PEDIATRIC SERIES : Paediatric Safety and Quality RC613-14

Thursday 11:30-11:40 AM | RC613-14 | Room: S102CD *AMA PRA Category 1 Credits™*: 3.25 | ARRT Category A+ Credits: 3.75

RC 613-14: The Value of Child-sized MRI Simulation in the General Anesthetic Pediatric Population: A Single Center Review

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PURPOSE

MRI is a mainstay of pediatric imaging but is frequently challenging due to the associated length of studies and noisy sequences. In patients aged between 4 and 7 years general anesthesia (GA) is often required to allow diagnostic, motion-free images to be obtained. However, GA is a costly and timely procedure and carries a risk of patient morbidity. Child-sized MRI simulators allow play-based simulation of the MRI experience, including objective evaluation of the child's ability to remain still during life-like sequences. They can also act as a screening tool to identify children who likely able to undergo MRI without general anesthetic through familiarizing them with the environment, sounds, and equipment, while teaching them skills (such as breathing and relaxation) to cope with study.

METHOD AND MATERIALS

Patients between 4 and 7 years underwent MRI simulation using a Playful MRI **www.playful-mri-simulator.com** immediately prior to imaging when technologist staffing permitted and unless there was underlying patient developmental delay. We retrospectively reviewed all patients who underwent MRI simulation prior to imaging over the period January 2016 to December 2016 at a tertiary referral paediatric hospital. We reviewed whether the end point diagnostic study was diagnostic and whether patients had previously required MRI with general anesthetic. MRI waiting times over the study period were reviewed. MRI costs were estimated based on known departmental costings.

RESULTS

92 patients underwent MRI simulation with 82 patients having diagnostic MRI (88.1%). Increasing the number of walk in patients post-simulation was associated with a significant reduction in the 'routine' GA MRI waiting time from 29 months to 18 months. The cost of MRI without GA was approximately €250 and the cost of MRI with GA was approximately €950, with a GA-specific cost saving of €57,400 over 12 months.

CONCLUSION

MRI simulation was successful in the majority of developmentally normal pediatric patients between 4 and 7 years, who previously would have required general anesthetic. MRI simulation offers many benefits to radiology department through wait time, cost and time savings and also limits the number of general anesthetics performed in this population.

CLINICAL RELEVANCE/APPLICATION

MRI simulation is a cost and time saving measure in paediatric MRI department.