Pediatric onco-hematological home care during COVID-19 pandemic

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Abstract

The aim of the work is to describe the protocol adopted by the Home Care Service in pediatric onco-hematological patients of a large cancer institute in Italy during COVID-19 pandemic and to present preliminary data. Based on our experience, we have developed strategies to ensure continuity of care, non-abandonment, and protection of patients and operators in a period of emergency like this. In this context, the “COVID at home” protocol plays a central role. It aims to be able to safely manage COVID-19 positive onco-hematological patients, allowing nursing and medical care in the home setting, identifying patients at risk for COVID-19 infection, and rationalizing improper accesses to the hospital.

Keywords Pediatric Home Care · COVID-19 pandemic · Protocol

In Italy, Pediatric Home Care (PHC) can be a community-based service (managed locally by the Health Service), provided to pediatric patients with long-term pathologies, or a hospital-based service (managed by the hospital), offered free of charge to patients in need of specialist care. This model is also described and analyzed in other international contests for pediatric patients with onco-hematological diseases [1, 2]. In both cases, hospital professionals go directly to the patients' homes to provide treatments that are usually provided in the hospital, such as transfusions, antibiotic therapy infusions, fluid therapy, and oral and intravenous chemotherapy.

Our department offers updated treatments according to national and international protocols to pediatric patients

suffering from oncological and hematological pathologies. Approximately 400 new patients with neoplasms of the blood and lymphatic system and solid tumors are diagnosed/treated every year. In 2017, our institute adopted a Home Care (HC) service (managed by the hospital), which can include pediatric onco-hematological patients who, after the acute phase, are able to be treated with the HC according to well-defined requirements. This service is guaranteed both at the patients' homes and at the various shelter-houses in the area. Thanks to this service, pediatric patients (1 month–18 years old) and young adults up to 25 years old under treatment at our institute are assisted, if they are domiciled farther than 30 km from the hospital. Assistance is provided for medical and nursing home visits: approximately 500 accesses per month and 60 patients assisted per week, of which about 5% are in an advanced stage of disease.

During the COVID-19 pandemic, there was much discussion on how to continue providing home care to our patients [3, 4]. Much of the critical issues that emerged refer to shortcomings relating to territorial assistance which inevitably led to an overcrowding of hospitals. This is likely due to a difficulty in being able to reorganize local services such as home care in an emergency situation. Therefore, despite the difficulties, the goal is to describe how the home care service continued with complete safety thanks to having identified a specific management protocol. It was very important to identify patients “at risk”

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Fig. 1 Flow diagram to explain “Covid at home” protocol. Home Care (HC), Personal Protective Equipment (PPE), National Reporting System (NRS), Pediatric Intensive Care Unit, chemotherapy (CHT), hematopoietic stem cell transplant (HSCT)

for contagion of COVID-19 and to manage home access with well-defined criteria. The comparison between the operators made it possible to develop the “Covid at home” protocol. The protocol was created precisely to allow us to continue to provide medical and nursing assistance to pediatric onco-hematological patients as in the period prior to the COVID-19 pandemic.

Our protocol includes the following:

A first triage to all patients to identify patients at risk. The day before the scheduled home visit, a nurse contacts the patient by telephone and asks if in the last 48 h:

- he/she had fever, cough, and breathing difficulties.
- he/she had contact with people with confirmed COVID-19 infection or from areas at risk.
- he/she was in areas at risk for greater spread of COVID-19.

If the first triage was negative, the patient was managed following the ordinary HC accesses. In case of positivity at the first triage, the patient and the entire family were

swabbed to ascertain positivity for SARS-CoV-2 and if positive, there were two treatment modalities.

If the patient was asymptomatic, the HC Covid team went to the patient’s home to perform swabs, blood tests, transfusions, antibiotic or other therapy infusions, fluid therapy, chemotherapy, dressing changes, vital signs states, and medical visits according to the “Covid at home” protocol. If the patient was symptomatic, the medical staff proceeded with the evaluation based on the presence and severity of symptoms PERSONS score (Pain, Eating, Rehabilitation, Sleep, O₂, Nausea/vomiting, and Suffering) and on the need for hospitalization as shown in the diagram in Fig. 1. The PERSONS score is a tool for symptom assessment and management in an oncological outpatient setting and the score is rated on a numerical rating scale (NRS) between 0 (no burden) and 10 (worst imaginable burden). If the patients were symptomatic with a NRS 4–6 (moderate) or NRS ≥ 7 (severe) and needed hospitalization, they were hospitalized following specific protocols [6, 7].

At the second triage the patient is evaluated based on the presence and severity of symptoms and on the prognosis as

Fig. 2 Diagnosis, treatments, and symptomatology of COVID-19-positive children managed in HC from March to December 2020. Home Care (HC), acute lymphoblastic leukemia (ALL), acute mye-

loid leukemia (AML), Hodgkin's lymphoma (HL), non-Hodgkin's lymphoma (NHL), peripheral venous catheter (PVC), central venous catheter (CVC), respiratory failure (RF)

high, medium, or low risk. Based on these parameters, the doctor decides which accesses to perform. The patient is followed by the entire HC team without going to the hospital. High-risk patients are examined every day, medium-risk patients twice a week, and low-risk patients once a week. From March to May 2020, medical visits were always performed in the hospital or at patients' home. From June 1, medical staff have had the possibility to carry out the visit remotely or via a video call or teleconsultation. The team that provides assistance is equipped with all specific Personal Protective Equipment (PPE) and adequate training, transport, and disposal of infectious waste.

Detailed protocols were put into place for COVID-19 negative and positive patients in shelter-houses and residential facilities where home care was necessary. In this case, all these facilities were involved also in the management of local protocols.

Access was allowed only with a negative molecular swab and body temperature below 37 °C for the patient and parents. It was mandatory to wear a surgical mask and perform regular hand disinfecting with specific precautions in the common areas (restricted access, alcoholic solution dispenser, and social distancing). For the management of

patients within these facilities, the staff followed the double triage protocol described above.

In 2020, in line with the previous year, approximately 500–600 accesses have been registered per month and 60–70 patients have been assisted per week, of which approximately 4% were in an advanced stage of disease. About 15% of the patients followed per week were COVID-19 positive. A summary of the type of COVID-19 positive patients managed in HC is shown in Fig. 2.

It was not easy to carry out projects like these during the pandemic. As reinforced by a national survey, home care was kept operative and took place in all centers where it was already well structured in the area [8]. Otherwise, we believe that we would also have seen problems related to this type of management as well. Furthermore, our institute has always guaranteed the availability of resources and PPE. For this reason, we consider ourselves lucky. Our service has three medical vehicles at its disposal to carry out the at home services and continuous support from voluntary associations. We report this experience, although not supported by consistent data, in order to provide elements of comparison to colleagues who are facing situations similar to ours.

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Code availability Not applicable.

Declarations

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Conflict of interest The authors declare no competing interests.

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