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SARS-CoV-2 and Cancer

**LBA8** Vaccination against SARS-CoV-2 in patients receiving chemotherapy, immunotherapy, or chemo-immunotherapy for solid tumors

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**Background:** Patients with cancer have an increased risk of complications from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections. Vaccination is recommended, but the impact of chemotherapy and immunotherapy on immunogenicity and safety is still unclear.

**Methods:** This prospective multicenter non-inferiority trial comprises four cohorts: individuals without cancer (A) and patients with solid tumors who were treated with chemotherapy (C) or chemo-immunotherapy (D). Participants received two mRNA-1273 vaccinations 28 days apart. The primary endpoint was SARS-CoV-2 Spike S1-specific IgG serum antibody response, defined as >10 binding antibody units (BAU)/mL 28 days after the second vaccination. We also assessed the virus neutralizing capacity of these antibodies, SARS-CoV-2 Spike-specific interferon-gamma T cell response, and adverse events.

**Results:** Of the 791 participants enrolled, 743 were evaluable for the primary endpoint in cohort A (n=240), B (n=131), C (n=229) and D (n=143). A SARS-CoV-2-binding antibody response was found in 100%, 99.3%, 97.4%, and 100% of the participants in cohorts A, B, C, and D, respectively. To discriminate between suboptimal and adequate responders, we defined a cut-off level at 300 BAU/mL, based on neutralizing capacity. The antibody response was considered adequate after the first vaccination in 66.0%, 37.1%, 32.5%, and 33.3% of the participants in cohorts A, B, C, and D, respectively. This raised 28 days after the second vaccination to 99.6%, 93.1%, 83.8%, and 88.8% in cohorts A, B, C, and D. Spike-specific T cell responses were detected in 64.7% of suboptimal and non-responders. No new safety signals were observed.

**Conclusions:** mRNA-1273 vaccination is safe in the patient populations studied. For each cohort, the proportion of patients with a SARS-CoV-2-binding antibody response after two vaccinations is non-inferior compared to individuals without cancer. However, a significant minority lacks an adequate response. Most patients have an antibody concentration increase after the second vaccination. Therefore, an additional booster may turn inadequate into adequate responders.

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**LBA60** Prospective data of >20,000 hospitalised patients with cancer and COVID-19 derived from the International Severe Acute Respiratory and Emerging Infections Consortium WHO Coronavirus Clinical Characterisation Consortium: CCP-CANCER UK

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**Background:** The International Severe Acute Respiratory and emerging Infections Consortium (ISARIC) WHO Clinical Characterisation Protocol (CCP) UK has collected complete data from 195,000 COVID-19 patients in the UK as of 12th August 2021. Within this consortium CCP-CANCER-UK has been established to study the effects of COVID-19 in hospitalised patients with cancer.

**Methods:** Patients admitted with proven SARS-CoV-2 infection and registered on CCP-UK from 17th January onwards in 258 healthcare facilities in the UK. Case report forms were used to identify patients with a history of malignant neoplasm or on active treatment for cancer. Analysis is restricted to outcome of patients who were admitted >14 days before data extraction. Patients with a history of cancer and on active treatments were compared to those patients with no history of cancer.

**Results:** As of 12th August 2021 of the 195,492 participants 15,250 (7.8%) had a history of cancer (Hx Ca) and 5,357 (2.7%) were on active cancer treatment (Act Tx).

Patients with cancer were less likely to receive critical care: Hx Ca adjusted odds ratio (aOR) 0.83, 95%CI 0.72 to 0.95, p < 0.001. Act Tx aHR 1.57, 95%CI 1.48 to 1.66, p < 0.001. In hospital mortality 23.6% no cancer. 38.9% Hx Ca and 37.6% (aHR Hx Ca: 1.18, 95% CI 1.10 to 1.27, p < 0.001, Act Tx: aHR 1.57, 95%CI 1.48 to 1.66, p < 0.001).

Younger cancer patients, particularly on Act Tx, were more likely to die than similar aged no Ca patients (Act Tx < 50 yrs aHR 5.22, 95% CI 4.19 to 6.52, p < 0.001).

**Conclusions:** Europe’s largest prospective hospitalised COVID-19 dataset continues to demonstrate that cancer is independently associated with mortality with younger patients remaining at increased relative risk. Cancer patients face unique risks from the SARS-CoV-2 pandemic. Ongoing vaccination/mitigation studies need to recruit cancer patients to understand the degree of protection afforded in this at risk population.

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