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WHAT SHOULD SURGEONS KNOW IN CASES OF ONCOLOGICAL PATHOLOGY IN THE CONTEXT OF COVID-19 PANDEMIC (SARS COV-2)?

RECOMMENDATIONS FROM ¨SURGEONS-AEC-COVID19¨ OF THE SPANISH ASSOCIATION OF SURGEON (AEC)

- *In response to the rapid evolution that hospitals face concerning the COVID-19 pandemic, and to the doubts that arise regarding the management of cancer patients who need surgery, the Spanish Association of Surgeons (AEC) want to respond to the questions that arise in this situation.*

- *Given the changing environment of the pandemic, these proposals are subject to the recommendations of the Ministry of Health of each country and the available evidence.*

Assessment of the situation and decision making

In the current COVID-19 pandemia that we are facing, oncologic patients are at a higher risk of infection than non-oncologic surgical patients; due to both: their baseline pathology and their immunosuppression associated with their treatments (chemotherapy and surgery)[1-4].

The objective in these patients is to minimize their risk of infection and to prevent possible surgical complications; as well as to have judicious use of resources and to protect all healthcare workers.

For the decision making process, a scale (that is pending validation) with five phases that detail the progression of the COVID-19 pandemia has been developed. It is based on current literature[5] and on our cumulative experience from our centers after analyzing the situation internationally. This is a dynamic scale where it can follow an escalating expansion of the SARS-CoV-2 infection as well as its decrease when hospitals begin to recuperate normalcy.

- **Phase I. Almost normal scenario**
  - *Census* - <5% COVID-19 related admissions without ongoing urgent necessities
  - *Resources* - no impact on hospital resources
  - *Surgical activity:* no impact on normal activity
- **Phase II. Low level alert scenario**
  - *Census* - 5-25% COVID-19 related admissions to ward and ICU
  - *Resources* - no impact on hospital resources but with pandemia alertness in the hospital with appropriate separate triage in the ER for respiratory symptoms vs non respiratory symptoms
  - *Surgical activity:* activity limited to:
    - Oncology
      - If an increase in the infection curve is suspected, use phase 3 scenario for oncological surgical activity
    - Urgencies
- **Phase III. Medium level alert scenario**
  - *Census* - 5-25% COVID-19 related admissions to ward and ICU
  - *Resources* - impact on hospital resources with pandemia alertness in the hospital with appropriate separate triage in the ER for respiratory symptoms vs non respiratory symptoms. ICU beds and wards reserved for COVID-19 patients
  - *Surgical activity:* activity limited to:
    - Oncologic patients where a lack of treatment would compromise their 3 month´s survival
    - Oncologic patients who cannot receive neoadjuvant treatment to slow progression of disease
    - Oncologic patients who will not require prolonged ICU stay
    - Urgencies
- **Phase IV. High level alert scenario**
  - *Census* – 50-75% COVID-19 related admissions to ward and ICU
  - *Resources* – Significant impact on hospital, healthcare workers and ICU beds.
  - *Surgical activity:* activity limited to:
    - Urgencies
- **Phase V. Emergency scenario**
  - *Census* – >75% COVID-19 related admissions to ward and ICU
  - *Resources* – Significant impact on hospital, healthcare workers and ICU beds. Limited ICU and ventilation resources, limited OR resources or a rapid infection increase in the hospital.
  - *Surgical activity:* activity limited to:
    - Urgencies where the patient will not survive unless intervened within the next few hours after a preoperative triage is done by the ethics committee.

We will discuss topics related to the treatment of oncologic patients in the current setting of a COVID-19 pandemia

1.- Is preoperative screening necessary for all oncologic patients that will undergo surgery?

The European CanCer Organization (ECCO) have indicated that its extremely important that healthcare systems quickly provide a COVID-19 test for all cancer patients who are receiving active treatment (chemotherapy, radiation or surgery)[6].

Current recommendation on highly affected areas with COVID-19 is to test all surgical oncological patients with the objective to reduce all risk associated with operating an infected patient (Phase II-V).

Preoperative screening for SARS-CoV-2 includes: epidemiologic history (contact with infected patients within the last 14 days), presence of classic symptoms (fever, respiratory symptoms, anosmia, ageusia), testing by PCR with a nasopharyngeal swab. If there is a discrepancy between clinical findings and testing, or if PCR is indeterminate, a CT of the chest can be a quick adjunct that can aid in diagnosis for COVID-19 due to its high sensitivity[7,8].

However PCR testing is subject to hospital availability, to the priority level given at a particular moment and using judicious use of available resources. If PCR cannot be done, screening via a chest CT has been proposed, if not available then ultrasonography or a Chest Xray can be done.

Currently there are no recommendations in the literature regarding type of screening and interpretation of their results for cancer patients who require surgery in areas where the infection incidence by SARS-CoV-2 is low (Phase I).

2.- Are cancer patients more likely to develop COVID-19?

Cancer patients are more susceptible to infections than individuals without cancer due to their malignant process as well as their overall immunosuppressive state caused by employed treatments (chemotherapy or surgery). Therefore these patients are more likely to develop COVID-19 and have a worse prognosis[1-4].

Therefore, cancer patients and their family should know and apply contact protective measures and maximize precautions to prevent transmission.

3.- How can we decide whether to postpone surgery or not in a cancer patient during the COVID-19 pandemia?

Due to the current circumstances, decision whether to proceed with elective surgery for cancer should be based on:

- SARS-CoV-2 infection incidence: The phase we are currently in and a rapidly increasing infectious curve[9].
- Hospital resources: availability of oncologic rooms/wards separate from COVID-19 patients, ICU beds, respiratory/ventilation support, Personal Protective Equipment (PPE).
- Risk/benefit assessment regarding reducing progression of disease vs developing complications from developing an infection with SARS-CoV-2 (readmission, postoperative complications, mortality).
- Individual tumor specific risk assessment for postponing the procedure 6-8 weeks when the COVID-19 infection may be less prevalent.
- Assessment of surgical morbidity and the potential need for ICU stay or the need for mechanical ventilation.

The decision to postpone or not the surgery should be made by a hospital multidisciplinary committee preferably by telematics, on a case by case basis with the goal of establishing: risk in function of local circumstances, prevalence of COVID-19, and the availability of non-surgical options if surgery is to be postponed.

Patients should be informed that their treatment decision is based on consensus by a multidisciplinary team and the factors taken into consideration are: risk of infection by coronavirus, available resources at the moment, tumor characteristics, and expected outcomes from postponing treatment.

4.- Is there a higher complication rate in cancer patients with COVID-19 infection?

Although the available literature is infrequent in this scenario, a study from China, where most of the published literature comes from, observed that cancer patients had a higher risk of serious complications, in terms of the need for admission to the intensive care unit, requiring invasive ventilation and an increase in mortality, compared to cancer-free patients, with deterioration being more rapid and severe in cancer patients [1].

5.- How should a patient with cancer who is NOT infected with COVID-19 be treated?

In patients without known infection by COVID-19 and when the logistical situation permits, surgery could be considered in most cases, and the epidemiological situation should be assessed, as always. However, decisions must be individualized after considering the general objectives of the treatment, the tumor stage as well as the general condition of the patient.

In colorectal surgery it is recommended to avoid primary anastomosis in patients at risk (ultra-low anastomoses, diabetics, preoperative radiotherapy, fragile, elderly patients, etc.), both due to the high risk of an added complication of infection by COVID-19 for the patient and to avoid development of sepsis that may require necessary resources in the health system[10].

The limited evidence available at present does not allow specific recommendations to be made for each tumor type but the attached bibliography can be consulted.

6.- How should a patient with cancer and COVID-19 infection be treated?

In patients infected with COVID-19, treatment of **infection** should be prioritized over cancer treatment, except in urgent situations (perforation, obstruction, bleeding). Therefore, surgical or chemotherapy treatment should be postponed. If surgery is required, it must entail the minimum necessary procedure and with less possibility of postoperative complications (assess regional anesthesia, use of stents, derivative stomata).

7.- Is an oncology patient awaiting surgery with neoadjuvant chemotherapy at an increased risk of complications?

The main cancer treatment associated with immunosuppression is chemotherapy, so patients who receive it can be considered a population vulnerable to serious complications after COVID-19 infection. For this reason, patients undergoing chemotherapy treatment should take extreme precautions to avoid transmission and assess the risk/benefit ratio of continuing their administration during the period of virus expansion.

Regarding adjuvant treatment, there is limited evidence of the consequences of delaying or stopping chemotherapy treatment versus the benefits of potential prevention of COVID-19 infection. Clinical decisions should be individualized taking into account factors such as the risk of tumor recurrence if adjuvant chemotherapy is delayed, modified or discontinued, the number of cycles of adjuvant chemotherapy already completed, and the patient's tolerance for treatment.

For solid tumors, adjuvant therapy with intent to cure should be given despite the risk of COVID-19 infection. Patients with metastatic disease, delaying treatment can worsen the overall state of the patient and the therapeutic window may be lost[11].

8.- In an oncology patient awaiting surgery with neoadjuvant chemotherapy, is it better to have surgery or another cycle of chemotherapy to postpone the surgery?

Although each case must be assessed individually, taking into account the general condition of the patient, their oncological situation and the risk of surgery (both due to the possibility of postoperative complications and the situation in each hospital), it would be advisable during the period of virus expansion to give an additional course of chemotherapy before surgery so that it can be delayed without losing the therapeutic window and expecting COVID-19 infection to be less prevalent then.

Clinical trials for colon cancer where the administration of neoadjuvant chemotherapy (FOxTROT)[12] or trials done for rectal cancer where preoperative neoadjuvant chemotherapy was used[13-15] can support this decision making. Regarding esophagogastric cancer, The Association of Upper Gastrointestinal Surgery of Great Britain and Ireland (AUGIS) recommends that in patients where a prolonged recuperation is expected, chemotherapy as neoadjuvant or as definite treatment can be considered[16].

On the other hand, there are contradicting recommendations from different medical societies as to when not to start potentially immunosuppressive chemotherapy in patients where a 2-3 weeks delay does not results in an increased risk to that patient[17].

9. How to handle the resection pieces?

Surgical pieces are considered infectious samples, so they must be handled as such and will be delivered to the assigned department according to the protocol established by each Hospital.

10. How should follow-up of the cancer patient be done?

During the period of greatest transmission, the number of on-site medical visits should be minimized. It may be reasonable to postpone routine follow-up visits temporarily or even until after the epidemic ends or to make those appointments by phone or telematics whenever possible. Endoscopic or radiological tests for monitoring the cancer patient without active treatment may be delayed at this time.

If you need to contact the doctor in person for a specific problem or worsening of symptoms, you should try to make the appointment at an outpatient consultation to avoid going to the hospital.

In patients with preoperative obstruction, bleeding, perforation, or late staging, the endoscopic examination could be completed within 6 months after surgery, with subsequent follow-up once the pandemic has been controlled.

11.- What psychological support can we give to these patients?

Oncological pathology patients experience an uncertainty about the evolution of their disease and fear of getting infected with COVID-19 in this health emergency situation. Medical staff must acknowledge the psychological pressure of patients and their families and answer their questions with the best evidence available at all times. If necessary, specific psychological or psychiatric care will be recommended.
It should not be forgotten that healthcare professionals also experience symptoms of depression, insomnia, and anxiety in this situation, which must be properly addressed.

This document has been prepared with the bibliography cited below and the recommendations published by scientific societies (American College of Surgeons, American Society Clinical Oncology, Spanish Society of Medical Oncology, and Spanish Association of Coloproctology).

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