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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 effects (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 years, (re)infecion after V, and 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 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 EGF/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 (<48 h), fever, myalgia (11%), nausea (7%), and headache (1%). 90% of patients had mild-to-moderate adverse events (AE) after V. Only 10% of patients had severe AE (≥grade 3) after V. The most frequent AE were fatigue (21%), myalgia (19%), and headache (18%). The most frequent SAE were respiratory tract infections (4%), myocardial infarction (2%), and pneumonia (1%). The rate of AE was higher in the first two doses of V, with a peak at the third dose. The rate of AE was higher in the first two doses of V, with a peak at the third dose. The rate of AE was higher in the first two doses of V, with a peak at the third dose.

Conclusions: The incidence of vaccine-related AE was lower than expected. Subsequently, surgeries and 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 the previous year. Treatment delays did not increase during 2020. Median hospital and ICU stay were shorter in 2020 compared to 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 signifi cantly di er. For SBRT patients in 2020, there were no significant differences in patient characteristics, toxicity and 90-day mortality compared with reference years. During the COVID-19 pandemic less patients were diagnosed with stage I NSCLC. There was a signifi cant 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