

Rapid Review Report

Review Title:	What are the differences in the clinical course of COVID-19 between patients undergoing chemotherapy and otherwise healthy individuals? (Update)
Abbreviated Title:	COVID-19 Chemotherapy
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Prepared By:	Jason Vanstone, Stewardship and Clinical Appropriateness, Saskatchewan Health Authority Lukas Miller, Clinical Librarian, Saskatchewan Health Authority Library Mark Mueller, Clinical Librarian, Saskatchewan Health Authority Library
Peer Reviewer:	Dr. Gary Groot, CHEP, University of Saskatchewan
Contact:	For questions specific to this review, please contact Dr. Gary Groot at gary.groot@usask.ca
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Key Findings

- Generally speaking, data indicate that adult cancer patients and those who have recently received or are receiving anti-cancer therapy are at a higher risk of severe outcomes and death resulting from COVID-19 compared to those without cancer. However, more data are beginning to elucidate the nuances of these risks depending on patient specific factors.
- Limited data indicate that pediatric cancer patients are not at a high level of risk of severe outcomes from COVID-19.
- Limited evidence indicates some differences in the course and severity of SARS-CoV-2 infection depending on the type of immunosuppressive therapy a patient receives.

Limitations

- Key findings are generalized but there is limited ability to do so with confidence given the heterogeneous range of cancers, the multitude of anti-cancer treatments, the confounding co-morbidities of many patients, and the generally low number of cases which make up the data.

GRADE of Evidence: D - Very Low

A grade of "D" is assigned when the estimate of effect is very uncertain. The review may consist of expert opinion, no direct research evidence, and/or one or more studies with severe limitations.

For more information about how this rating was determined, visit https://www.essentialevidenceplus.com/product/ebm_loe.cfm?show=grade

Background/Context

We are revisiting the question regarding whether there are differences in the course of disease for immunosuppressed patients receiving chemotherapy compared to those without cancer.

Review Question(s)

- What are the differences in the clinical course of COVID-19 between patients undergoing chemotherapy and otherwise healthy individuals?

Method

For each Rapid Review, the initial question is posed by a decision-maker in the health care system seeking the evidence base for a specific policy decision. According to the subject of the question, the Evidence Task Group Intake Committee allocates this question to the appropriate Working Group. Each Working Group comprises a librarian, researcher, 1-2 clinicians, 1-2 subject matter experts, and a group leader. The Working Group and the decision-maker first discuss the question to ensure it was articulated in a clear, searchable manner. The librarians assigned to your team then conduct a thorough search of the indexed literature, grey literature, news sources, or other sources as agreed upon. Some reference lists for especially pertinent articles are also reviewed. An Evidence Search Report is thereby created. See Appendix for more details on the search strategy. A Rapid Review of the identified literature is then performed by the researcher using the methods of a systematic review, but without a double review or meta-analysis and in a more rapid fashion. Relevant evidence is summarized in both tabular and narrative form, key findings and limitations articulated, and the quality of the body of evidence evaluated using the GRADE hierarchy. The draft Rapid Review is reviewed and edited by the Working Group clinicians, experts, and leader. Once revisions are complete, the Rapid Review is submitted to the requesting decision-maker and placed in the COVID-19 Repository. For certain topics with rapidly changing evidence, after a period of time an updated evidence search is performed, the review process repeated, and an updated Rapid Review released.

Summary of Evidence

Many publications cite evidence to indicate that cancer patients and those currently receiving or having recently received anti-cancer treatment are at a higher risk of more severe outcomes and death from COVID-19 compared to those without cancer. A rapid review performed in September 2020 by Alberta

Health Services (1) presents conclusions similar to this review and also expands on other cases of immunocompromised patients. A review of the published literature by Chakraborty et al. (2) showed a two-fold increase in probability of being infected by SARS-CoV-2 among cancer patients and a four-fold increase in the probability of death.

In contrast to the above information, more recent publications have begun to show evidence that not all cancer patients are necessarily prone to the same outcomes. Both small scale studies (3,4) and larger meta-analyses (5–8) indicate, in general, that there are differences in mortality risk between patients receiving anti-cancer treatment (and different types of anti-cancer treatment) and those not, but there are many other factors to consider. Hempel et al. (5) found that only a minority (3/40) of positively tested tumour patients even showed symptoms of COVID-19 infection. In their review, Liu et al. (6) determined that while there was no significant difference seen among anti-cancer treatments in patients with solid tumours, there was higher mortality among patients with hematological cancers receiving chemotherapy. In their analysis, Park et al. (7) determined that active chemotherapy appears to be associated with higher risk of death in cancer patients with COVID-19, but this was not associated with active targeted therapy, immunotherapy, chemoimmunotherapy, or recent surgery. Yekeduz et al. (8) identified that chemotherapy within the last 30 days before COVID-19 diagnosis increased the risk of death in cancer patients, but the risk of severe COVID-19 did not increase.

Several studies point to potential differences in disease course and caution clinicians to consider appropriate end points for determining COVID-19 resolution, although all of these studies are single case reports (9–11).

Data from pediatrics studies continue provide evidence that the disease course and severity of COVID-19 infection in immunocompromised children is not affected by anti-cancer therapy or the disease itself (12–14).

Conclusions

Adult cancer patients undergoing chemotherapy or who have recently undergone chemotherapy still appear to be at a higher risk of more severe outcomes and death due to COVID-19. There continues to be a paucity of evidence in order to expand upon specific differences in the disease course in these patients compared to those without cancer at this time.

References Included in Summary

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4. Boyd K, Parcell B, Tauro S. Immunosuppression in hematological cancer patients with Covid-19 - Uncomplicated infections but delayed viral clearance? *Leuk Res*. 2020;1:106407.
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Appendix: Evidence Search Details

Search Strategies

(Copy from the evidence search report, or refer to the evidence search report with the same number.)

Search Strategies

Keywords Used in Varying Combinations:

AGMP | AGM | “Aerosol Generating Procedures” | “Aerosol Generating Medical Procedures”

COVID | Coronavirus

Transmission | Infectivity | Infectiousness | Communicability | Occupational Risk | Occupational Exposure

Sources

- (Particular databases, was grey literature included, etc.)
- Refer to the evidence search report for extensive sources. Be sure to include any additional resources not referenced in the evidence search report.
- This field is mandatory.



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