Case report

COVID-19 in pediatric patients: A case series

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Abstract

The COVID-19 pandemic outbreak has affected the global health system with an urgent need for more sophisticated studies. One of the prominent aspects of COVID-19 is the feature of the disease in pediatric population. In a retrospective study, four boys COVID-19 patients confirmed with RT-PCR nasotracheal sampling and typical clinical features were assessed. Our patients were in a referral children's hospital with different clinical outcomes. Half of our patients did not have any underlying disease and were discharged after recovery from the disease. Two others had different courses. One with aplastic anemia, which died, and the other one with cyanotic congenital heart disease receiving treatment. These patients were aged 8-13 years old. COVID-19 affects pediatric population while the outcome might be better if there is no underlying condition. However, any major systemic disease should raise caution.

Keywords: COVID-19, pandemic, pediatric, Iran

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Introduction

Since December 2019, an outbreak of coronavirus disease 2019 (COVID-19) has spread globally. The current epidemiological and clinical features of pediatric patients with COVID-19 is less clear yet (1, 2). The milder pattern of disease in pediatric patients could be an extraordinary solution to the pathogenesis and treatment of the disease (3). We retrospectively retrieved data for pediatric patients (aged 0–16 years) with confirmed COVID-19 from medical records in Mofid Children's Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran. We recorded patients' epidemiological and clinical features.

The study proposal was assessed and approved by Research Ethics Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran; coded: IR.SBMU.RETECH.REC.1399.015.

Case Report

We present four pediatric cases of coronavirus disease 2019 (COVID-19) admitted to Mofid Children's Hospital in Tehran (capital city of Iran). All patients were male. The youngest was 8 years old and the oldest one was 13. All children had at least one family member infected with COVID-19. Two patients had leukopenia and lymphopenia. The virus that cause COVID-19 is SARS-CoV-2. The virus RNA detected by RT-PCR test in all four patients. Elevated C-

reactive protein (CRP) and erythrocyte sedimentation rate were detected in all patients. Supportive care, antiviral and antibiotic therapy were administered for all the patients. Two of four patients were discharged within six days after admission with stable general and medical conditions. One patient died and another one is still hospitalized at the time of submitting this manuscript.

Patient number 1: this patient was an 11 years old boy with underlying aplastic anemia. Clinical signs and symptoms included fever, cough, tachypnea, retraction, crackle and hemoptysis. Imaging studies showed white lung in chest X ray (CXR) associated with typical CT scan findings. The main laboratory data were as follows: white blood cells (WBC) count: 1100/µL (lymphocytes: 11.5%); hemoglobin concentration: 50 mg/L and platelet count: 10000 cells/mL. However, during the course of the disease, the patient progressed towards respiratory distress, therefore was intubated and received mechanical ventilation. The process went towards full respiratory failure and the patient died 8 hours after admission.

Patient number 2: this was an 8 years old boy without any detected underlying disease. His clinical signs and symptoms included fever and nonproductive cough. CXR and chest CT scanning demonstrated sub-pleural ground glass opacities. The main laboratory data included WBC count 7400/µL (lymphocytes: 30%); Hemoglobin concentration: 114 mg/L and platelet count: 130000 cells/mL. Hydroxychloroquine and Oseltamivir was started orally. The patient did not experience severe respiratory distress mandating mechanical ventilation and was discharged in six days with good general condition.

Patient number 3: this was a 12 years old boy without any detected underlying disease. His clinical signs and symptoms also included fever and nonproductive cough. Again, this patient demonstrated sub-pleural ground glass opacities in CXR and chest CT scanning. The main laboratory data included WBC count 8900/µL (lymphocytes: 41%); Hemoglobin concentration: 136 mg/L and platelet count: 215000 cells/mL. Oral Hydroxychloroquine and Oseltamivir was administered. This patient was also discharged in 7 days with stable clinical conditions.

Patient number 4: this was a 13 years old boy with underlying congenital cyanotic heart disease (single ventricle, cyanosis and pulmonary hypertension). The clinical signs and symptoms in admission included fever, nonproductive cough, and tachypnea, fine widespread inspiratory crackles, intercostal and subcostal retraction. In CXR and CT scanning, sub-pleural ground glass opacities were found. The main laboratory data included WBC count 4600/µL (lymphocytes: 16%);; Hemoglobin concentration: 117 mg/L and platelet count 135000 cells/mL. Treatment included oral Hydroxychloroquine, azithromycin, naproxen and supplemental oxygen; added with digoxin and furosemide for treatment of underlying cardiac disease. The patient is still hospitalized and receives care.

Discussion

Our experience with these patients showed that COVID-19 could affect children; and the outcome seems to be highly affected by any underlying systemic disease. In an approach similar to adult patients, pediatric patients need supportive care with especial focus on the respiratory maneuvers (4, 5). Again, similar to adult population, imaging studies and RT-PCR test from nasotracheal samples remains the most important confirming tests for any clinical suspicious patient (4, 6). Since our center is a referral one and also, our experience was on 4 patients, we could not have any judgement about the case fatality rate or mortality rate in pediatric population (5, 7). In addition, all of our patients were boy, which could be meaningful regarding male propensity of the disease (3, 8).

Conclusion

The current study demonstrates that pediatric population should not be considered only as just a transmission route. Frank clinical disease with considerable morbidity and mortality might occur in this age range, while the response to the question that why pediatric patients are not affected as much severely as adults might be one of the most important solutions to the treatment of the disease.

Acknowledgment

None.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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