Effect of the magnetic field on the dissolution of kidney stones.

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In this work they were evaluated first the effects of a static magnetic field with a magnetic induction of around 0.1 T and of a sine alternating magnetic field with a magnetic induction of around 2 mT, at a frequency of 60 Hz, on the dissolution of calcium kidney stones immerse in distilled water, and starting from the obtained results, it was designed a therapeutic technology for the medical treatment of the urolitiasis, based on the application of a magnetic field[1]. The study revealed that, with a confidence level of 95.0%, the static magnetic fields of 85.4 mT and 95.5 mT didn't have astatistically significant effect on the dissolution of calcium kidney stones. However, the sine alternating magnetic fields of 1.7 mT and 2.65 mT, at 60 Hz, had it, and a dissolution rate of approximately 15.3 mg/h was observed[2]. No significant difference was observed for the effects of the two applied field levels, neither for the effects of the two applied exposure time levels (15 and 30 min)[3]. It was designed and characterized a magnetic bed based on a McKeehan 4 coils array to be used as therapeutic technology in the medical treatment of the urolitiasis. The generated magnetic field by this applicator has non-homogeneity of up to near 0.4% over wide regions of the human body, that makes it a suitable technology for the efficient application of treatments in which it is necessary to induce or to maintain unceasingly processes with a continuous absorption of energy.

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