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Anil, I, Arnold, R, Benkwitz-Beford, S et al. (27 more authors) (2020) The UK Coronavirus Cancer Monitoring Project: protecting patients with cancer in the era of COVID-19. The Lancet Oncology, 21 (5). pp. 622-624. ISSN 1470-2045

https://doi.org/10.1016/S1470-2045(20)30230-8

The UK Coronavirus Cancer Monitoring Project: protecting patients with cancer in the era of COVID-19

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The UK Coronavirus Cancer Monitoring Project (UKCCMP) aims to collect, analyse, and disseminate in real time data from the UK cancer centres about SARS-CoV-2 infection rates in patients with cancer, and their outcomes in terms of COVID-19. This approach will enable oncologists to gain crucial insights to inform decision-making.

In December, 2019, several cases of acute respiratory syndrome in Hubei province, China were identified; these were the first described cases of coronavirus disease 2019 (COVID-19). The causative virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is a new strain of betacoronavirus previously not identified in humans and thought to be of zoonotic origin.[1] The presentation of COVID-19 varies from no or minor symptoms akin to the common cold, to severe acute respiratory distress syndrome, resulting in severely impaired respiratory function.[1] SARS-CoV-2 is highly contagious through direct transfer of respiratory droplets during coughing and sneezing or indirect fomite spread via contaminated surfaces. This simple transmission, coupled with international travel, has enabled rapid spread of the virus with more than 870 000 cases and 43 000 deaths reported worldwide as of April 1, 2020.[2]

Approximately 2·5 million individuals live with, or have a history of, cancer in the UK, with 1000 new diagnoses each day.[3] Of these patients, a substantial proportion require, are undergoing, or are recovering from surgery and complex treatments. Patients with cancer potentially have increased susceptibility to SARS-CoV-2 infection and have more serious sequelae, resulting from impaired immune function due to cancer itself, cancer treatment, or both.[4,5]

In China, Wenhua Liang and colleagues[5] reported their identification of 18 patients with cancer in a cohort of 1590 patients with COVID-19, indicating an increased incidence of COVID-19 in patients with cancer compared with the general Chinese population (1·13% vs 0·29%). This observation was also suggested by Yu and colleagues[6] who investigated SARS-CoV-2 infection in patients with cancer at a tertiary care hospital in Wuhan. The incidence of COVID-19 in patients with cancer (12 [0·79%] of 1524 patients) was higher than in the general Wuhan population (0·37%).

Patients with specific types of cancer might be at an increased risk of COVID-19, with both these reports highlighting the high proportion of patients with lung cancer with confirmed diagnoses of COVID-19 (five of 18 patients in Liang et al,[5] and seven of 12 in Yu et al[6]). Specific cancer treatments might also differentially contribute to risk of COVID-19. Severe COVID-19 infection is associated with cytokine storm and increased concentrations of C-reactive protein and IL-6 pneumonitis, severe adverse events that are also associated with immune checkpoint inhibitor therapy.[7] Consequently, COVID-19 might cause more harm in patients receiving immunotherapy. Furthermore, cytotoxic treatments used for haematological malignancies diminish lymphocyte populations, potentially rendering patients more susceptible to infection. Conversely, many cancer

treatments for solid tumours have little effect on lymphocyte populations or inflammatory responses. Therefore, SARS-CoV-2 infection is highly unlikely to affect all patients with cancer equally.

The European Society of Medical Oncology has published guidelines on how to mitigate the effect of COVID-19 on patients with cancer, by prioritisation of cancer treatment in patients expected to derive a substantial absolute survival benefit, reducing hospital visits, and converting from intravenous to oral regimen.[8] However, these guidelines take a broad approach for a very heterogenous population. Policies, including self- isolation and social distancing, are widely acknowledged to be required to suppress viral spread, both in the general and at-risk populations, thereby reducing pressure on already stretched health-care resources.[9] However, substantial reallocation of resources away from cancer care services could potentially have unintended cancer-related implications, including increased morbidity and mortality. Therefore, real-time collection, analysis, and dissemination of data from our cancer centres about SARS-CoV-2 infection rates in patients with cancer, and their disease outcomes, is needed.

The UKCCMP, launched on March 18, 2020, and aiming to involve over 90% of UK cancer centres, will achieve this goal. A Local Emergency Response Reporting Group has been created at each UK cancer centre to ensure continued updating of the UKCCMP. The project will collect data on patients with cancer who are positive for SARS-CoV-2 infection, including tumour type and stage, patient age, present cancer treatment, and clinical outcomes, with the aim to enable oncologists to gain crucial insights to inform decision making. Data collection, analysis, and dissemination is coordinated by the Centre for Computational Biology at the University of Birmingham, Birmingham, UK, through a dedicated workflow hosted by the Compute and Storage for Life Science infrastructure as part of the Birmingham Environment for Academic Research local Cloud.[10]

UKCCMP delivers meaningful real-time data to all UK cancer centres and clinicians to allow more personalised approaches to individual patient care and inform clinical decision making. This initiative will improve cancer care in the UK and beyond at this time of unprecedented global turmoil and call on health-care resources.

Members of the UK Coronavirus Cancer Monitoring Project team are listed in the appendix (p 1). We declare no other competing interests. We thank the oncologists, acute physicians, and health-care staff working tirelessly on the frontlines of the COVID-19 pandemic. The UK Coronavirus Monitoring Project team donated time and resources to support the project. The project was initially funded through the donation of time and resources from the supporters and advocates of the project. The University of Birmingham initiated this process, with the Pro-Vice-Chancellor dedicating the computational and human resources of the University's Centre for Computational Biology, the Institute of Translational Medicine, and scientists from the Institute of Cancer and Genomic Sciences. Other academic institutions dedicating time and staff to the project include the University of Oxford, University of Leeds, University College London, and King's College London.

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