



MRI and Anesthesia & Sedation

MRG ve Anestezi & Sedasyon

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In 1945, Broch & Purcell described the term "Nuclear Magnetic Resonance" [1]. It has been used for chemical and biochemical analyses for the long years. It was widely used in medical applications after Lauterburg's study in 1973 [2].

The primary screening method for the breast cancer is mammography as known. It is the only method that positively affects survival. But its sensitivity and specificity is not absolute and it can be an inadequate method especially at some ages. Studies showed that magnetic resonance imaging (MRI) as a complimentary test to mammography increases success rates, but increased false positivity rates can cause some unnecessary invasive procedures. However, breast MRI is widely used for screening, diagnosis and staging [3].

More than 80 million MRI is worldwide applied yearly. Claustrophobia rates are between 1-15% and more than 2 million breast MRI application is interrupted for the necessitation of sedation [4]. Melendez et al. [5] noticed that the rate around 30%. Also 3-5% of these cases were interrupted due to the sedation necessitation. Anxiety and claustrophobia can cause sequence repeating, procedure cancellation and important time and labor loss.

Besides sedation and anesthesia, some methods such as information/education, different patient positions, manipulation of the environment, lighting levels, installation of panic buttons, music, open MRI design, psychological preparation and hypnosis have been used to decrease anxiety and claustrophobia. But, these methods do not have absolute success to resolve for reduction of anxiety and distress [6].

Most of anxious and claustrophobic patients necessitate sedation or anesthesia. These problems can be totally solved by these procedures. However, these procedures have some limitations and need some arrangements. Sedation and anesthesia must be performed by an anesthesiologist; also both procedures necessitate some equipment and additional room for patient-doctor communication, preparation and recovery of the patients.

Some national and international institutions have prepared detailed guidelines for non-operating room anesthesia practice [7]. Non-operating room anesthesia practice are risky than the operating room practice. The cause of this risk is the lack of some facilities that are present in the operating rooms. Data obtained from the American Society of Anesthesiologists Closed Claims database showed that unfavorable events at non-operating room practice are resulted in worse outcomes [8].

Patients' evaluation and preparation at non-operating room procedures should be the same with the operating room practice. Equipment about monitoring and airway management should be complete, and devices for difficult airway management and defibrillator should be attended. Ferromagnetic tools and equipment should not be in the MRI unit, so the monitors and other equipments should be MRI compatible.

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The narrow bore shape of MRI can cause some problems at the patients' management. Patients routinely lie down at the prone position at breast MRI scanning, therefore airway management may be much more difficult. Due to this situation, preoperative airway management decision should be done more detailed.

Follow up at the recovery room should be done as carefully as in the operating room.

These equipments, preparation, requirements for staff and extra room can be thought as extra cost and time. But, anesthesia should be in the same quality as in the operating room or out of the operating room. By the way, we can minimize the risk for the patients.

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