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New COVID Vaccines and Hematological Cancers

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Abstract

Several questions on COVID-19 vaccine in hematologic cancers are still in need of an answer: which blood cancer should be vaccinated, does all blood cancer have the same response to vaccine, what is the role of COVID vaccine in childhood blood cancer, can the family member of blood cancer patients take the vaccine, which COVID vaccine is considered safe in blood cancer patients, what is the optimum time for vaccination in blood cancer patients, is there a contraindication to vaccine in blood cancer?.

Abbreviations: mRNA: messenger RNA; MHRA: Medicines and Healthcare products Regulatory Agency; TKI: Tyrosine Kinase Inhibitor; CDC: Centre for Disease Control and Prevention; JVCI: Joint Committee on Vaccination and immunization

Introduction

JCVI has recommended a shielding list of 9 priority groups for those who should receive coronavirus vaccine. Patients with any type of blood cancer are considered group 4 (clinically extremely vulnerable) while past blood cancer, past stem cell transplant and immunosuppressed are in group 6 of this list [1]. Even after taking vaccine, cancer patients should continue follow the known precautions of wearing masks, hand washing and social distance [2].

Which blood cancer should be vaccinated?

Vaccination is intended particularly in acute and chronic leukemia, malignant lymphoma and myeloma [3] 18 years and above [2]. There is very limited data on vaccination in teenagers and no available data on vaccination in younger children [1]. Generally, corona infection is much less severe in children than adults. Many children with blood cancer are not at high risk of serious corona virus manifestation if they become infected [1].

Can family Member of cancer patients take COVID vaccine?

Unpaid carers or household contact family members of immunosuppressed are included in group 6 of the previously mentioned shielding list. They must take COVID-19 vaccine earlier to avoid transmission of COVID infection from close contact to their high-risk cancer patients [1].

Which COVID vaccine is considered safe in blood cancer?

More than 60 different COVID-19 vaccines are at different stage of clinical development [4]. An authorized COVID-19 vaccine by the appropriate regulatory authorities in the respective countries should not be considered an investigational agent in oncology clinical trials [4]. Pfizer-BioNTech, Moderna and Janssen (Johnson & Johnson) vaccines are authorized by the FDA in the US to protect people against COVID-19 [2]. MHRA has approved Pfizer, Oxford-AstraZeneca and Moderna vaccines as being safe effective for general use in UK [1]. Pfizer, Oxford-AstraZeneca and Moderna vaccines have not been tested in cancer patients. However, they are considered safe for all blood cancer patients since there is no serious safety concern was found when these vaccines have been tested in older people or people with high-risk health conditions [1]. There is no enough data on their effectiveness in different blood cancers or which one is more effective than others. The FDA and CDC have determined that the known and potential benefits of Janssen COVID-19 vaccine outweigh its known and potential risks (rare blood clots) and lifted the vaccine pause in US for people 18 years and above. [1].

What is the optimal time of giving vaccine to blood cancer patient?

The suggested vaccination schedule can vary according to disease or cancer treatment [4]. COVID-19 vaccine which use mRNA technology (like Pfizer and Moderna) [2] may produce lower antibody titre in patients with chronic lymphocytic leukemia (CLL) and multiple myeloma. Careful planning of vaccination time may be of help. Better response was observed in CLL patients who completed CLL treatment at least one year before vaccination, CLL in remission and untreated CLL (watch and wait treatment) when compared with those undergoing active treatment or those still in treatment within the last year. In myeloma patients, single dose of antimyeloma therapy may negatively affect neutralizing antibody production after a single dose of vaccine but larger confirmatory study is still needed [5].

Scheduling COVID vaccination with other therapy

Adoptive cell therapy (for example CAR T cells) and Hematopoietic stem cell transplantation (HSCT) (allogeneic or autologous)

keep an interval of 3 months after CAR T therapy [2] and 3-6 months after HSCT [5] to enable these patients to regain adequate immune function and to maximize vaccine efficacy [3].

Lymphodepleting therapy e.g. rituximab, blinatumomab, anti-thymocyte globulin, alemtuzumab, etc

Active treatment with these antibodies affects the ability of the patients to form protective antibodies [2]. Defer vaccination in these patients 6 months after therapy completion or till there is evidence of lymphocyte reconstitution [2].

Epigenetic therapy and targeted therapy (e.g. TKI)

Give vaccine on availability [4].

Intensive chemotherapy resulting in profound prolonged immunosuppression e.g. anthracycline-based and/ or cytarabine based induction chemotherapy

Delay vaccine until absolute neutrophil count recovery [4]. The optimal timing of vaccination in relation to chemotherapy or immunotherapy is not established [6]. The furtherest possible time point away from cytotoxic treatment effect during a given cycle is recommended [6].

Seasonal flu vaccine

The recommended interval between seasonal flu vaccine and COVID-19 vaccine is 14 days [6].

Response to vaccine

The immune response of some blood cancer patients to vaccine may be weaker than those without blood cancer, however the lower protection provided by the vaccine is still better than no protection in these patients [1]. Preliminary (per-print) data from King's college London showed development of antibody response in 9% and 8% of blood cancer patients at 3 and 5 weeks respectively post initial single dose of Pfizer COVID vaccine as compared to 9% and 100% in patients with no cancer at the same time periods. Based on these data, King's college London suggests avoiding delay of second vaccine dose in blood cancer patients [6]. A duration of 21 days for Pfizer-BioNTech vaccine and 28 days for Moderna vaccine between initial vaccination and booster dose of vaccine is required to ensure adequate immune response [2,7].

Side effects of COVID-19 vaccine

A history of anaphylaxis to vaccine, medicine, food [1] or injectable therapy (e.g. Intramuscular, intravenous or subcutaneos) is considered by CDC as a precaution and not contraindication against use of Pfizer-BioNTech, Moderna or Johnson &Johnson vaccines [2]. However, severe allergy to any specific component of the vaccine is a contraindication to its use. Avoid scheduling of immunotherapy or injection chemotherapy during the expected period of systemic side effects of vaccine [6]. Hypersensitivity reactions are observed within the first one or two doses of monoclonal antibodies or within the first 1-2 weeks after initiation of therapy with TKIs. If possible, avoid administration of these drugs within 48 to 72 hours of vaccine administration [2]. Some people reported lymphadenopathy 2-4 days underside the arm where the vaccine was administered that return to normal within 4 weeks [2].

What about blood cancer patients who cannot take the vaccine?

The small number of patients who have clinical reasons preventing them from taking COVID-19 vaccine are suggested to receive COVID-19 neutralizing antibodies made by AstraZeneca (PROVENT trial by various hospitals in the UK) [1].

Conclusion

Considering the high morbidity and mortality of COVID-19 infected blood cancer patients, the benefits of COVID-19 vaccine can be considered outweigh vaccine related adverse effects unless the treating doctor find it unsafe for clinical reasons.

References

1. COVID-19 vaccine priority groups – in what order will people get the vaccine?
2. Leukemia & Lymphoma Society. COVID-19 vaccines FAQ for patients and caregivers.
3. Brockhoff R, Akan H, Daurte R, Honigl M, KlimkoN, Mellinghoff SC, et al. Expert opinions for COVID-19 vaccination in patients with hematologic cancer.
4. Desai A, Gainor JFK, Hegde A, Schram AM, Curigliano G, et al. COVID-19 vaccine guidance for patients with cancer participating in oncology clinical trials. Nature Reviews 18: 313-319.

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5. U.S. pharmacist (2021) COVID-19 vaccines might not be as effective for some blood cancer patients.

6. Sanmugarajah J, Walpole E, Kennedy G (2021) COVID-19 vaccination advice for cancer patients. Statewide Cancer Clinical Network.

7. Yusuf A, Sarfati D, Booth CM, Pramesh CS, Lombe D, et al. (2021) Cancer and COVID-19: a complex global picture. Lancet Oncol 22(6): 749-751.

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