



The Safety of Intraoperative MRI Examination. A Prospective Study

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Introduction

The intraoperative MRI examination (iMRI) is considered as one of important tools which enable to increase the extent of tumor resection and control procedure itself.

Methods

The iMRI is routinely used at our department since April 2008. Patient undergoes iMRI during the surgery or immediately after surgery (in same general anesthesia). GE Signa HDxT 3T MR scanner is connected with the OR by railway transfer system (Maquet VIWAS) and routinely applied to examination. A prospective study was designed to obtain and analyze data to establish the safety and risk of iMRI examination.

Fig. 1



Operating room and MR scanner setup

Tab. 1

	No of cases	Serious AE
Obese patient	12	No
Broken transfer	7	No
Broken table during transfer	1	Yes
Skin burn	1	Yes
Ventilation complication	2	Yes

AE - adverse Event

List of adverse events and potential seriousness

Results

Since April 2008 till August 2013 a series of 1500 consecutive iMRI cases were enrolled into study. In 23 cases adverse event was observed. In 19 of them they were classified as non-serious. In 12 obese patients iMRI was not done because of impossibility to fit into the gantry under general anaesthesia. In 7 cases the transfer system broke during the surgery and iMRI could not be performed. The last four cases were classified as serious adverse events. In one case the transfer table broke down during the transfer and the patient had to be removed manually from the table. In another case the endotracheal balloon thin tube was cut during the patient transfer. In one awake-sleep-awake surgery the laryngeal mask was displaced during iMRI. In last case forgotten monopolar needle electrode in Fz position was cause of skin burn (Tab. 1). On the other hand no brain abscess related to the iMRI surgery has been observed in the study. Only four serious adverse events happened in 1500 iMRI procedures (0,3%). In none of them the patients life was threatened.

Conclusions

Intraoperative MR examination is a safe method to control the procedure and extent of resection. The risk of method is low and acceptable. No life threatening event has been observed until now. Supported by IGA MZ NT/14253 and P27/LF1/7.

Learning Objectives

The safety of intraoperative MRI examination