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Longitudinal analysis of biochemical and haematological features of cancer patients with COVID-19

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Background: Cancer patients (pts) are at increased risk of severe COVID-19 infection and death. Older pts, men and those with haematological malignancies and receiving anti-tumour therapy within 14 days appear to be at highest risk for poor outcomes. In general populations, severe COVID-19 infection has been associated with neutrophilia, raised lactate dehydrogenase (LDH) and C-reactive protein (CRP). Cancer and its treatment affect many haematological and biochemical parameters. We examined whether COVID-19 infection affected these compared to pts' baseline parameters by longitudinal tracking. We also investigated whether changes were associated with poor outcome.

Methods: Consecutive pts with solid or haematological malignancies presenting with index symptoms and testing positive for SARS-CoV-2 at a tertiary oncology centre were identified following institutional board approval. Clinical and laboratory data were extracted from the pt record. Paired T-tests were used for longitudinal sampling and ANOVA/Chi squared for outcomes.

Results: 52 pts tested positive (27 male, 25 female; median age 63). 80.5% had solid cancers, and 19.5% haematological. 31/52 pts were lymphopenic prior to infection. Comparing mean pre-infection counts (6 months-14 days=PRE) with mean counts from the 5 days following positive test (DURING) lymphocyte counts significantly decreased during infection (p<0.0001). Platelets were significantly reduced DURING vs. PRE COVID-19 (p=0.0028). 17/52 pts developed transient (median 2 days) neutropenia (<2x10³/L) DURING infection (6 pts <1x10³/L, 2 pts <0.5x10³/L), 8/17 attributed to cancer/cancer therapy, the rest had no underlying cause. 8/17 pts received growth factor support. Reduced lymphocytes/neutrophils/platelets at diagnosis were not associated with oxygen requirement (O2) or death. Different CRP trajectories were observed when comparing pts grouped by discharge/ O2/death. Higher CRP and LDH at diagnosis were associated with admission (p=0.02 CRP/0.2 LDH), O2 (p=0.0002 CRP/p<0.01 LDH) and death (p=0.069 CRP/p=0.04 LDH). Updated analysis will be presented.

Conclusions: Infection with SARS-CoV-2 commonly affects haematological parameters in cancer pts. High CRP and LDH are associated with poor outcomes.

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Organizational challenges and oncological activity volumes during the SARS-CoV-2 epidemic peak in Verona, Italy

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Background: On February 23rd the first case of SARS-CoV-2 infection was diagnosed at the University Hospital Trust of Verona, Italy. On March 13th, the Oncology Section was converted into a 22 inpatient beds COVID unit and we had to reshape our organization and personnel to face the SARS-CoV-2 epidemic, while maintaining our oncological activity.

Methods: We tracked down oncological activity from January 1st to March 31st, 2020, in relationship to the organizational changes implemented and in comparison to the same period of 2019. We also recorded cases of SARS-CoV-2 infections observed in oncology health professionals and hospital admissions of active oncology patients for SARS-CoV-2 infection.

Results: Progressive restrictions in patients', visitors', and caregivers' access to the inpatient and outpatient facilities of the Oncology section and organizational changes were adopted early on during the epidemic peak. Since March 13th, segregated personnel teams were created, one dedicated to the COVID unit and a "clean" one dedicated to oncological patients, resulting in an overall 40% and 43% reduction in oncology-dedicated medical and nursing/auxiliary staff, respectively. As compared with the same trimester in 2019, the overall reduction in total numbers of inpatient admissions, chemotherapy administrations, and specialty visits in the period January-March 2020 was 8%, 6%, and 3%, respectively; based on the weekly average of daily accesses, reduction in some of the oncological activities became statistically significant from week 11. Patient's acceptance of adopted measures was very high (see

abstract by Tregnago D). Overall, 8/85 (9%) health professionals tested positive for SARS-CoV-2 (no hospital admissions and no treatment required) and 7/525 (1.3%) active oncology patients were admitted for SARS-CoV-2 infection (of whom, 2 died of infection-related complications).

Conclusions: A minimal (<10%) reduction in Oncology activity was registered during the peak of SARS-CoV-2 epidemic in Verona, Italy. Organizational and protective measures adopted appear to have contributed to keep infections in both health professionals and oncological patients to a minimum.

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Changes in the outpatient and inpatient clinic admissions during COVID-19 pandemic: Anticipating and mitigating risks for cancer patients

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Background: Prioritizing the continuum of care for cancer patients while maximizing patient safety is of paramount importance. However, COVID-19 pandemic could create a collateral damage in all domains of cancer care. Here, we evaluate the early changes in the inpatient and outpatient oncology clinics and discuss how we currently anticipate and mitigate risks for cancer patients at the Hacettepe University Cancer Institute by employing adaptive algorithms.

Methods: Patients applying the outpatient clinic and outpatient palliative care (OPC) clinic for the first time and patients admitted to wards in the first 30 days after the first case of COVID-19 in Turkey were evaluated. This data was compared to data from the same time frame in the previous three years.

Results: A total of 868 inpatient and 809 outpatient admissions were evaluated in the study with a 114 OPC clinic admissions. The mean number of daily new patient applications to the outpatient clinic (9.87 \pm 3.87 vs. 6.43 \pm 4.03, p<0.001) and OPC clinic (3.87 \pm 1.49 vs. 1.13 \pm 1.46, p<0.001) was significantly reduced compared to the previous years. The reduction in new patient numbers was observed for all tumor types with the exception of lung and head and neck cancers. While the number of inpatient admissions was similar for a month frame (228 vs. 213), the median duration of hospitalization was significantly reduced (2 vs. 3 days). The frequency of hospitalizations for chemotherapy was higher than in previous years (p<0.001). By comparison, the rate of hospitalizations for palliative care (P=0.028) or elective interventional procedures (P=0.001) was significantly reduced.

Conclusions: In our experience, continuing the patients' treatment with simple precautions was possible with simple measures. There were significant drops in the numbers of newly diagnosed patients and patients having palliative care services and these problems should be incorporated into the risk mitigation algorithms.

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Development and validation of telematic follow-up for cancer patients during the COVID-19 outbreak

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Background: The reorganization of oncologic follow-up was crucial to maintain oncologic care and reduce patient exposure during SARS-CoV-2 pandemic.

Methods: Patients scheduled for follow-up oncologic visits during the lockdown period (March 9th - May 4th 2020) were included in a program of telematic follow-up (TFU) developed at the Medical Oncology Unit of Sant'Andrea and San Bartolomeo Hospital in La Spezia, Italy. Eligibility for TFU was determined through a pre-screening of medical charts based on tumor type, risk of relapse, geographic accessibility and DFS. Pre-calls were made by skilled nurses to assess pts' availability for next-day phone call and to assess availability of laboratory test and imaging results. A TFU form was conceived to collect pts' clinical history, symptoms, body weight, ongoing medical therapies, DFS, blood tests and imaging results (from Hospital imaging repository or acquired in the pre-call). Pts without signs/symptoms of relapse were scheduled for