

Radiotherapy in Southern Italy at the time of COVID-19: options for radiation oncology units

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ABSTRACT

Introduction The outbreak of coronavirus disease 2019 (COVID-19) has spread to many countries and has been declared a global health emergency. Our center is located in the south of Italy where the infection rates were low and the clusters of COVID-19 positive patients were small and inhomogeneous. The aim of this short report is to share our experience as a starting point for the management of the steady state of the pandemic.

Methods The safety of the patients and department staff required a strict plan to minimize the risk of infection between operators whose absence would have made it impossible to carry out the radiotherapy treatments. The head of the radiotherapy unit and members of the Hospital Crisis Unit have put in place a series of measures to manage the emergency.

Results A “clean” team has been established whose members are kept out of the radiotherapy unit for 2 weeks on rotation. Several separate work areas have been made in order to reduce direct contact between the staff. Each staff member has to wear protective equipment if close contact with patients is required. Before confirming a radiotherapy consult or a follow-up visit, telephone clinical and epidemiological screening is performed by nurses through a questionnaire regarding the presence of respiratory symptoms or eventual social contacts with COVID-19 positive people. Once the patients arrive in the hospital, a triage point at the entrance to the hospital performs a second screening and a temperature check.

Conclusions This management experience of a radiotherapy unit in Southern Italy could serve as a useful example for the future. In fact, in the steady state of infection many centers may face epidemiologically contagious numbers similar to those that we currently have in our region. These numbers require the maintenance of alert and precautionary measures which in our case seem to have worked.

The coronavirus disease 2019 (COVID-19), initially epicentered in Hubei Province of the People's Republic of China, has spread to many other countries. On January 30, 2020, COVID-19 was declared to be a global health emergency by the World Health Organization Emergency Committee.¹ The day after, the Italian government declared a public health emergency; initially, three areas with different risks of infection were defined. On March 9, 2020, the Italian government decided to extend the measure of the high-risk zones to the entire national territory and put

the country under a complete lockdown. As of March 12, 2020, in Italy, there were 10 590 positive patients, 827 deaths, and 1045 survivors of the disease, with increasing numbers day by day.

During the first phase of this crisis the focus was on tackling the emergency, focusing mainly on the SARS-CoV-2-positive patients. Patients with cancer represent a high-risk group in the COVID-19 pandemic. They are already prone to infection because of their underlying comorbidities and often have low immune defenses, together with an increased risk of developing complications from the virus, resulting in intensive care unit admission or even death.² Specialists from all disciplines and international scientific societies have provided recommendations or expert opinions in order to explore options that reduce the number of procedures, risk of infection to the medical personnel, or admission to intensive care units.^{3–8}

Radiation oncology departments have not stopped their activities and continue to regularly perform almost all procedures considered “life-saving”,⁸ following the recommendations for the management of oncological and hematological patients during the ongoing COVID-19 emergency, drawn from the initiative of the Technical-Scientific Committee of the Civil Protection-Ministry of Health of March 10, 2020.⁹ The main problem is how to continue activity while protecting patients, families, and health professionals from COVID-19, sometimes working in the absence of having proper personal protective equipment (PPE). Filippi et al described how radiation oncologists managed their departments and patients in the Italian Northern region, where there was the highest number of infected patients.¹⁰ The suggested measures are essential to deal with the containment phase of the outbreak.

Our service, in Gemelli Molise Hospital, is the only radiotherapy unit of the region, treating patients from Molise as well as from the surrounding regions; it is a center characterized by a strong dedication to clinical research and limited economic resources, with strongly motivated staff and a readiness to adopt flexible solutions.¹¹ To date, the radiotherapy unit has two linear accelerators and treats approximately 950 patients per year, with a staff of 31: eight radiation oncologists, two medical physicists, 13 radiation therapists, four nurses, and four hospital operators.

Editorial

Our team, along with members of the Hospital Crisis Unit, have put together measures that we share here as a starting point for the management of the recovery phase of the COVID-19 emergency.

DAILY ROUTINE AND WORKPLACE CHANGES

The schedule has focused on the spatial and temporal distancing of the patients. The staff are instructed to avoid gatherings. The radiation therapists assigned to each of the two linear accelerators have to always treat the same patients, and exchange of patients between the two accelerators are no longer allowed. A “clean” team has been established consisting of two doctors, two radiation therapists, and one nurse who are kept out of the operative unit for 2 weeks.

The locations of workstations have been modified, creating separate work areas in order to reduce the number of direct contacts among the staff, with supervision to ensure that in each area there are only the essential personnel and the patient.

The internal layout of the clinics and waiting rooms have been re-adjusted in order to maintain social distancing (at least 1 meter); signs have been placed on the waiting room chairs to indicate where it is permissible to sit, and where not to sit; and dispensers with sanitizers for hand hygiene have been distributed in waiting rooms and treatment rooms. Where possible, entry of accompanying persons is restricted. During this internal reorganization the supervision by our infectious diseases specialist has been of the utmost importance.

PERSONAL PROTECTIVE EQUIPMENT

Each member of staff wears PPE consisting of a disposable face-mask and impermeable, disposable gloves; moreover, eye protection, such as goggles or a disposable face shield that covers the front and sides of the face, are provided if close contact with patients is required. Following the internal guidelines on the basis of those issued by the Istituto Superiore di Sanità,¹² surgical masks were initially provided only to healthcare personnel with direct contact with the patients, but now they are provided to all staff according to legal and regulatory measures.

STAFF TRAINING

Each staff member is instructed by the infectious disease specialist how to put on and take off PPE; moreover, the path to follow for positive or suspected COVID-19 patients has been reviewed.

PATIENT SCREENING

Before confirming a radiation oncologist consult or a follow-up visit, a telephone clinical and epidemiological screening is performed by nurses through a questionnaire regarding the presence of any respiratory symptoms, social contacts with COVID-19 positive patients or suspected patients, or whether the patients live in or have passed through the restricted zones (places with high rates of infection). For patients moving from other hospitals or communities, before admission, a series of exams are required: blood count, liver function (transaminase and lactate dehydrogenase), and C-reactive

protein; an infectious disease assessment that certifies the presence/absence of criteria for suspected or confirmed COVID-19 patients, and, in case of recent respiratory insufficiency, a chest computed tomography scan, are also required.

Once the patients arrive in our hospital, before admitting them, a triage point at the entrance to the hospital performs a second screening, as well as a temperature check.

Based on the results of these evaluations, there are several different options:

- ▶ Patients without respiratory clinical symptoms can proceed to the radiotherapy unit without any restriction, except for wearing a surgical mask and gloves. A ticket certifying that they have been screened and passed is shown to the radiotherapy staff before therapy.
- ▶ Patients with respiratory symptoms can proceed to the radiotherapy without any restriction, except for wearing a surgical mask and gloves. A ticket certifying that they have been screened and respiratory symptoms have been reported is given to them. In this case, the ticket is shown to the radiotherapy staff before therapy, representing a warning that might prompt staff to use more precautions (disposable gowns and goggles).
- ▶ Patients with fever have to be evaluated at reception by a radiation oncologist. In the case of a first clinical consultation or if the patient has not already started radiation treatment, the physician evaluates when to reschedule oncologic services. If radiotherapy is already ongoing and there are no clinical reasons to stop it, the patient has to wear PPE through a specific path organized by the Crisis Unit to minimize social contact.
- ▶ COVID-19 confirmed or suspected patients follow the same instructions as described above. In this case the staff involved also wear a fluid-resistant, impermeable, disposable gown and a filtering face piece 2 (FFP2) respirator, rather than a surgical mask. These patients are treated at the end of the work day to allow an immediate and thorough sanitization of the environment afterwards.

We hereby offer these options for the management of patients requiring radiotherapy in the recovery phase of the COVID-19 pandemic.

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