Local hyperthermia in the treatment of tumors by using nanoparticles

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Annotation

Nowaday multifunctional particles play an important role in different technological areas such as electronics and biomedicine . Particularly, biocompatible magnetic nanoparticles are widely used in many biomedical applications, such as drug delivery, cell and tissue targeting or hyperthermia .The magnetic energy absorption of nanoparticle containing tissues induces a localized heating that allows a targeted cell death at a critical temperature range above 42–45 C. This temperature increase can be used to selectively kill cancer cells. During this seminar we study thermal effects during the hyperthermic treatment of cancer using magnetic nanoparticles This method of treatment is much less invasive than many current treatment methods . Additionally, since these are nanoscale devices, the hyperthermic treatment of the cancer cells is extremely localized. This would cause very minimal damage to surrounding tissue, making these systems superior to traditional hyperthermic treatment.

Key words: hyperthermia, nanoparticle , nanotechnology