Clinical and epidemiological characteristics of pediatric SARS-CoV-2 infections in China: A multicenter case series

Zhang et al (PLoS Med 2020;17:e1003130, PMID 32544155) described clinical and epidemiological characteristics of pediatric severe acute respiratory syndrome coronavirus 2 infections in a multicenter case series. They described the clinical and epidemiological characteristics of pediatric patients to provide insight into the early diagnosis and assessment of coronavirus disease 2019 (COVID-19) in children. The retrospective observational study involved 4 hospitals in west China. Thirty-four pediatric patients with COVID-19 were included. Data analysis was performed for 34 pediatrics patients with COVID-19 aged 1–144 months. All patients presented with mild (18%) or moderate (82%) forms of COVID-19. A total of 48% of patients were noted to be without a history of exposure to an identified source. The most common initial symptoms were fever (76%) and cough (62%). Expectoration (21%), vomiting (12%), and diarrhea (12%) were also reported in a considerable portion of cases. Patchy lesions in lobules were detected by chest computed tomographic scans in 28 patients (82%). Ground-glass opacities, which were a typical feature in adults, were rare in pediatric patients (3%). Lesions in lobules still existed in 24 (among 32 patients with lesions [75%]) patients who were discharged, although the main symptoms disappeared a few days after treatment. All patients were discharged, and the median duration of hospitalization was 10.00 days (range 8.00–14.25 days). The authors conclude that early identification and intervention in patients with COVID-19 is important and that there are significant cardiovascular findings in children affected with the virus.

Improved survival to hospital discharge in pediatric in-hospital cardiac arrest using 2 J/kg as first defibrillation dose for initial pulseless ventricular arrhythmia

Hoyme et al (Resuscitation 2020;153:88, PMID 32522702) reported improved survival to hospital discharge in pediatric in-hospital cardiac arrest using 2 J/kg as first defibrillation dose for initial pulseless ventricular arrhythmia. Although the American Heart Association (AHA) recommends a first defibrillation energy dose of 2 J/kg for pediatric cardiac arrest with ventricular fibrillation (VF), the optimal first energy dose remains unclear. This study looked at 301 children 12 years or younger with in-hospital cardiac arrest and VF. Survival to discharge was significantly lower with energy doses other than 1.7–2.5 J/kg. Individual dose categories of <1.7 or >2.5 J/kg were not associated with differences in survival. For patients with initial VF, doses >2.5 J/kg had worse survival compared to reference. The authors conclude that first energy doses other than 1.7–2.5 J/kg are associated with lower rates of survival to hospital discharge in patients 12 years or younger with initial VF and that first doses >2.5 J/kg had lower survival rates in all patients 18 years or younger with initial VF. These results support current AHA guidelines for a first pediatric defibrillation energy dose of 2 J/kg.

Cardiac magnetic resonance imaging (MRI) in children is safe with most pacemaker systems, including those with epicardial leads

Bireley et al (Pediatr Cardiol 2020;41:801, PMID 32166409) performed a study evaluating cardiac magnetic resonance imaging (MRI) in children with pacemaker systems, including those with epicardial leads. Many pacemaker models are labeled as nonconditional, or contraindicated for MRI, or do not have any specific safety guidelines listed. This study described a retrospective review of Children’s Wisconsin’s experience with pacemaker function and adverse events in pediatric and young adult patients after a clinically indicated MRI scan at 1.5 T. Pacemakers were interrogated before and immediately after MRI and at outpatient follow-up, evaluating generator battery voltage, pacemaker lead threshold, and lead impedance. Twenty-one patients underwent 44 MRI scans. No significant immediate changes were seen in any pacemaker parameter for any manufacturer/model/lead at the time of MRI. At first clinical follow-up post-MRI (median 4.4 months; range 0.2–12.3 years), battery voltage was reduced (2.78 V pre-MRI vs 2.77 V at follow-up; \( P = .02 \)) but there were no other significant changes. No adverse events were noted. The authors conclude that pediatric patients with pacemakers, including those with epicardial leads, can be scanned at 1.5 T safely without alteration in pacemaker function using appropriate precautions.