**In vitro hyperthermic effect of magnetic fluid on cervical cancer cells**

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**Abstract.** Magnetic fluid hyperthermia (MFH) is a futuristic less-invasive cancer therapeutic option due to its anticipated minimal side effects compared to radio and chemotherapies. MFH is based on induction heating and killing cancer cells by controlling the hyperthermia temperature window between 43 and 45 °C. Magnetic fluids containing iron-based MNPs are administered intravenously in order to heat tumors under an alternating magnetic field. Certain clinical studies in last decade have utilized MFH for the treatment of glioblastoma and prostate tumors. However, limited reports are available mentioning in vitro effect of magnetic fluid hyperthermia on different cancer types. We have investigated the effect of special magnetic fluids on cervical cancer cells HeLa. MTT and Trypan Blue assay was utilized to study cytotoxicity of the optimized magnetic fluid concentration on HeLa cells with and without magnetic field applicator. Cytotoxicity up to 66% was detected after induction heating the magnetic fluid at a concentration of 0.25mg/ml and 60 minutes hyperthermia. The preliminary results have revealed significant cytotoxic effect of the hyperthermia. Further studies are warranted for the utilization of the magnetic fluid for localized treatment of tumors under magnetic field.  Financial support: SERB, DST, New Delhi ref: SERB/EMR/2016/001000.

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