Dramatic Changes in Oncology Care Pathways During the COVID-19 Pandemic: The French ONCOCARE-COV Study

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Disclosures of potential conflicts of interest may be found at the end of this article.

ABSTRACT

The coronavirus disease 2019 (COVID-19) pandemic may have affected cancer management. We aimed to evaluate changes in every oncology care pathway essential step, from screening to treatment, during the pandemic.

Monthly oncological activity differences between 2019 and 2020 (screening tests, histopathological analyzes, multidisciplinary tumor board meetings (MTBMs), diagnostic announcement procedures (DAPs), and treatments were calculated in two French areas experiencing different pandemic intensity (Reims and Colmar).

COVID-19 has had a dramatic impact in terms of screening (−86% to −100%), diagnosis (−39%), and surgical treatment (−30%). This global decrease in all essential oncology care pathway steps contrasted with the relative stability of chemotherapy (−9%) and radiotherapy use (−16%). Outbreak occurred earlier and with more intensity in Colmar but had a comparable impact in both areas regarding MTBMs and DAPs.

The current ONCOCARE-COV study is still in progress and with a longer follow-up to analyze postlockdown situation.

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INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic led to prioritizing emergency care dedicated to infection management. Other conditions, such as cancer management, may have been affected during the sanitary lockdown [1]. Consequences of this “distraction effect” are suspected, but the immediate impact of this pandemic is still unknown [2]. The ONCOCARE-COV study evaluated changes in oncological care pathways during the COVID-19 crisis.

MATERIALS AND METHODS

Monthly oncological activity indicators were extracted using electronic files and nation-wide procedure codes Classification commune des actes médicaux (CCAM) from January 1, 2019, to May 31, 2020, in a French area of high COVID-19 incidence (Grand East region), in a tertiary care center (University Hospital and Godinot Cancer Institute in Reims), and in a general hospital (in the first national outbreak epicenter in Colmar). The daily number of infected and deceased inpatients with COVID-19 and the monthly number of different steps of oncological care pathways (screening, diagnosis, multidisciplinary tumor board meeting [MTBM], diagnosis announcement procedure [DAP] and treatment) were collected (Fig. 1). We calculated monthly activity differences between 2019 and 2020, focusing on the 3-month COVID-19 pandemic period, to identify changes and to compare DAP and MTBM between both areas (Reims and Colmar). Trends were visually compared using temporal curves. Graphic representation and statistical analyses were performed using R (R Development Core Team, version 1.2.5019) and Excel (Microsoft, version 2018). This study has been registered on ClinicalTrials.gov (NCT04445870).

RESULTS

Compared with the same trimester in 2019, oncological activity decreased dramatically on all essential oncological care pathway steps during the COVID-19 pandemic. The trends and comparisons of monthly activity volume are depicted in Figures 1 and 2.
Colon and breast cancer screening test fell by 86% to 100%, respectively. All activities linked to sampling, histopathological (−48%), and biomolecular analyses (−69%) were drastically reduced. A decrease in medical announcement consultations (−54%) and oncogeriatric evaluations (−86%) was also observed; fewer medical patient files (−31%; including those of new patients; −39%) were reviewed in MTBM. Regarding treatment, systemic chemotherapy (−9%) and radiotherapy (−16%) experienced a lighter decline, whereas oncological surgical procedures were heavily impacted (−30%) over a 2-month period. All clinical research trials were stopped for 3 months (data not shown), and all hyperthermic intraperitoneal chemotherapies were postponed.

Although the COVID-19 outbreak occurred earlier and with more intensity in Colmar, it had a comparable impact in both areas regarding MTBM and DAP.

**Discussion**

COVID-19 has had a dramatic impact on all aspects of the cancer care pathway, particularly in terms of screening, diagnosis, and surgical treatment. To the best of our knowledge, this is the first study assessing the overall management of cancers from screening to treatment. Screening and a drop in the number of screening-related samples were observed in Belgium [3]. Reduction in cancer diagnoses has been noted in other European countries, particularly for colon and skin cancers [4, 5]. Primary care was also impacted, with urgent cancer referrals falling by 60% in the U.K. [6]. We experienced a similar decrease in new oncological referrals. In Spain, outpatient visits decreased, and remote visits using phones or internet became a standard [7]. As in a U.S. tertiary care cancer center (MD Anderson Cancer Center), oncological surgical care was drastically reduced because of limited availability of health personnel, logistical resources, and available beds [8]. Facing this resource scarcity, an international collaborative group recommended a fair and consistent prioritization to maximize health benefits, considering the patient, its disease, and its prognosis [9]. This global decrease in all essential oncology care pathway steps contrasts with the relative stability of chemotherapy and radiotherapy use. Patients anteriorly diagnosed with cancers continued to be treated.

Limitations of the present study include lack of information on patient characteristics and prognosis. The consequences of delay in diagnosis and treatment have only been estimated in model-based analysis [10]. Complementary qualitative studies are warranted to estimate the real impact on cancer outcomes. The ongoing CAPANCovid-19 study aims to evaluate the impact of the COVID-19 pandemic on management and outcomes of patients with exocrine pancreatic cancer (https://clinicaltrials.gov/ct2/show/NCT04406571). The current ONCOCARE-COV study is still in progress, and with a longer follow-up, we
Figure 2. Temporal curves of monthly oncological activity volume (between January 2019 and May 2020) and of daily COVID-19 pandemic indicators (between March 16, and June 15, 2020). (A): Screening activity in the Marne county. (B): Carcinologic histopathological analyses depending on tumor samples. (C): Biomolecular analyses (somatic and germline). (D): Multidisciplinary board meeting activity (comparison between Reims and Colmar centers). (E): Diagnostic announcement procedures. (H): Oncogeriatric evaluations. (G): Oncological surgical activity. (I): Cytotoxic chemotherapy activity. (J): Radiotherapy activity. (K): Oncological activity indicators. (L): Daily COVID-19 indicators. (M): Number of new patients admitted to tertiary centers. (N): Number of new patients admitted to overall inpatients. (O): Number of new patients admitted to medical inpatients. (P): Number of cumulated deaths from COVID−19. (Q): Number of cumulated deaths from all causes. (R): Number of patients in multidisciplinary meetings. (S): Number of tumor samples. (T): Number of biomolecular analyses. (U): Number of patients treated by chemotherapy. (V): Number of patients treated by radiotherapy. (W): Number of patients treated by chemotherapy plus radiotherapy. (X): Number of patients treated by surgery. (Y): Number of patients treated by chemotherapy plus surgery. (Z): Number of patients treated by chemotherapy, radiotherapy and surgery. (AA): Number of patients treated by other oncological activity. (AB): Number of patients treated by other activity indicators. (AC): Number of events. (AD): Number of CT simulation sessions. (AE): Number of FIT stock shortage. (AF): Number of FIT specimens Biopsies Cytologies Extemporaneous. (AG): Number of screening test. (AH): Number of oncological surgical activity. (AI): Number of chemotherapy. (AJ): Number of radiotherapy. (AK): Number of chemotherapy plus radiotherapy. (AL): Number of chemotherapy plus surgery. (AM): Number of chemotherapy, radiotherapy and surgery. (AN): Number of other oncological activity. (AO): Number of other activity indicators.

Abbreviations: COVID-19, coronavirus disease 2019; CT, computed tomography; FIT, fecal immunochemical test.

will be able to analyze the postlockdown volume of oncological activity and the impact of a possible second COVID-19 epidemic wave in relation to types of cancer.

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