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LBA78 A microsimulation model to assess the impact of SARS-CoV-2 on cancer outcomes, healthcare organization and economic burden

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Background: SARS-CoV-2 pandemic has deeply modified healthcare seeking and services in Europe since February 2020 with delays in treatment delivery and changes in the standards of care. The organization of cancer centers (CC) has been transformed to minimize virus exposure in cancer patients (pts). Real-time assessment of the impact on cancer outcomes can optimize decision-making for future epidemic episodes.

Methods: A discrete-event simulation (DES) model was developed to model individual pt pathways during the pandemic in a context of constrained medical resources. Cancer pt care is modeled based on pandemic-adapted guidelines for medical practice. Pt flow is derived from medico-administrative databases using time series methods to estimate the proportion of punctual / late visits and associated delay and to extrapolate future flows. Finally, the impact of modified care on survival is estimated using literature data.

Results: From March to December 2020, based on data from Gustave Roussy CC in France (n= 4877 included pts), estimated overall treatment delay is <= 7 days in 86,6% of pts and 5,2% of pts have a delay higher than 2 months. More than 94% of this duration is delay in pt request for care, causing 99 pts to suffer a major prognosis change upon arrival. Delayed pt flows result in a highly time-variable use of medical resources, with important queues forecast for surgery care and chemotherapy. The handling of such queues will require intensified healthcare professionals effort. Projections show that, in the best-case scenario, ie without a 2nd pandemic wave, treatment delays and modifications will result in around 49 additional 5-year cancer-specific deaths (+ 2,25% of 5-year deaths), mainly in liver, sarcomas and head and neck cancer pts.

Conclusions: In a resource-constrained context, optimization of the benefit-risk ratio between COVID-19 and cancer care is key. Simulations of individual projections from actual hospital data, show a 2.25% increase of the 5-year risk of death and that pandemic-related cancer burden is mainly due to patient-induced lateness in seeking care. Defining optimal strategies in terms of screening, monitoring and prioritization for care could minimize the impact of future pandemic episodes.

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LBA79 Dutch oncology COVID-19 Consortium (DOCC): Outcome of COVID-19 in patients with cancer in a nationwide cohort study

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Background: The coronavirus disease 2019 (COVID-19) pandemic is having significant impact on oncological care (Joode et al, Eur J Cancer 2020;136:132-139) and patients with cancer might have an increased risk for severe outcome of COVID-19. In order to identify risk factors associated with a worse outcome of COVID-19, a nationwide registry was developed for patients with cancer and COVID-19.

Methods: This ongoing multicentre nationwide observational cohort study was designed as a quality of care registry and is executed by the Dutch Oncology COVID-19 Consortium (DOCC), a collaboration of oncology physicians in the Netherlands. A questionnaire was developed to collect pseudonymised patient data on patients' characteristics, cancer diagnosis, cancer treatment, and outcome of COVID-19. All patients with COVID-19 and a cancer diagnosis or cancer treatment in the past 5 years were eligible for inclusion.

Results: To date, > 600 cancer patients diagnosed with COVID-19 have been registered by 45 Dutch hospitals. Data of 442 registered patients with at least 4 weeks follow-up were cleaned and 351 patients could be included for the first analyses. The main cancer diagnoses were non-small cell lung cancer (13.4%), breast cancer (13.4%), and chronic lymphocytic leukaemia (8.8%). Overall, 114 (32.3%) out of 351 patients with cancer died from COVID-19. In multivariate analyses, age \geq 65 years ($p < 0.001$), male gender ($p = 0.035$), prior or other malignancy ($p = 0.045$), and active diagnosis of haematological malignancy ($p = 0.046$) or lung cancer ($p = 0.003$) were independent risk factors for a fatal outcome of COVID-19. In a subgroup analysis of patients with active malignancy, the risk for a fatal outcome was mainly determined by tumour type (haematological malignancy or lung cancer) and age (\geq 65 years).

Conclusions: The findings in this registry indicate that patients with a haematological malignancy or lung cancer have an increased risk of a worse outcome of COVID-19. During the ongoing COVID-19 pandemic, these vulnerable patients should avoid exposure to SARS-CoV-2, whereas treatment adjustments and prioritizing vaccination, when available, should also be considered.

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