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Reduced CT Usage for Common Childhood Diagnoses

Researchers in the U.S. have found a significant decline in the use of computed tomography (CT) scans at children's hospitals for 10 common childhood diagnoses including seizure, severe head trauma and upper respiratory tract infection. They say that alternative imaging modalities such as MRI and ultrasound are being used more frequently for eight of the 10 diagnoses.

The study published in the journal *Pediatrics* is the first to evaluate CT usage across multiple hospitals and conditions. The reduction in CT utilisation, according to researchers, may be due to a growing body of evidence linking ionising radiation from CT scans to an increased risk of cancer in patients. Additionally, the adoption of electronic health records makes it easier to transfer medical data and images, limiting the need for duplicate scans.

"This study reinforces the paediatric community's commitment to think about both immediate and long-term risks and benefits of our treatment," says lead investigator Michelle Parker, MD, from the Division of Hospital Medicine, Cincinnati Children's Hospital Medical Center. "Minimising potential for harm to our patients as we work to heal them should always remain a priority."

Dr. Parker and colleagues examined data from the Children's Hospital Association's Paediatric Health Information System (PHIS), a comparative paediatric database of clinical and resource utilisation information for inpatient, ambulatory surgery emergency department and observation unit patient encounters for 45 children's hospitals. They looked at inpatients and observation patients for 10 specific diagnoses at 33 participating hospitals from January 2004 to December 2012. The 10 common diagnoses analysed for diagnostic imaging use included seizure, craniotomy, concussion, severe head trauma, ventricular shunt procedure, abdominal pain, appendectomy, gastroenteritis, upper respiratory tract infection and ENT conditions.

Previous studies indicate that there may be one malignancy as a result of ionising radiation amongst every 10,000 children exposed to CT scans. A CT scan combines a series of x-ray images taken from different angles and uses computer processing to create cross-sectional images of bones, blood vessels and soft tissues, providing more detail than conventional x-rays. CT scans, however, emit 100 to 1,000 times more ionising radiation than conventional x-rays.

"There may still be times when a CT scan is the most appropriate imaging tool to use," Dr. Parker notes, "however parents should be encouraged by this study which shows that physicians and hospitals are likely incorporating new evidence and adapting to provide safe medical care."

Source and image credit: Cincinnati Children's Hospital Medical Center

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