

Abstracts

Hyperthermia Dose Definition

E.R. Atkinson. "Hyperthermia Dose Definition." 1977 MTT-S International Microwave Symposium Digest 77.1 (1977 [MWSYM]): 251-251.

In vitro thermal cytotoxicity data are consistent with the simple picture of chemical reaction kinetics governed by an activation energy. These kinetics are used to calculate, for any arbitrary heating profile used in clinical hyperthermia, the corresponding percent of cells killed by such treatment in in vitro tissue culture. The quantity calculated, which incorporates biological response to thermodynamic parameters, is suggested as a measure of hyperthermia dosage. Alternative dosage measures are discussed. Doses, defined by thermal cytokinetics, are derived for current clinical practice in whole body and local hyperthermia. Both types of treatment, although superficially very different, are shown to employ comparable dose magnitudes and these magnitudes are found to be in quantitative accord with the thermal cytotoxicity basis for dosage measurement.

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