



## COVID-19 and radiotherapy in the Mexican Scenario

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In Mexico, malignant tumors are the third cause of mortality, and given the evidence that cancer patients have an increased risk of COVID-19 infection (1), appropriate care is of great importance. Radiotherapy sometimes requires intermittent patient visits to the hospital for over 2 to 6 weeks. This results in potential exposure of vulnerable patients.

According to radiation therapy guidelines, patients with leukemia and lymphoma represent a higher risk group(2)(3). These patients have a high potential to obtain a complete cancer treatment response with

combined regimens of chemotherapy and radiotherapy. Thus, hematological patients should continue their treatments without risking their safety.

With the sentinel surveillance model, radiotherapy services in Mexico have been organized to continue caring. When looking for recommendations and guidelines (2)(4), one problem arises. It is not possible to carry out all these measures optimally in low-income countries; thus, standards of high clinical impact and low cost are recommended. We want to share specific measures taken at the Instituto Nacional de Cancerología (INCAN), for medical care of hematological patients needing radiotherapy.

First, patients are informed about the risks of COVID-19. A screening questionnaire is carried out, and we insist on handwashing and restricting hospital length stay. Consultations are carried out with electronic files.

### **Protection of health personnel**

1. Staff continuous updating.
2. Use of medical uniforms only within the hospital.
3. Use of a gown and face masks when having contact with patients and their companions. Do not wear accessories.
4. Correct use of Personal Protective Equipment.

### **Patient protection**

1. Escort the patient with social distancing to a specific triage zone
2. Questionnaire for suspected exposure.
3. Notification of risks and complications.
4. Performance of proper handwashing.

Recently, the International Lymphoma Radiation Oncology Group described its hypofractionation schemes(5); however, restriction doses by hypofractionation could result in suboptimal therapy. Radiotherapy management in our institution was grouped into two parts. First, the evaluation of the treatment's clinical impact and second, establishing the best treatment strategy for those with the most significant potential clinical benefit.

The INCAN is a national reference center. As only some centers have diagnostic tests for COVID-19, we consider that all patients are suspects. In Mexico, COVID-19 cases are underestimated due to the lack of tests. This is an opportunity to implement and manage treatment schemes according to scientific radiobiology bases with our medical physicists' support (Figure 1).

Based on the 'RADS' flow chart(3), the care of patients with hematological malignancies was adapted according to the individual diagnosis, curative potential, clinical impact of treatment, and need for palliation.

The delay in scheduled treatments, hypofractionation, or acceleration of the last radiotherapy fractions was considered. This protocol was based on the linear-quadratic model, calculation of EQD2, and each patient's particular conditions to compensate for the interruptions suffered. Whenever possible, the same accelerator machine was used to reduce treatment time and possible contamination. All patients are monitored by telemedicine.

International recommendations serve as evidence for decision-making but must be used according to individual clinical centers' needs. Various factors can influence the decision-making process. The financial and legal restrictions of each cultural context must be included.

We must take care of patients with hematological malignancies needing radiotherapy under this pandemic's scenario characterized by reduced resources. Evaluation of each patient, their healing potential, the relative benefit of radiation, life expectancy, and current functional status are crucial. Teamwork, including oncologists, medical physicists, and radiotherapy staff, are all crucial for this purpose. We must be resilient and keep evolving to offer our patients the best possible care with maximum clinical benefit in an environment of respect and safety for both patients and medical personnel.

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