International Journal of Hyperthermia

ISSN: 0265-6736 (Print) 1464-5157 (Online) Journal homepage: informahealthcare.com/journals/ihyt20

Letter to the editor: Intracorporeal whole body hyperthermia: toxicity assessment

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To cite this article: G. J. Wiedemann, D. M. Katschinski, M. Mentzel, D. Mulkerin & H. I. Robins (1997) Letter to the editor: Intracorporeal whole body hyperthermia: toxicity assessment, International Journal of Hyperthermia, 13:2, 249-250, DOI: 10.3109/02656739709012388

To link to this article: https://doi.org/10.3109/02656739709012388

Published online: 09 Jul 2009.

INT. J. HYPERTHERMIA, 1997, VOL. 13, NO. 2, 249–250

Letter to the editor
Intracorporeal whole body hyperthermia: toxicity assessment

We have reviewed with interest the recently published letter by Shecterle *et al.* (*International Journal of Hyperthermia*, **12**, 569–571, 1996) regarding a 'new invasive device' for whole body hyperthermia (WBH). The authors pointed out that their new methodology avoids the problem of serial cannulation, which can cause complications. In our view, this is not the major problem associated with extracorporeal WBH. In this regard, the most recent peer-reviewed experience (utilizing extracorporeal hyperthermia and chemotherapy) using a dialysis device (Wiedemann *et al.* 1994), as well as a subsequent experience using a heat exchanger (Wiedemann *et al.* 1996b), demonstrated grade 4 (WHO) renal toxicity. This was related in part to hypotension and associated decreased renal perfusion. This was observed in spite of the fact that Wiedemann *et al.* used high dose dopamine and noradrenaline to minimize morbidity and prevent mortality. Interestingly when the same chemotherapy was utilized with exactly the same patient population (i.e. sarcoma patients) all of the significant aforementioned toxicity was eliminated (Wiedemann *et al.* 1996a) utilizing the *Aquatherm* radiant heat WBH system (Robins 1994, Robins *et al.* 1996). We noted that Shecterle *et al.* provided no data regarding either blood pressure, blood flow rates, fluid rates or follow up creatinines in the animals tested. It would be assumed, based upon the collective experience with extracorporeal hyperthermia over the years, that these values would be abnormal in comparison to non-invasive radiant-heat devices (Robins *et al.* 1985, Robins 1994). Other issues not addressed include: the potential risk of heparin, and other drugs, e.g. diuretics and steroids (used to treat the common complication of extracorporeal hyperthermia, i.e. pulmonary oedema) as well as antibiotics (which is a requirement with canine and clinical extracorporeal WBH). Beyond this, the authors elude to a significant depression of platelet counts, which is a major clinical toxicity and is unique to extracorporeal WBH. Finally, the authors do not comment on the excessive cost and labour intensive aspects of performing clinical extracorporeal hyperthermia which includes general anaesthesia, Swan-Ganz catheterization, arterial lines, and intensive care unit observations.

In summary, based upon our own clinical experience with the extracorporeal and non-invasive radiant-heat WBH, as well as the information reported by Shecterle *et al.*, we reject the concept that the mere survival of animals following extracorporeal hyperthermia suggests safety or efficiency for treating patients with neoplastic diseases.

Acknowledgment

Studies made with the support of Cancer Res Inc., NY; GJW & DMK Deutsche Forschungsgemeinschaft.

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