Cancer Patients Have Necessary Been COVID-19 Vaccinated

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ABSTRACT
Hypothetically, mRNA-vaccine-encapsulated-small liposomes and lipid carriers may accumulate through the permeation retention and enhanced effect in tumor tissues. The recommendation that have been suggested administering COVID-19 vaccines one to two weeks prior to a chemotherapy dose by many key-professional organizations has not been practical with COVID-19 administration schedules (for examples; two doses of mRNA-1273 (Moderna) are recommended to be given 28 days apart, whereas two doses of BNT162b2 (Pfizer/BioNTech) are given 21 days apart, efficacy > 94 %), variable chemotherapeutic regimens, and limited COVID-19 vaccination slot availability, contributing to allowing the most rapid COVID-19 vaccination of these immunosuppressed cancer patients and due to lacking COVID-19- vaccine safety and the information immunogenicity in the context of immune-system-stimulated immunotherapies (for examples; immune checkpoint inhibitor (ICI) therapy) and general exclusion of malignancy-diagnosed patients in the clinical trials of currently approved COVID-19 vaccines.

Keywords

Abbreviations

Introduction
In patients with cancer, SARS-CoV-2 (COVID-19) can contribute to increasing morbidity and mortality [1-3] and decreased survival was found in patients with hematological and intrathoracic malignancies, poor performance status, comorbidities, and increased age [3-5]. Patients with hematological malignancies who were treated with stem cell transplantation and anti-CD-20 antibody demonstrated lower rates of seroconversion, compared to COVID-19-infected-cancer patients [6, 7]. Patients with hematological malignancies might have substantially compromised B-cell and T-cell responses [8]. These study results indicated that following COVID-19 vaccination, overall high seroconversion rates could be anticipated in cancer patients due to different mechanisms and degrees of immune suppression, such as cell therapies (particularly chimeric antigen receptor (CAR)-T cell), anti-CD-20 antibody (B-cell depleting) therapies, stem cell transplantation, immunosuppressive effects of corticosteroid treatment, and cytotoxic-chemotherapy-bone-marrow-suppressive effects in certain subgroups of cancer patients [9]. Currently, there are lacking data in cancer patients in protection following SARS-CoV-2 (COVID-19) infection, reinfection by various SARS-CoV-2 (COVID-19) variants, or COVID-19 vaccination although mucosal...
mRNA Vaccination in Patients with Anti-cancer Therapeutics

Hypothetically, mRNA-vaccine-encapsulated-small liposomes and lipid carriers may accumulate through the permeation retention and enhanced effect in tumor tissues [12, 13]. The recommendation that have been suggested administering COVID-19 vaccines one to two weeks prior to a chemotherapy dose by many key-professional organizations has not been practical with COVID-19 administration schedules (for examples; two doses of mRNA-1273 (Moderna) are recommended to be given 28 days apart, whereas two doses of BNT162b2 (Pfizer/BioNTech) are given 21 days apart, efficacy > 94 %), variable chemotherapeutic regimens, and limited COVID-19 vaccination slot availability, contributing to allowing the most rapid COVID-19 vaccination of these immunosuppressed cancer patients [14] and due to lacking COVID-19- vaccine safety and the information immunogenicity in the context of immune-system-stimulated immunotherapies (for examples; immune checkpoint inhibitor (ICI) therapy) [15] and general exclusion of malignancy-diagnosed patients in the clinical trials of currently approved COVID-19 vaccines [16].

In convalescent-COVID-19 patients, neutralizing antibody, memory B and memory T cells specific to SARS-CoV-2 (COVID-19) have been identified after six months of infection [17-19] and both antibody production and memory CD4+ T-cells sustained several months after SARS-CoV-2 (COVID-19) infection in rapidly resolved-symptom individuals [20]. Humoral and cell-mediated immunity to SARS-CoV-2 (COVID-19) are the integrated highly-effective-durable-protective key [21]. Antibody-dependent enhancement (ADE) of disease, mediated by virus-binding antibodies and do not neutralize the virus takes two main virus-binding forms (one form in dengue virus infection by virus-binding antibody and the internalization of the antibody-virus complex through interaction with Fe-gamma receptor into replicated macrophages; the other form, non-neutralizing antibodies mediate the formation of incited-inflammation-immune complex) has been proposed as a COVID-19 vaccine-design concern due to high levels of antibodies in in vitro observations and in patients with severe COVID-19 with SARS-CoV-2 (COVID-19) taken-up macrophages [22]. No compelling evidence of ADE from convalescent plasma has been found [23-25]. Theoretically, ADE is reduced by elicited-antibody-response-on-neutralizing-epitope-COVID-19 vaccines [21].

Inability to integrate into host genome, delivery into cytoplasm, avoidance of anti-vector immunity, eliciting strong humoral and cellular immunity, avoidance of introduction of pathogen, and easier to mass-production are the advantages of mRNA vaccines, whereas the requirement of lipid nanoparticle for delivery, easy degradation, and freezing storage are their disadvantages [21].
and the United States Centers for Disease Control and Prevention (US CDC) [21]. COVID-19 vaccination is strongly recommended in cancer patients, including their caregivers, whereas exactly representative data are not available, benefits likely outweigh risks of COVID-19 [21]. Immunization or COVID-19 vaccination in cancer patients undergoing adoptive cell therapy or organ transplantation should be delayed at least 3 months to maximize vaccine efficacy [21,38]. In patients with breast cancer, screening examinations of transient lymphadenopathy from COVID-19 vaccination should be performed either before first dose or 4-6 weeks after the second dose of a COVID-19 vaccine [39,40].

Conclusion
For continuation of the quality of oncological care, cancer patients on clinical trials should be prioritized for COVID-19 vaccination that do not affect the eligibility of the clinical trials.

References


