Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

1674MO ACE2 and TMPRSS2 expression by clinical, HLA, immune, and microbial correlates across 34 human cancers and matched normal tissues: Implications for SARS-CoV-2

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Background: Pandemic COVID-19 by SARS-CoV-2 infection is facilitated by the ACE2 receptor and protease TMPRSS2. Patients with cancer may be at particularly high risk for SARS-CoV-2 infection and deleterious outcomes to the disease. A better understanding of potential host risk factors, notably *ACE2* and *TMPRSS2*, in malignant tissues may inform considerations surrounding SARS-CoV-2 and COVID-19 in patients with cancer and more broadly in the general population.

Methods: We performed a large-scale integrated study of *ACE2* and *TMPRSS2* gene expression in 10,038 patients with cancer across and within organ systems, by normal *versus* tumor. We investigated its correlative pattern with clinical factors (age, gender, race, BMI and smoking history, etc.), HLA, immune signatures, and commensal microbiome.

Results: Matched normal tissues generally display higher *ACE2* and *TMPRSS2* expression compared with tumor, with digestive organs expressing the highest levels. No consistent association was observed between clinical groups or HLA genotypes and *ACE2*/*TMPRSS2* levels, after adjusting for tissue-specific expression. *ACE2* expression showed a significant correlation with clinically relevant immune signatures including interferon-stimulated genes and the T cell-inflamed phenotype, and with macrophage cell subsets. Single-cell RNAseq analysis demonstrated little to no *ACE2* or *TMPRSS2* expression in lymphocytes or macrophages. *ACE2* and *TMPRSS2* showed a distinctive correlative pattern with 75 bacterial taxa in normal tissues particularly from colorectal cancers (gram-negative to positive ratio = 2.6:1). LASSO regression models integrating multi-dimensional correlates revealed immune and microbiota are among the top-ranked features predicting *ACE2* expression, while epithelial cell abundance is the dominant predictor for *TMPRSS2*.

Conclusions: We investigated *ACE2* and *TMPRSS2* expression across clinical, genetic, immune, and microbiome domains. We identify novel associations with the microbiota and confirm host immunity associations with gene expression. We hope these data may better inform clinical considerations surrounding risk stratification and prevention approaches.

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1675MO Screening of COVID-19 disease based on chest CT and PCR for cancer patients undergoing radiotherapy in a French coronavirus hotspot

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Background: The coronavirus disease (COVID-19) pandemic has caused 180,000 confirmed cases in France with more than 28, 000 deaths as of May 19. A large part of COVID-19 patients seem asymptomatic and cancer patients may be more vulnerable. We evaluated a screening strategy combining chest computed tomography (CT) and PCR for patients treated with radiotherapy (RT).

Methods: A screening strategy was organized from March 18, in our RT department. An inspiratory breath hold chest acquisition was proposed during the CT simulation for RT. Images was reviewed by a radiologist according to the CO-RADS classification. A nasal swab with a polymerase chain reaction (PCR) assay was proposed by the radiation oncologist in case of evocative imaging or clinical context. For patients who were already undergoing RT at this time, a PCR was proposed in case of evocative symptoms and before concomitant chemotherapy.

Results: From March 18 to May 1, 2020, 507 CT simulation were performed for 449 patients, including 445 chest acquisition. 237 of the chest CT (53%) showed lung abnormalities, of which 34 (8%) were COVID-19 compatible (CO-RADS $\geq$ 3). 102 patients were tested by PCR after the chest CT. 24 of the 449 (5.3%) patients were considered as COVID-19 patients: 19 had positive PCR, and five were considered positive on the basis of imaging despite PCR-negative PCR. Four of the patients (17%) were diagnosed during RT: 3 on routine screening before chemoradiotherapy, and one on symptoms. Four patients needed several PCR for the diagnosis of COVID-19 with six confirmed false negative PCR (Sensitivity (Se)= 76 % (19/25)). Three PCR positive patients had no evocative lung images (Se = 84%). During this period, an additional 169 patients whose CT simulation was prior to March 18, were also undergoing RT. Among them, six patients (3.6%) were diagnosed with COVID-19 by PCR during RT, performed for symptoms in 4 cases and on screening for the other 2. Of the 30 COVID-19 patients, only 8 (27%) had symptoms at the time of diagnosis. Twelve patients (40%) reported no symptoms and benefited from screening.

Conclusions: This study confirms the high proportion of asymptomatic patients with COVID-19 and suggests the value of screening by CT and PCR during COVID-19 pandemics.

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1676MO Prevalence and clinical impact of asymptomatic or mildly symptomatic SARSCoV-2 infection among actively treated cancer patients during COVID-19 pandemic in Italy

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Background: The European SARS-CoV-2 pandemic had its first epicentre in Italy, particularly in the area of Bergamo. In spite of a significant mortality rate, in the majority of cases the spectrum of COVID-19 ranges from asymptomatic to mildly symptomatic infection. No information is available on the prevalence and clinical impact of asymptomatic or mildly symptomatic SARS-CoV-2 infection among actively treated cancer patients during pandemic.

Methods: From April 1st, 2020 to the end of the month, 560 consecutive and unselected patients, scheduled for anticancer treatment at our facility and without clinical suspicious of COVID-19, were evaluated and tested for SARS-CoV-2. We implemented a two-step diagnostics, including a rapid serological immunoassay for anti-SARS-CoV-2 IgG/IgM and a pharyngeal swab RT-PCR assay in case of IgM seropositivity.

Results: In 560 patients, 172 (31%) resulted positive for SARS-CoV-2 IgM/IgG antibodies, regardless of type of cancer, stage and treatment. All IgM-seropositives were then tested with RT-PCR pharyngeal swabs and 55/146 (38%) proved to be SARS-CoV-2 carriers, with slightly difference b/w mildly symptomatic *vs.* asymptomatic patients (38 *vs.* 17). Therefore, the two-step procedure allowed the identification of 55 (10%) silent carriers in the whole study population and magnified the number needed to test (NNT) with the pharyngeal swab RT-PCR assay to detect a silent virus carrier (NNT: 2.6 *vs.* 10, with or without serological selection). At a very early follow up (8 wks), in 114 SARS-CoV-2-seropostive/RT-PCR-negative patients, who continued their anticancer therapies, none but one developed a symptomatic COVID-19 illness.

Conclusions: Among cancer patients, the two-step diagnostics strategy with serology followed by pharyngeal swab for asymptomatic or mildly symptomatic SARS-CoV-2 infection is feasible and effective and can help selecting cancer patients on treatment who might be silent carriers of the virus. The early safety outcome of patients previously exposed to SARS-CoV-2 supports the recommendation to continue active treatment, at least in the case of negative RT-PCR test.

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1677MO COVID-19 mortality in hospitalized cancer patients is not significantly affected by chemotherapy or other anti-cancer treatments

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Background: Individuals with cancer, particularly those who are receiving systemic anti-cancer treatments, have been postulated to be at increased risk of mortality from SARS-CoV-2 related coronavirus disease (COVID-19). This conjecture has considerable impact on the treatment of cancer patients and large, multi-centre data to support this assumption is lacking due to the contingencies of the pandemic.

Methods: The cancer community of the United Kingdom (UK) has launched the UK Coronavirus Cancer Monitoring Project (UKCCMP). The UKCCMP is the first COVID-19 clinical registry that enables near real-time reports to frontline doctors about the effect of COVID-19 on cancer patients.

Results: An analysis of the first 800 cancer patients with symptomatic COVID-19 disease entered into the UKCCMP registry has been performed. Approximately half of these patients have a mild COVID-19 disease course (52%). Mortality was observed in 226 patients (28%) and risk of death was significantly associated with advancing patient age, sex (M>F) and the presence of other co-morbidities. Approximately one third had received cytotoxic chemotherapy within 4 weeks prior to testing positive for COVID-19. After adjusting for age, sex and comorbidities, recent receipt of chemotherapy had no significant effect on mortality from COVID-19 disease, when compared to cancer patients who had not received recent chemotherapy. No significant effect on mortality was also observed for patients with recent immunotherapy, hormonal therapy, targeted therapy or radiotherapy use.

Conclusions: Mortality from COVID-19 in cancer patients appears to be principally driven by age, sex and co-morbidities. We are not able to identify evidence that cancer patients on cytotoxic chemotherapy or other anti-cancer treatment are at significantly increased risk of mortality from COVID-19 disease compared to those not on active treatment.

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1679P Determinants of mortality from SARS-CoV-2 infection in European cancer patients

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Background: The severity of SARS-CoV-2 infection (COVID-19) is predicted by advancing age and co-morbidities. The relative contribution of cancer in influencing the course of COVID-19 is poorly understood. We designed the OnCOVID study to investigate natural history of COVID-19 disease in cancer patients.

Methods: This retrospective, multi-center observational study conducted across 8 tertiary centers in Europe recruited cancer patients aged >/= 18 and diagnosed with COVID-19 between February 26th and April 1st, 2020. Descriptive statistics, univariable and multivariable Cox regression models were used to assess patient's main characteristics and to evaluate the factors associated to COVID-19 related mortality.

Results: We identified 204 patients from United Kingdom (n=97, 48%), Italy (n=56, 27%) and Spain (n=51, 25%). Most patients were male (n=127, 62%) had a diagnosis of solid malignancy (n=184, 91%) and 103 (51%) had non-metastatic disease. Mean (±SD) patient age was 69±13 years, and 161 (79%) had >/= 1 co-morbidity, most commonly hypertension (n=88, 43%) and diabetes (n=46, 23%). Commonest presenting symptoms were fever (n=136, 67%) and cough (n=119, 58%), beginning 3.8 (±4.5 SD) days before diagnosis. Most patients (n=141, 69%) had >/= 1 complication from COVID-19, including respiratory failure (n=128, 63%) and acute respiratory distress syndrome (n=49, 24%). In total, 36 patients (19%) patients were escalated to high-dependency or intensive care. At time of analysis, 59 patients had died (29%), 53 were discharged from hospital (26%) and 92 (45%) were in-hospital survivors. Mortality was higher in patients aged >/= 65 (36% versus 16%), in those with >/= 2 co-morbidities (40% versus 18%) and developing >/= 1 complication from COVID-19 (38% versus 4%, p=0.004). Multi-variable analyses confirmed age >/= 65 and >/= 2 co-morbidities to predict for patient mortality independent of tumor stage, active malignancy or anti-cancer therapy.

Conclusions: In the early outbreak of SARS-CoV-2 infection in Europe co-morbid burden and advancing age predicted for adverse disease course in cancer patients. Risk stratification based on these factors should inform personalized oncological decision making during the COVID-19 pandemic.

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1680P SARS-CoV-2 infections in outpatients with cancer: Most infected patients are asymptomatic carriers without impact on chemotherapy

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Background: It is still unclear whether oncological patients harbor a higher risk for an infection with the SARS-CoV-2 and for developing severe forms of COVID-19. Furthermore, it is unclear whether an infection affects essential therapy treatment and if a therapy increases the risk for an infection.

Methods: We tested every patient (n=1286) in 7 different oncology outpatient clinics from 04/15/2020 and 04/26/2020 for COVID-19 infection regardless of whether symptoms were present or not. Virus RNA was extracted using the MGIEasy extraction kit in combination with SP-960 robots and a RT qPCR was performed.

Results: From 1286 tested patients 40 (3.1%) patients were identified positive. Only two of those (5.0%) had mild symptoms whereas one positive patient (2,5%) was treated stationary with pneumonia. The majority (37/40) was asymptomatic virus-carriers (92,5 %). Noteworthy is the fact that 22 (55%) of the positively tested patients were undergoing systemic therapy of which 10 (45.5%) patients received chemotherapy and 4 (18.2%) patients received immunomodulating antibodies.

Conclusions: A consequent testing for COVID-19 in cancer patients is obligate to identify asymptomatic positive carrier to separate this potential vector group from COVID negative patients since the majority (37/40) of positive patients was asymptomatic virus-carriers (92,5 %). The data we collected contrasts strongly the hypothesis that cancer patients are suspected to be highly vulnerable for SARS-CoV-2 infections. Only a minority (3/40) of positively tested tumor patients showed symptoms. An asymptomatic COVID-19 infection seems to have no impact on the further course of a chemotherapy.

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