COVID-19 infections in patients with cancer from a prospective observational study of COVID-19 vaccine response

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Background
COVID-19 disease is more severe in unvaccinated cancer patients compared with the general population. There is limited data regarding clinical outcome of vaccination in this patient group.

Methods
SerOzNET (ACTRN12621001004853) is a prospective observational cohort study of adults and children with haematological or solid cancer receiving COVID-19 vaccination. The primary endpoint is serological response. An important secondary endpoint is outcome of COVID-19 infection after vaccination.

Results
Children 5-19: COVID-19 during study

- Vaccine doses received pre COVID-19 diagnosis: Children and adolescents
- Vaccine doses received pre COVID-19 infection: Adults 20+

Of 114 children and adolescents (5-19 years), 32 (28%) had infections reported. 34% had received at least 2 doses prior to infection, and 38% or more doses.

Conclusions
Although recommended to take additional precautions, patients with cancer are likely to be exposed to COVID-19 infection and COVID-19 vaccine. Vaccination prevents ICU admission. However, 9% of adults and 25% of children with cancer required hospitalisation for COVID-19 infection, demonstrating increased severity of symptoms in this group compared with the general population. Children had higher rates of infection and hospitalisation than adults, which may have been contributed to by lower rates of antibody titre post vaccination.

Discussion
We demonstrate excellent protection from COVID-19 related morbidity and mortality in vaccinated patients with cancer.

Limitations
- Follow up was limited to 6 months post 2nd dose or 3 months post final dose (whichever was later). Therefore, we were unable to determine the effect of potential waning of antibody titre > 3 months after vaccination.
- Patient-reported COVID-19 infection: may result in underestimation of diagnoses and thus overestimate proportion of symptomatic or severe infections.

Future directions
- Serum samples have been collected and will be tested for nucleocapsid antibody (knowing of natural infection) at baseline and again at the final study timepoint to elucidate asymptomatic infections missed by patient clinician report.
- Antibody titre and 1 cell response will be correlated with clinical outcome of infection.
- Further research is required into long term outcomes to determine duration of protection afforded against severe illness.

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The authors have no conflicts of interest to declare.