11.35 mg/L fibrinogen equivalent units, fibrinogen degradation product 57.6 μg/mL and fibrinogen 4.48 g/L. C-reactive protein increased in all time. From The Diagnosis and Treatment Plan for novel coronavirus in China (the 7th edition), in the early stage of COVID-19, peripheral blood generally shows normal or decreased WBC count, with occasional reduction in lymphocyte count. Some patients may have transaminase, lactate dehydrogenase, myoglobin and creatine kinase increased. Most cases have C-reactive protein and erythrocyte sedimentation increased or normal, procalcitonin can be normal. In severe cases, D-dimer levels can be increased with lymphocyte count decreased. Inflammatory cytokine may increase in critical and severe cases. Some critical cases present troponin increased.

According to the clinical characteristics of confirmed cases of child SARS-COV-2 infection, it can be divided into mild type (had acute upper respiratory infection symptom without positive changes in lung. Some child may only have positive of SRAS-COV-2 by PCR), and common type (imageology revealed pneumonia) symptoms such as fever and respiratory tract were common. While some children had no clinical symptoms with imageology changes were subclinical type), severe type (patients suffered from anoxia such as dyspnea and had oxygen saturation ≤ 92%), critical type (present to acute respiratory distress syndrome or respiratory failure or shock, with multiple organ dysfunction that may endanger life). Although the level of D-dimer in this case increased and coagulation function was abnormal, it did not meet the standard of severe pneumonia in children and should be attributed to common type.

This child has been suffering from intermittent fever since the onset of the disease. On February 19, CT reported viral pneumonia in the right upper lung and present pleural effusion. Except for weak positive of mycoplasma and chlamydia, the examination of other pathogens including SARS-COV-2 was negative. COVID-19 was not confirmed until throat swabs PCR was made twice. Therefore, with the low sensitivity of SARS-COV-2 PCR examination, if there were respiratory symptoms and related epidemic history, do not exclude SARS-COV-2 infection easily, medical staff should still make strict relevant protection. As mycoplasma pneumonia IgM and IgG were weekly positive, we consider the mycoplasma infection as early stage. Hence, mycoplasma pneumonia was secondary. About 4%–20% of Mycoplasma pneumoniae complicated with pleural effusion, most of them were minor. The hydrothorax in this case was moderate. Because mycoplasma was newly infected and at early stage, we attribute the pleural effusion to COVID-19. Because pleural effusion content has never been studied in the COVID-19 infected children, we here for the first time in the world reported the hydrothorax cytology images as mature lymphocytes predominate. Besides, further investigation of the viral load in the pleural effusion is in need.

CONCLUSION

Novel coronavirus disease (COVID-19) broke out in Wuhan, China, in December of 2019. Here, we present a case report of a child COVID-19 patient accompanied with mycoplasma infection and a rare clinic symptom, pleural effusion. Fever and pulmonary lesions on CT were the manifestations of the illness onset, while nonproductive cough presented later. Because pleural effusion content has never been studied in the COVID-19 infected children, we here for the first time reported the hydrothorax cytology images that show predominantly mature lymphocytes. Though pleural effusion was a rare clinical manifestation in COVID-19, the diagnosis of SARS-COV-2 infection should not be ignored or denied as a result of one negative nucleic acid test. For highly suspected cases, virus nucleic acid test should be performed at least twice and medical staff should properly protect themselves.

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CHILDREN’S HEALTHCARE DURING CORONA VIRUS DISEASE 19 PANDEMIC

THE ITALIAN EXPERIENCE

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Abstract: The unexpected outbreak of Corona Virus Disease 19 had several consequences worldwide and on the Italian Health System. We report our experience in the reorganization of our Pediatric Department to prevent the risk of infection for both children and staff. We strongly believe that the need to face an unpredictable emergency situation should not affect the quality of the assistance to the non–Corona Virus Disease patients.

Key Words: severe acute respiratory syndrome coronavirus, Corona Virus Disease 19, children, pediatric health, pandemic

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Since its first description in China,\textsuperscript{1,2} the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has spread in almost every country in the world. The first cases of Corona Virus Disease 19 (COVID-19) were identified in Italy in the third week of February, followed by a massive increase, reaching over 15,000 new cases and over 1000 deaths within 2 weeks.

The unexpected outbreak had several consequences on the Italian National Health System. The massive access of COVID-19 cases to the emergency departments resulted in a saturation of the intensive care units and of the available inpatients’ wards. As a consequence, many hospitals, especially in Northern Italy, had to completely restructure their services to accommodate the increased request.\textsuperscript{3}

National and regional emergency plans have been implemented according to the World Health Organization guidelines and to the local needs, to provide dedicated services for suspected COVID-19 cases and guarantee appropriate health care for all the other patients. Most of the planning has been focused on intensive care units, with special attention to the care of elderly, and more generally of high-risk patients, such as those with disabilities, congenital or acquired immune disorders, oncologic disorders and transplant recipients.

Less attention has been paid to the pediatric population. This is not surprising as although children are not spared by the SARS-CoV-2, they only account for approximately 1% of the identified cases of COVID-19, and very few deaths under the age of 10 years have been reported. These numbers are probably not reflecting the real pediatric prevalence of infection as children have often been reported to have milder and nonspecific clinical signs, sometimes even in the absence of fever.\textsuperscript{4–8}

While there is less concern about the severity of the infection in childhood, it must not be underestimated that children may still contribute to the spreading of the infection. A proper reorganization is therefore necessary in the pediatric services, to identify children who may have milder and nonspecific signs of infection and, at the same time, protecting the other pediatric patients at the hospital for other reasons.

We report our experience in the reorganization of the Pediatric Department in our University Hospital in Rome. As the COVID-19 outbreak in central Italy occurred approximately 2 weeks later than in Northern Italy, we had the possibility to plan in advance some preventive measures. The Fondazione Policlinico Universitario A. Gemelli IRCCS has been selected as one of the “COVID-19 hospitals” in our region. As the hospital covers the care of both adults and children, it has been important to develop a plan also for children, taking advantage of the experience rapidly collected in adult patients.

Traditionally, our Pediatric Department is divided in different, but interconnected, main macro-areas of activity (Fig. 1), distributed on different floors. Each group of residents is assigned to a specific area, but there is a significant interaction among the different groups because of the multidisciplinary approach needed in many of the children followed in the individual services.

A complete restyling of the standard organization of our Pediatric Units was planned within a few days from the outbreak in Italy, to prevent the risk of infection for both children and staff, as several cases of healthcare workers infected with SARS-CoV-2 had been reported in Northern Italy. A pediatric task force, including all the pediatric consultants, developed an emergency plan of action aimed to:

1. provide separate flows for high-risk and low-risk COVID-19 pediatric patients. All patients with symptoms suggestive of COVID-19 were isolated until the results of the diagnostic tests were available to reduce their potential risk of infection; and

2. increase the number of beds and negative pressure rooms in dedicated areas to possibly accommodate a potentially much higher number of children with suspected or confirmed COVID-19.

This was realized within a week in different steps involving both the reorganization of space and of clinical duties (Fig. 2).

**PEDIATRIC EMERGENCY DEPARTMENT AND PEDIATRIC INTENSIVE CARE UNIT**

- A pretriage tent was made available in front of the Pediatric Emergency Department to identify patients at risk for COVID-19 and avoid interaction with other patients in the waiting room before triage.
- Only one parent/caregiver was allowed with each child, irrespective of the COVID-19 risk.
- In the pediatric emergency department, the number of rooms dedicated to children with clinical signs suggestive of COVID-19 was increased. Children attending the pediatric emergency department for other reasons were kept in other areas dedicated to patients with lower risk.
- Additional rooms for children with severe clinical signs suggestive of COVID-19 were also identified in the pediatric intensive care unit.

**INPATIENTS**

- All children with clinical signs suggestive of COVID-19 were moved to a dedicated pediatric COVID-19 ward.
- Consultants, nurses and residents were divided into 2 groups: COVID team and no-COVID team, to avoid that in subsequent shifts they could attend different services with different risk level.

**OUTPATIENTS**

- All outpatients’ services were reorganized, cancelling all visits that were thought to be nonurgent and that could be postponed to the end of the outbreak; “smart-visits” with video-calls were organized when appropriate. The pediatric group includes a number of services and programs such as rare disorders, spina bifida, neurology, neonatal follow-up of high-risk infants, oncology and others, with over nearly 1000 children/week usually seen in our clinics. As many patients are from other regions, each group selected some specific criteria to define the level of urgency in relation to the risks related to COVID-19. This was discussed for individual patients taking also into account the burden of the families to attend the appointment, the availability of local services and contacting the family to investigate their willingness to travel.
- Access was guaranteed to all fragile children requiring regular controls because of subclinical instability, acute/subacute conditions, chronic treatments that needed to be stabilized and risk of immediate complications. The criteria, defined in agreement with specialists from other centers, are in the process of being published on the website of the Italian Society.
FIGURE 1. Pediatric Department organization before COVID-19.

FIGURE 2. Pediatric Department pandemic reassessment.
of Pediatric Genetic Disorders and shared with other national pediatric societies.9 • Similarly, special attention was devoted to guarantee access to newborn and infants younger than 2 years old, to cover all the aspects of care that could not be managed by the pediatric general practitioners. • These patients were seen in “non-COVID areas” and by staff not involved in the COVID ward.

E-learning programs and web meeting support were implemented for medical doctors and nurses. The new setting allowed us to manage all pediatric medical and surgical emergencies and severe cases requiring hospitalization reducing the burden and the stress for the families and the staff. Time of discharge was optimized by the continuous presence of a multidisciplinary team and possibility to follow some aspects after hospitalization using web connection with the family.

Following the opening of the emergency COVID area, greater than 90 pediatric patients fulfilling the World Health Organization criteria have been seen and tested and 3% were found to be positive. No death was registered, in line with national data. Only 0.5% of pediatric staff developed SARS-CoV-2 infection, with no obvious evidence of exposure during care of pediatric patients. The other outpatients and inpatients activities not related to COVID had a marked reduction, but we were able to guarantee over 20% of the scheduled appointments for patients who could not postpone treatments or urgent assessments, while at the same time respecting national and local safety instructions. At the time there is a local and national trend showing a reduction in new cases, the task force is contemplating how to proceed with the phase 2 of the plan, to gradually implement some of the activities reduced in the last 2 months.

At the time the task force developed the measures described in this article, little was known about the frequency and severity of COVID infection in children in Europe. The relatively low number of positive cases among patients and staff suggests that the safety measures and the reorganization of staff and space may have helped to contain the diffusion of the infection. While we appreciate that children are not the top priority at the time of managing this pandemic, we strongly believe that an appropriate planning and intervention should also be applied to the pediatric wards. At the same time, the need to face an unpredictable emergency situation should not affect the quality of the assistance to the non-COVID patients.

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COVID-19 in Neonates and Infants: Progression and Recovery

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Abstract: Between March 10, 2020 and April 17, 2020, of 8/70 (11.4%) SARS-CoV-2-positive infants that presented, 5/8 (63%) had lower respiratory tract involvement, 2/8 (25%) had neutropenia and thrombocytosis, and 4/8 (50%) were treated for suspected sepsis with broad-spectrum antibiotics. Only 1/8 (13%) required pediatric intensive care. All patients were eventually discharged home well.

Key Words: coronavirus, SARS-CoV-2, COVID-19, infant, neonate

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In December 2019, a new strain of coronavirus [severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)] causing a new disease [Coronavirus Disease 2019 (COVID-19)] was discovered in Wuhhan, Hubei province, China. Since then, its spread across the world has been declared a pandemic. As of April 17, 2020 there were 2,074,529 COVID-19 cases reported globally, with 139,378 deaths. Among SARS-CoV-2-infected children, about 12%–18% were 2,074,529 COVID-19 cases reported globally, with 139,378

RESULTS

A total of 70 infants were tested for SARS-CoV-2 between March 10, 2020 and April 17, 2020. Indication for SARS-CoV-2 investigation was generally guided by Public Health of England case definition and recommendation for testing:

1. requiring admission to hospital, and
2. have either clinical or radiologic evidence of pneumonia, acute respiratory distress syndrome or influenza-like illness defined

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