In vivo Intrauterine Sound Pressure and Temperature Measurements during Magnetic Resonance Imaging (1.5 T) in Pregnant Ewes

Abstract:
Objective: To investigate the influence of several magnetic resonance imaging (MRI) sequences on amniotic fluid temperature and intrauterine sound pressure. Material and Methods: Temperature and sound pressure measurements during MRI (1.5 T) in pregnant ewes were done. Linear levels and third octave band spectra were compared. Results: No significant changes in the temperature of amniotic fluid were observed. Intrauterine summation levels reached peak levels up to 103.0 dB(A) before starting the MRI sequence and levels up to 116.0 dB(A) during a real-time sequence. Evaluating the octave band spectra, peak levels did not exceed 100.0 dB(L). Conclusions: Our delimited data revealed no harm for the fetus by an increase in amniotic fluid temperature or hazards for the fetal auditory system by different MRI sequences.

Stichworte:
Amniotic fluid; Intrauterine sound pressure; Fetal auditory system; Magnetic resonance imaging; Radiofrequency energy; Specific absorption rate

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