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SARS-CoV-2 infection and outcomes were rather reassuring. A total of 11 patients had either suspected (n=5; 5.3%) or proven (n=6; 6.1%) SARS-CoV-2 infection. Only one 74 years old patient died of COVID-19, another 51 years old patient died of progressive disease but presented also suspicion of SARS-CoV-2 infection at the time of death.

Conclusions: Analysis of our data for patients treated in March 2020 in the day-care unit are reassuring and suggest higher risk related to under-treatment compared to risk related to continuation of systemic therapy at time of COVID-19 outbreak. Patients’ followup will be updated and additional analyses and data in particular for April 2020, when the infection rate was still extremely high in Belgium, will be presented.

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Active smoking and severity of COVID-19 infection in cancer patients

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Background: Smoking is the leading cause of cancer worldwide. Active smoking alters the inflammatory environment of the respiratory epithelium, increasing the production of potent pro-inflammatory cytokines that promote the recruitment of macrophages and neutrophils, leading to lung damage. We hypothesize that smoking-induced inflammation can impact on COVID-19 infection severity and mortality related to the proinflammatory cascade.

Methods: Multicenter retrospective cohort of cancer patients (pts) with COVID-19 infection diagnosed by PCR/Ag detection (n=274) and CT-scan (N=13) in Mar/Apr/2020 in 12 centers. Clinical and biological data were collected. Smoker was defined as active tobacco consumption and heavy smoker as >30 pack-year (PY). Primary end-points were 30-day mortality rate and the rate of severe acute respiratory failure (SARF), defined by oxygen requirements ≥15 l/min.

Results: A total of 287 pts were enrolled: 25 (9%) were active smokers, 127 (47%) were former and 116 (43%) never smoker. Among active smokers: 73% were heavy smokers, median age was 62y, 60% were male and median body mass index was 22. Regarding their comorbidities: 25% had hypertension, 8% cardiovascular disease, 28% chronic obstructive pulmonary disease and 24% diabetes. Thoracic tumors were the most common (52%), 72% had advanced disease and 56% were under systemic therapy. 92% of active smokers required hospitalization, 68% developed pneumonia and 58% required oxygen. Only 4% were escalated to the intensive care unit. Active smokers received treatment with hydroxychloroquine (91%), azithromycin (61%), antiviral therapy (33%) and steroids (29%). Only 4% received immunomodulatory drugs. SARF was the most common complication (25%) and no thromboembolic events were observed. A pro-inflammatory status was observed at COVID-19 diagnosis in active smokers, e.g. median of absolute neutrophil count was 6.35 (vs. 5.4), mean ferritin was 1269 (vs. 991) and D-Dimer was 2422 (vs. 1816); but with no significant differences. Overall mortality rate was 27%. Mortality rate was higher in active smokers (40% vs. 24% in non-smokers; p=0.08).

Conclusions: Active smoking might be associated with severe COVID-19 infection and early death in cancer patients. Smoking-induced inflammation should be further explored.
Change of circulating pro-inflammatory markers between pre-COVID-19 condition and COVID-19 diagnosis predicts early death in cancer patients: The FLARE score

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Background: Inflammation plays a central role in severe COVID-19 disease. Likewise, in cancer patients (pts), a circulating pro-inflammatory status (proinflamm-status) is associated with poor outcomes. We aimed to assess if a proinflamm-status induced by cancer can negatively impact on COVID-19 outcomes.

Methods: Multicenter retrospective cohort of cancer pts with SARS-CoV-2 infection across 12 international centers. Circulating inflammatory markers were collected at two timepoints: pre-COVID condition (-15 to -45d before COVID-19 diagnosis) and COVID-19 diagnosis. Tumor-induced proinflamm-status was defined by high derived neutrophil to lymphocyte ratio (dNLR$>$3) at pre COVID-19 condition. COVID-induced proinflamm-status was defined by $>$100% increase of dNLR between both timepoints. We evaluated the combined effect of both Infection and Immunomodulation on dNLR: T+I+/+ (poor), if both proinflamm-status; T+/I- (only inflammation if only due to COVID; and T+/I- (favorable), if no inflam-status. Primary endpoint was 30-day mortality.

Results: 287 pts were enrolled with a median follow-up of 23d (95%CI 22-26). Median age was 69 (range 35-98), 52% were male and 49% had hypertension. As per cancer characteristics: 68% had active disease, 52% advanced stage and 79% had a baseline PS=1. Thoracic cancers were the most common (26%) and 61% of pts were under systemic therapy. The dNLR was high in 24% at pre-COVID condition vs. 55% at COVID-19 diagnosis. Median change between both timepoints was $+67%$ ($Q_0%$: $+153%$); 40% had $+100%$ increase of dNLR. Pts distribution across FLARE groups were: 5% in poor group; 40% in I-only, if no cancer am-status; 35% for I-only (n=35) from 2 different phase II CIN studies over 4 cycles: 1. 106 in NSCLC pts given Intermediate FN Risk Docetaxel 75 mg/m2 (Doc) pts with risk factors), and 2. Study 106 in Breast cancer pts given High FN Risk Docetaxel 80mg/m2 + Cyclophosphamide 50mg/m2 (TAC). Plin was given as a single IV infusion on Day (D)1, 30 min after the last Chemo, and Peg 6mg given on D2 by SC injection. Grade 4 Neutropenia (GR 4 N), Hospitalizations (Hosp), Infection rate (Inf), Sepsis (Sep), All Grade Thrombocytopenia (T) or G-CSF/GR 2/3 T and Bone Pain (Bop) is summarized for SA Plin and SA Peg. NS = non-significant.

Conclusions: Plin requires at least 50% fewer touches to the health care system and is equally effective as Peg for prevention of CIN and its clinical sequelae. Plin causes less thrombocytopenia. Plin (given as a 40 mg fixed dose) is currently in two phase III trials for CIN.

Clinical trial identification: NCT03120626, NCT03294577.

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Table: 1715P

| Pegfilgrastim | Plinabulin |
|-------------|-----------|
| 42.9%       | 44.8%     |
| 11.4%       | 13.8%     |
| 5.71%       | 6.30%     |
| 0%          | 3.40%     |
| 85.7%       | 14.9%     |
| 20%         | 24.1%     |
| 68.6%       | 3.4%      |

p-value NS NS NS NS 0.0002 0.025 0.06 -

Plinabulin (Plin) is a more favorable option for the prevention of chemotherapy induced neutropenia (CIN) than pegfilgrastim (Peg) during the COVID-19 pandemic

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Background: Due to COVID-19, the NCCN Myeloid Growth Factor Panel expanded prophylactic G-CSF use to chemotherapy with Intermediate Risk (10%-20%) risk of Febrile Neutropenia (FN), and to Low Risk FN patients (pts) who previously developed FN. Preservation of resources for COVID-19 pts by reducing hospitalizations and emergency room visits by cancer chemotherapy pts is the intent of these changed recommendations. Other recommendations include use of self-injecting or on-body injector Peg, to minimize COVID-19 exposure at outpatient center by cancer pts and limiting prophylactic platelet transfusion to preserve blood product supply. Plin is an attractive alternative: it is a novel, non-G-CSF small molecule with CIN protection comparable to Peg, is given once 30 minutes after Chemo, and avoids the need for healthcare system touch on Day 1-3 for G-CSF administration. In contrast to Peg, Plin does not cause bone pain and thrombocytopenia and maintains quality of life.

Methods: We compared the combined CIN data with single agent [SA] Plin 20 mg/m2 (n=29) vs. SA Peg 6mg (n=35) from 2 different phase II CIN studies over 4 cycles: 1. 106 in NSCLC pts given Intermediate FN Risk Docetaxel 75 mg/m2 (Doc) pts with risk factors), and 2. Study 106 in Breast cancer pts given High FN Risk Docetaxel 80mg/m2 + Cyclophosphamide 50mg/m2 (TAC). Plin was given as a single IV infusion on Day (D)1, 30 min after the last Chemo, and Peg 6mg given on D2 by SC injection. Grade 4 Neutropenia (GR 4 N), Hospitalizations (Hosp), Infection rate (Inf), Sepsis (Sep), All Grade Thrombocytopenia (T) or G-CSF/GR 2/3 T and Bone Pain (Bop) is summarized for SA Plin and SA Peg. NS = non-significant.

Results: .