Into the magnetic resonance scanner with a cuddly toy

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For the first time, Bochum clinicians have been able to show on the basis of a large sample, that it is possible to examine children's heads in the MRI scanner without general anaesthesia or other medical sedation. In many cases it was sufficient to prepare the young patients for the examination in an age-appropriate manner in order to take away their fear of the tube. And the results speak for themselves: of the 2461 image sequences recorded with 326 patients, the participating radiologists classified 97 percent as "diagnostically relevant".

At the same time, through his study, the associate professor Dr. Christoph M. Heyer (BG Bergmannsheil University Hospital, Bochum) has been able to demonstrate for the first time the value of the so-termed BLADE sequences for the comprehensive examination of children in the MRI scanner. The study has just been published in the current issue 11/2012 of the German journal "*RöFo - Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren*".

Institutes and practices shun making the effort

Magnetic resonance imaging (MRI) as a radiation-free process today plays a key role within paediatric diagnostic radiology imaging. It is indispensable when it comes to depicting the central nervous system of children. Although the advantages of MRI over other test methods are sufficiently well known, many institutions and practices shy away from using it with young children. On the one hand, they assume that the

children will not keep still enough to achieve sufficient image quality for diagnosis. On the other hand, they shun the organisational effort and expense involved when they need to sedate or anesthetise the children in order to achieve an unimpeded workflow. For this, the young patients have to be admitted to the ward with a parent. They also have to have a peripheral venous indwelling cannula inserted and be administered sedatives or anaesthetics.

There is another way

Assistant professor Heyer and colleagues have shown that there is another way of doing things. They examined 326 patients with an average age of 7.2 years in the Paediatric Radiology Outpatient Clinic at the Department of Diagnostic Radiology, Interventional Radiology and Nuclear Medicine at the Bergmannsheil University Hospital without sedation or general anaesthesia. All the young patients were previously prepared for the MRI in an age-appropriate manner, given enough time to visit the scanner room, were allowed to take their cuddly toys into the MRI and their parents were with them. In addition, the Bochum clinicians recorded MRI sequences using the so-termed "BLADE" technique so as to exclude "blurring" as far as possible.

With this concept the doctors succeeded in examining 41% of the three year olds, 91% of the four-year olds and 98% of patients over the age of five without sedation. The in total 2461 image sequences acquired were reviewed by two radiologists, and in a total of 97% of cases declared to be diagnostically usable. The Paediatric Radiology Outpatient Clinic at the BG University Hospital Bergmannsheil specialises in MRI and CT examinations of children and adolescents of all ages. It is headed by assistant professor Heyer, the double specialist for paediatrics and diagnostic radiology/paediatric radiology. It is the only facility of its kind in Bochum and its surroundings.

More information: Dispensing with Sedation in Pediatric MR Imaging of the Brain: What is Feasible? Heyer CM, Lemburg SP, Sterl S, Holland-Letz T, Nicolas V, *Fortschr Röntgenstr* 2012, 184:1034-1042; www.ncbi.nlm.nih.gov/pubmed/22872604