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stages of disease for each age group. **Results:** From 2010-2018, there were an estimated 610, 3,600, and 25,600 lung cancer cases diagnosed among individuals aged 20-29, 30-39, and 40-49 in the United States, respectively. Over 80% of patients aged 20-29 were diagnosed with stage IV disease compared to only 40% of patients aged 70-79 (Figure). The percentage of lung cancers diagnosed at stage IV among younger patients <50 years did not change from 2010 vs. 2018, while the percentage of lung cancers diagnosed at stage IV among patients > 50 years significantly decreased from 2010 vs. 2018. In multivariable modeling, a shift towards earlier stages of disease identified was observed among patients aged 50-59, 60-69, and 70-79, while no stage shift was observed among patients aged 20-29, 30-39, or 40-49. **Conclusions:** In this national analysis, we found that younger patients with lung cancer are significantly more likely than older patients to be diagnosed with later stages of disease. During the last decade, patients over age 50 experienced a significant shift to earlier stages of disease identified, likely due to the onset of lung cancer screening in the U.S. In contrast, there have been minimal improvements in the early diagnosis of young patients with lung cancer. These findings illustrate the need to develop strategies to increase the early detection of lung cancer among younger patients who are currently ineligible for lung cancer screening.

Keywords: Young adult, Disparities, Early detection

OA06 IMPACT OF COVID-19 ON CANCER MANAGEMENT AND PROTECTION FROM VACCINES, MONDAY, AUGUST 8, 2022 - 11:00 - 12:10

OA06.03

Serological Response to SARS-CoV-2 Vaccination in Patients Lung Cancer: A Mount Sinai-Led Prospective Matched Controlled Study

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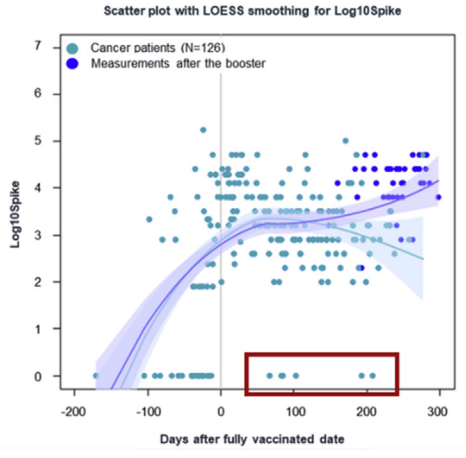
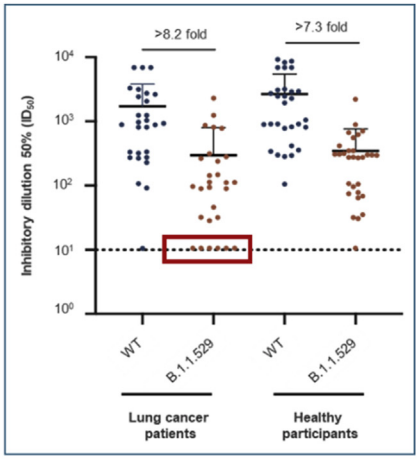
Introduction: Since the onset of the COVID-19 pandemic, patients with lung cancer (LC) are at increased risk of severe outcomes from SARS-CoV-2 infection, prompting efforts to encourage LC patient vaccination. There remains a significant knowledge gap in how LC patient demographics and clinical features impact on the response to SARS-CoV-2 vaccines or infection. Understanding these patient- and cancer-specific factors is essential to providing optimal care. **Methods:** This ongoing IRB-approved NCI U54/SeroNet-sponsored study, designed to accrue a prospective longitudinal cohort of LC patients, was initiated January 2021 at the Mount Sinai Hospital, NY. The study enrolled LC patients of any stage, histology, SARS-CoV-2 exposure/vaccination or cancer treatment. Demographic, epidemiological, clinical data, and blood specimens for participating patients were collected at the time of enrollment, 3 and 6 months thereafter. Presence of IgG Ab against the SARS-CoV-2 Spike protein was quantitated using a validated enzyme-linked immunosorbent assay (ELISA) established at Mount Sinai. Neutralizing antibody titers (NAbT) against ancestral SARS-CoV-2 and Omicron were quantified in a post-booster subset. For comparison, 114 age-matched cancer-free participants were recruited as controls. **Results:** Overall, 176 LC patients were recruited (January to December 2021), of which a subset of 114 had two doses of mRNA vaccine (66% PfizerBNT162b2; 34% Moderna1273). Controls were well-matched for age and ethnicity. Analysis of anti-SPIKE Ab titers showed that the vast majority of LC patients mounted a similar response to controls following vaccination - with the exception that 5% of patients presented titers of zero ($p<0.0001$). Maintenance of titers over time was significantly lower in LC patients than controls ($p=0.0018$), significantly more intra-patient variance in titers within the cancer group ($p=0.002$). No relationships were observed by age or smoking status, but treatment effects could not be ruled out as a possible contributor to zero titer cases. Additionally, 35% of patients received a booster (third dose) vaccination, showing significant enhancement of their Ab titers ($p<0.001$). After their booster, both controls and patients had significantly diminished NAbT against Omicron compared to ancestral variant after the booster, and a sizable proportion of LC patients (21%) had no





detectable NAbT against Omicron compared to 3% of controls. **Conclusions:** Overall, the majority of LC patients mounted a humoral response comparable to that of healthy controls. A small but significant subset of patients failed to mount an Ab response to vaccination, only partially rescued by booster shots. Additionally, post-booster Omicron neutralizing activity was compromised in a subset of LC patients. **Keywords:** SARS-CoV-2, Antibody titers, lung cancer

OA06.04
Immune Response after SARS-CoV-2 Vaccination in Lung Cancer Patients. Update of the Covid Lung Vaccine Cohort

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Introduction: Lung cancer (LC) patients (p) represent a subgroup of p in whom the infection by SARS-CoV-2 could attained higher rates of morbidity and mortality. Therefore, those p were recommended to receive SARS-CoV-2 vaccines (V) once they were approved. However, little was known regarding the degree of immunity after vaccination, potential interactions with oncology treatments and V-adverse events (AE) in this population. More uncertainty involved the need for a third (3) dose (D) of the V in this population or its efficacy in controlling the Omicron variant, which ousted Delta variant by the end of 2021 in Spain. The aim of this prospective study is to evaluate the immune response to the SARS-CoV-2 V in LCp. Secondary objectives include V-related AE, V impact on survival, immune response, toxicity and survival outcomes in p≥75 y, (re)infection after V, complications and mortality. **Methods:** LCp who receive the V against SARS-COV-2 were candidates to participate in this study. A pre-V quantitative IgG spike determination was performed to identify p with previous infection, but asymptomatic course. After V, IgG have been repeated at 3-6, 7-9, and 12 months since the first (1) D. V-related AEs, serological results, clinical data, and survival have been collected. **Results:** From 3/31-5/15, 2021 126 p have participated in the study. 61.9% were male, median age was 66 y (46- 83), 88.1% were NSCLC, 76% had stage IV at diagnosis. Systemic therapy included *EGFR/ALK/ROS1/RET/MET* oral inhibitors *(*19.9%), immunotherapy (IT) (41.8%), IT-chemotherapy (CT) (14.1%) and CT (19.9%). 9p were not receiving active therapy. 9 p had COVID symptomatic infection prior any dose of the V, with positive baseline IgG in 6p. No vaccine-related AE were reported in this group. 4 additional p had positive baseline IgG. Out of 126 p, 94.3% received MODERNA® on behalf of the Hospital Vaccination Program for 1 and 2 D. 97p (77%) received MODERNA® as third (3)D according to National Health Care guidelines. AES with 1-2D were generally mild and included local pain (35%), asthenia (6%) and myalgia (4%). These were slightly more frequent in p≥75, especially after 2D (42%, 15%, 42%). More frequent AE after 3D included pain (20.6%), asthenia (6.2%) and myalgia (7.2%). Pain after 3D occurred in 21.1% of p≥75. All but 1p developed IgG after 1-2D. Median IgG levels were 2228.9 UI/mL (9,91-8169) at 3-6 months (m), which were sustained at 7-9 m [2335.8 UI/mL, (87-3696)]. All p≥75 seroconverted. 9 infections occurred after V during the sixth wave of pandemic (all a/paucisymptomatic with no admissions). 4 out of these 9 p had received 3D, 2 of them were reinfections. 32 deaths were reported in this cohort, with no COVID-related deaths **Conclusions:** • SARS-COV-2 V are safe irrespective of systemic therapy in our cohort of LCp.• AE and efficacy were similar regardless the age groups.• Most of the p developed immunity after 2D , which was maintained over time.• Rates of infection were low but more frequent with the Omicron variant and with milder clinical course after V. **Keywords:** SARS-CoV-2, Vaccine, Lung Cancer

OA06.05
Impact of COVID-19 Pandemic on Proportion and Treatment Patterns for Stage I Non-small Cell Lung Cancer in the Netherlands

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Introduction: COVID-19 has profoundly changed healthcare practice worldwide. Due to scarcity of resources, overflowing health care facilities and fear of infection, treatment and referral patterns changed. This study aims to investigate the impact of the COVID-19 pandemic on treatment patterns for stage I Non-Small Cell Lung Cancer (NSCLC) in the Netherlands. **Methods:** All patients treated for clinical stage I NSCLC from 2018 to 2020 that were registered in the Dutch Lung Cancer Audit in the Netherlands were included in this study. Primary outcome was defined as number of patients diagnosed with stage I NSCLC and their respective treatment (SBRT or surgery). In 2020 this was related to three periods based on COVID-19 hospital admission rates: 'First wave', 'Interim period' and 'Second wave'. Data from stage I NSCLC patients from 2018 and 2019 were used as reference period. Secondary outcomes were defined as patient characteristics, hospital stay, ICU admission, postoperative complications and 30-day mortality for surgery patients. For patients treated with SBRT patient characteristics, acute toxicity and 90 day mortality were analyzed. Secondary outcomes were compared with 2018 and 2019. **Results:** In total, 7422 patients with cTNM stage I NSCLC were analyzed. During 2020, the annual number of stage I NSCLC diagnoses decreased by 21% compared to 2018-2019 (mean 2664 vs. 2094). Especially during the first COVID wave, the observed number of diagnoses was lower than expected. Subsequently, surgeries and SBRT treatments decreased sharply during the first wave. However, during the interim period and second wave, SBRT treatments recovered more than the number of surgeries. In 2020, a smaller portion of stage I NSCLC patients was treated with surgery compared to reference years (38% vs. 40%, p=0.04). More comorbidity (Charlson Comorbidity Index) was observed among surgical patients in 2020. Treatment delays did not increase during 2020. Median hospital and ICU stay were shorter in 2020 compared with 2018-2019 (4 vs. 5 days, $p<0.05$; 1 vs 2 days, $p<0.05$, respectively). Postoperative complications and 30-day mortality did not significantly differ. For SBRT patients in 2020, there were no significant differences in patient characteristics, toxicity and 90-day mortality compared with reference years. **Conclusions:** During the COVID-19 pandemic less patients were diagnosed with Stage I NSCLC. There was a significant change in treatment pattern from surgery to SBRT. Early outcomes were not affected by this shift. Postoperative complications, acute toxicity, 30-day and 90-day mortality remained low and time to treatment did not increase. **Keywords:** Covid-19, Non Small Cell Lung Cancer, Treatment patterns