

Middle East Respiratory Syndrome Coronavirus in Children

Middle East respiratory syndrome coronavirus (MERS-CoV) is one of the recently encountered viral diseases causing pulmonary infection in children. Till date, about 16 pediatric cases are reported in the literature [1,2]. This new coronavirus belongs to lineage C of the genus Beta coronavirus and is genetically closely related to coronaviruses from various bat species in Africa, Middle East and Eurasia [3]. In 2012, the novel human coronavirus was identified in two adult patients with severe respiratory disease in Saudi Arabia.

MERS-Cov usually spreads by droplet inhalation, and the case fatality is very high in adults. In contrast, the disease is usually mild in children [4]. Fever with cough the predominant clinical symptom in the majority of affected children, with occasional rapid deterioration and increasing oxygen requirements, requiring mechanical ventilation and ECMO (Extracorporeal Membrane oxygenation). Acute respiratory illness has been noted in only four cases with a fatal outcome following multi-organ failure [1,2,4]. All these four cases involving pediatric patients were associated with comorbidities such as nephrotic syndrome, Down syndrome, craniopharyngioma and right ventricular tumor. The diagnosis of MERS-Cov is currently established by positive real-time reverse-transcriptase polymerase chain reaction (rRT-PCR) in deep nasopharyngeal secretions.

On imaging studies, the MERS- CoV pneumonia has a radiographic appearance that mimics other more common pulmonary viral infections. Ground-glass opacity (66%) was the most commonly encountered abnormality in adults followed by consolidation (18%) [2]. In children, fine reticular pattern interstitial inflammation may be seen [4]. In acute respiratory illness, the milder lung disease may rapidly progress into

diffuse bilateral ground glass opacities mixed with air space consolidation. Pleural effusion or chest X-ray was noted in only one of these cases [5]. Although, the extent of lung involvement can be better estimated with computed tomography, sequential chest radiographs have an additional advantage of estimation of the chest radiographic score and the chest radiographic deterioration score with an acceptable dose of radiation exposure to the individuals [2]. Due to its nonspecific clinical symptoms, the accurate and timely diagnosis of MERS-CoV in children can be challenging. However, heightened clinical suspicion in children with underlying risk factors living in endemic areas in conjunction with improved understanding of imaging findings have a great potential for optimal pediatric patient care.

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