PULSED CURRENT AS AN INDICATOR OF SUCCESSFUL TUMOR ELECTROCHEMOTHERAPY

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Pulsed electric field (PEF) is used for ablation of tumors [1] or intratumoral drug delivery [2], however, the possibilities for real-time evaluation of the treatment efficacy are limited. In this work, we have used microsecond and nanosecond non-thermal PEF (<10 J) for electrochemotherapy of Sp2/0 tumors with doxorubicin and evaluated the feasibility of current measurement as an indicator of successful tumor electrochemotherapy. The changes in pulsed current amplitude during the *in vivo* experiments were compared to the changes of the permeabilization rate of the cells *in vitro*. It was shown that the current varies in a similar tendency as the permeabilization rate. It was also shown that changes in tumor conductivity can be used as an indicator of permeabilization efficiency, however, limited to non-thermal PEF treatments. The results can be used for development and optimization of electrochemotherapy protocols and techniques for real time prediction of treatment outcome.

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