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Letter

Utility of COVID-19 Screening in Cancer Patients

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Cancer patients are at increased risk from COVID-19. A number of guidelines advise screening patients undergoing chemotherapy. We analyzed 1,988 tests in 1,226 patients from April 3, 2020, to June 22, 2020, as part of the UK Birmingham Chemotherapy Cancer COVID-19 cohort. Uptake of screening was 98.2%, with an asymptomatic infection prevalence of 0.6%. We conclude that where the incidence of asymptomatic infection is low and patients can be identified early, screening enables the confidence to safely deliver effective cancer care in the era of COVID-19.

Patients with cancer are at increased risk of contracting SARS-CoV-2 and have a high mortality rate from COVID-19 (Lee et al., 2020). The initial phases of SARS-CoV-2 are characterized by a pre-symptomatic phase that can last up to 15 days, and viral spreading may occur prior to symptom onset (Lauer et al., 2020; He et al., 2020). Furthermore, recent evidence from antibody testing suggests that many patients may never develop any symptoms and have asymptomatic infection (Lavezzo et al., 2020).

A number of national and international cancer guidelines now advise the screening of every patient undergoing chemotherapy to enable early identification and isolation of patients with asymptomatic SARS-CoV-2 infections to prevent hospital transmission (<https://www.idsociety.org/practice-guideline/covid-19-guideline-diagnostics/>; <https://www.rcr.ac.uk/sites/default/files/guidance-covid19-testing-asymptomatic-hcw-patients-oncology.pdf>; <https://www.asco.org/sites/newwww.asco.org/files/content-files/2020-ASCO-Guide-Cancer-COVID19.pdf>). The evidence to support this is based on a

Chinese cohort of 28 patients suggesting that 28.6% of patients had hospital-acquired SARS-CoV-2 (Zhang et al., 2020), and also on small cohorts from America and the United Arab Emirates reporting rates of asymptomatic infection ranging from 2.5% to 8.25% (Boulad et al., 2020; Al-Shamsi et al., 2020).

The UK Birmingham Chemotherapy Cancer Cohort was designed as a service evaluation project that covered four UK cancer centers forming the University Hospital Birmingham NHS Foundation trust. Patients included solid organ and hematological malignancies. Patients were screened using an oral and nasopharyngeal polymerase chain reaction (PCR) swab taken at the start of their treatment and before each cycle of chemotherapy.

Of tests conducted in 1,226 patients, 1,988 were analyzed, and these included inpatients from April 3, 2020, and outpatients from April, 22, 2020 to June 22, 2020. Median age of this patient cohort was 62 years (IQR 51-71), and 45.3% of patients were male. 58.1% of patients had metastatic cancer, and malignant neoplasia tumor sites of the breast, GI tract, and skin were the most common.

The uptake of screening for SARS-CoV-2 was 98.2% (1,204/1,226). A positive test was identified in 10 patients, 3 of whom were already known to have COVID-19 from a hospital admission or a home PCR test. Seven patients were asymptomatic at the time of testing, giving an asymptomatic infection prevalence of 0.6% (95% CI [0.15-0.99]), significantly lower than in the published literature.

Of the 7 patients who had asymptomatic SARS-CoV-2 infection, 4 were male with a median age of 65 years (IQR 56-71). None of these patients developed

worsening symptoms or required hospital admission. From the time of diagnosis, the test became negative at a median of 14.4 days (range 6-82 days).

Our cohort demonstrates that uptake for screening of SARS-CoV-2 through nasopharyngeal testing is high in cancer patients. However, the prevalence of asymptomatic infection is lower than previously described in the literature. A number of possible reasons for this observation might exist. Exposure to SARS-CoV-2 might have been effectively minimized in the community. In the United Kingdom, our cancer patients were deemed “extremely clinical vulnerable,” requiring strict social isolation, and this might have reduced community spread (<https://www.gov.uk/government/publications/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19>). Second, a proportion of tests were conducted after the peak of the UK pandemic. Finally, hospital measures such as clinical cohorting of patients, early quarantine of symptomatic staff, use of personal protective equipment, teleconferencing clinics, and relocation of cancer services to different parts of the hospitals may have significantly reduced risk of transmission.

We have also identified an unusual COVID-19 phenotype, an asymptomatic chronic carrier. This patient had regular positive tests for SARS-CoV-2 for nearly 3 months while remaining asymptomatic. Currently, it is unclear if patients with chronic asymptomatic SARS-CoV-2 are infectious.

Overall, in interpreting these data and putting them into context, rigorous



measures need to be implemented to minimize the risk of SARS-CoV-2 infection in patients with cancer. Patients with asymptomatic infection are a potential infection source, and screening may reduce viral transmission. PCR nasopharyngeal testing for SARS-CoV-2 infection does fulfil many of the principles for the introduction of an effective screening policy: (1) COVID-19 is an important health problem, (2) there is an appropriate test, (3) prevalence in cancer patients is higher than the regional community prevalence (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveyypilot/england9july2020>), and (4) we provide evidence that uptake of the test in cancer patients is high. However, the natural history of cancer patients with asymptomatic infection is not fully understood, the optimal frequency for screening has not yet been defined, and this has to be balanced with the additional time and cost impact. We conclude that where the incidence of asymptomatic infection is low and patients can be identified early, screening enables the confidence to

safely deliver effective cancer care; this will be monitored as the pandemic evolves.

It is important that newly launched geographically diverse and national cancer efforts, such as the UK Coronavirus Cancer Monitoring Project ([UK Coronavirus Cancer Monitoring Project, 2020](#)), collates evidence on whether such an approach has utility in reducing COVID-19 infection and mortality.

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