz (2012) Oncothermia – personalized treatment option

Oncothermia - personalized treatment option

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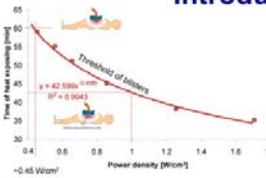
Objective

The personalization of the oncological treatments is the new trend in modern medicine [1]. Oncothermia is a personalized treatment by tuned energy delivery to the targeted tumor [2]. This energy is well focused on cellular level [3], and makes the dose of energy optimal for cell destruction [4]. The personal feedback of the patient together with the natural homeostatic control of the treatment actions makes the treatment realistically personalized. [5]

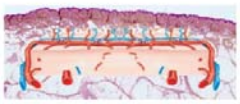
Introduction

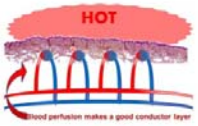


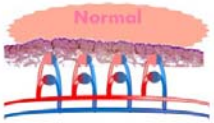
When the energy taken away by cooling and by the bolus is high and uncontrolled, than no control on the treatment as well.

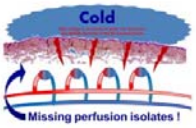
Discussion

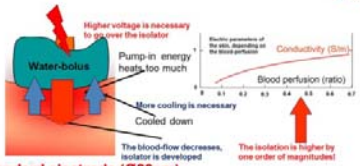
The main factor of the homeostatic control is physiological, based on the active homeostatic control of the blood-perfusion and blood-flow regulating the energy-intake and heat-exchange in the target. The high blood-flow is an effective heat-exchanger, cools the given volume. The well conducted treatment optimizes the current flow-density through the lesion, and optimizes the treatment. One of the crucial points is the surface heat-regulation, which has to be carefully done by the electrode systems. When the surface temperature kept constant, the nerves mainly regulate the current density, which is the clue of the objective regulation. This regulation is also stress dependent, and depends on the human race-variants as well. The step-up heating is important not only avoid the inconveniences, but regulate the adaptation mechanisms. Healthy cells can be adapted to the electric/heat-stress, while this adaptation is much less in the malignant lesions. The applied step-up heating supports the physiological selection and makes the contrast of the reaction definite. Recognizing the hysteresis type of SAR-temperature development the protocol could be well conducted. Using the Weibull distribution function of the transport processes as well as considering the typical physiological relaxation time of the tissues special protocols can be developed for all the deep-seated treatments of various organs.



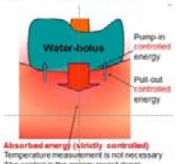






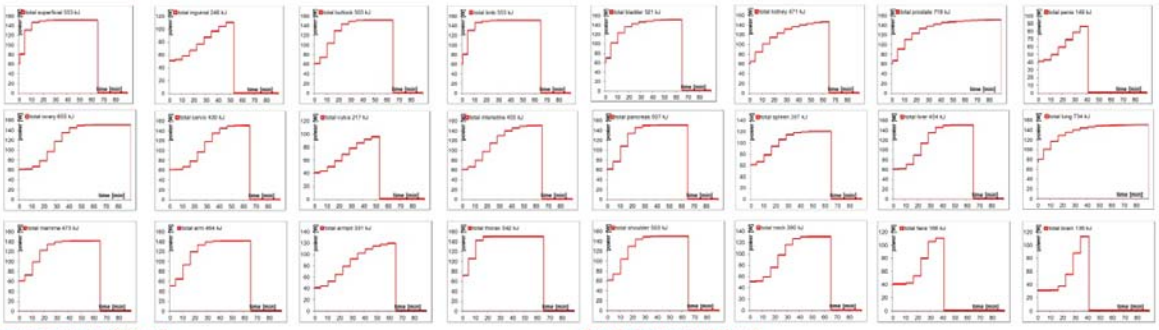


Standard electrode (Ø20cm)



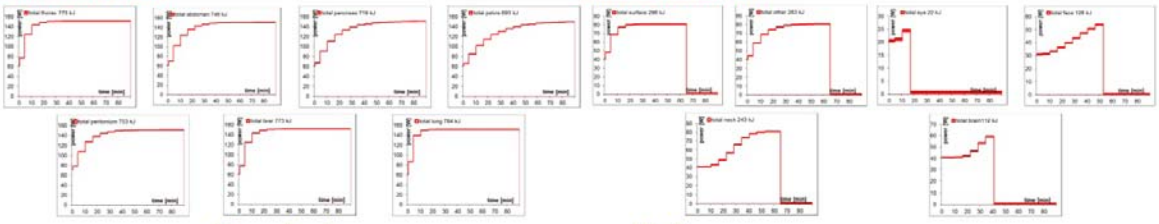
This patented technique makes possible

- ✓ Temperature measurement is not necessary, the energy control is valid
- ✓ We get the highest available RF-current, which does the decisional effect
- ✓ Oncothermia is extraordinarily safe and effective
- ✓ It is possible to make special protocol proposals for general use, and it modified by patients needs



Large electrode (Ø30cm)

Small electrode (Ø10cm)



Conclusion

Oncothermia with its surface stabilized sensing (patented action) uses the personal sensing in objectivity of the actual energy-dose. This makes possible the accurate and personalized treatment by this method.

In memoriam Reka Szasz

References

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