CoLab Network

Plain Language Summary Report

Niraparib in Ovarian Cancer

Report Authors

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Knowledge Translation Support

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This observational study was conducted by the Canadian Cancer Real-world Evaluation Platform and Exactis Innovation through the Post-Market Drug Evaluation CoLab Network.

Executive Summary

Clinical trials have shown that niraparib can cause hematological toxicity (which has a negative effect on blood or blood-forming tissues); however, adverse event (also known as side effects) rates in clinical trials may be different than those in the real world. This study used data from 4 provinces (Ontario, British Columbia, Alberta, and Quebec) to determine if the safety of niraparib in real-world patient populations differs from the clinical trial findings. The study found that side effects in the real-world setting were less common than what is reported in clinical trials. The findings suggest that niraparib is administered at lower doses in the real world than the standard recommended dose of 200 mg or 300 mg per day (depending on patient weight and platelet count). We suspect that in the real-world setting, clinicians are taking a cautious dosing approach and proactively monitor for and manage adverse events. This cautious approach could have contributed to the lower proportion of hematological toxicities observed in the real world. More research is needed to guide clinical decisions.

Background

Niraparib (a poly-(adenosine diphosphate [ADP]-ribose) polymerase [PARP] inhibitor), is a maintenance therapy for patients with new or recurrent epithelial ovarian cancer whose disease has responded to chemotherapy. Clinical trials have shown that PARP inhibitors can cause hematological toxicity, the most common being thrombocytopenia (low blood platelet count), anemia (low red blood cell count), neutropenia (low white blood cell count), fatigue, and high blood pressure. Most patients in these trials required a treatment pause and/or dose reduction to manage these adverse events.

Policy Issue

Niraparib is publicly funded as a maintenance treatment for newly diagnosed and recurrent ovarian, fallopian tube, or primary peritoneal cancer. Given the side effects seen in clinical trials, policy-makers want to better understand the real-world risks of using niraparib to treat ovarian cancer. This information can help inform patient monitoring and side effect management measures.

Objective

The objective of the observational study was to describe the clinical and demographic characteristics of patients receiving maintenance treatment with niraparib in the real world and to determine the proportion of people who experienced adverse events. No formal CADTH recommendations are produced from this report.

Policy Question

How does the safety and tolerability of niraparib in the real world compare with observations from the seminal clinical trials?

Results

Population

The study included **514 patients** undergoing maintenance treatment for newly diagnosed or recurrent ovarian cancer between 2019 and 2022, with 483 using publicly funded niraparib (338 in Ontario, 45 in Alberta, and 100 in British Columbia) and 31 identified in the Personalize My Treatment Registry (31 in Quebec).

The overall characteristics of the included patient population were:

- Two-thirds of the patients were aged 65 years or older.
- More than half of the patients were diagnosed with ovarian cancer between 2020 and 2022.
- The ovaries were the most common primary tumour location.
- Most patients started niraparib maintenance treatment in 2022 after completing chemotherapy.
- The most common initial daily dose of niraparib was 200 mg per day, followed by 100 mg per day, and 300 mg per day.

Hematological Adverse Events

> Adverse events are classified into 5 severity grades (1 = mild, 2 = moderate, 3 = severe, 4 = life threatening, and 5 = death).

The following proportions of patients experienced hematological adverse events of **any grade** across all provinces:

- Anemia: 76.8%
- Thrombocytopenia: 41.5%
- Neutropenia: 39.3%

Across all provinces, **grade 3 or 4** hematological adverse events occurred in approximately 10% to 12% of the overall patient population:

- Anemia: 12.2% (Seminal clinical trials: PRIMA trial = 31.0%; NOVA trial = 25.3%; NORA trial = 14.7%)
- Thrombocytopenia: 11.7% (Seminal clinical trials: PRIMA trial = 28.7%; NOVA trial = 33.8%; NORA trial = 11.3%)
- Neutropenia: 10.8% (Seminal clinical trials: PRIMA trial = 12.8%; NOVA trial = 19.6%; NORA trial = 20.3%)

Approximately 20% of the patient population were newly diagnosed with high blood pressure and very few (< 10 patients) experienced febrile neutropenia (a fever and a low white blood cell count).

Key takeaway: The occurrence of severe adverse events was lower in the real-world setting in all participating Canadian provinces than what is reported in the clinical trials.

Limitations

There are 3 key limitations to this study. First, this study was conducted on patients using publicly funded niraparib, meaning that the results may not be applicable to all patients eligible for niraparib in Canada. However, this may be a minor issue because the trends are relatively consistent across the provinces included in this study. Second, the observation window for the study was limited for some patients because niraparib was only recently publicly funded in Canada. The short observation period may lead to undercounting the number of hematological adverse events. Third, patient weight data are lacking, making it difficult to know if those who started with 200 mg of niraparib received a personalized weight-based dose. Additionally, it is unclear if some patients who started on lower doses were later given higher doses.

Implications for Policy-Making

There is a lower proportion of hematological toxicities in the real world than in the clinical trial findings. The reason for this difference is not clear, though researchers believe that it might be due to:

- clinicians taking a cautious dosing approach by starting their patients at a lower dose than recommended, and

- proactive monitoring via regular bloodwork and managing adverse events as early as possible.

The current analysis shows that niraparib is used carefully and at low initial doses in 4 provinces across Canada. Patients receiving niraparib maintenance treatment still experience adverse events, but proactive management by clinicians may be preventing them from experiencing more severe adverse events.

More research is needed to guide clinical and/or policy decisions on niraparib maintenance treatment.

Considerations

Post-Market Drug Evaluation (PMDE) projects aim to produce health policy issue evidence and are not linked to a recommendation. Any changes to reimbursement depend on the decisions made by policy-makers. At this time, there is no change to niraparib access for patients.

This work was intended to inform health policy. If you have any questions related to the side effects or dosing of niraparib, please contact your doctor.

For more information on CoLab and its work visit the **CoLab website**.

Canada's Drug and Health Technology Agency

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About CADTH: CADTH is a not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs and medical devices in our health care system.

About CoLab: CoLab is a pan-Canadian network of experts in applied research, scientific methods, and data analysis. CoLab members work with CADTH's Post-Market Drug Evaluation Program to produce credible and timely evidence on post-market drug safety and effectiveness.