Real-World Outcomes and Prescribing Patterns of Maintenance Niraparib and Olaparib in Relapsed Ovarian Cancer at BC Cancer

Cho E [1] ,Yeung SST[1], Kwon JS [1,2] , Conklin J [1] , Mucovic J [1]

[1] BC Cancer, Vancouver British Columbia, Canada
[2] University of British Columbia, Vancouver British Columbia, Canada

Background

- Epithelial ovarian cancer has a high relapse rate, and maintenance therapy with PARP inhibitors such as niraparib and olaparib has improved outcomes in patients with platinum-sensitive recurrent disease.
- Updated survival analyses raised concerns regarding use of niraparib in BRCA-wild type patients, who were included as initial cohort of patients for the landmark NOVA trial that led to funding of niraparib regardless of BRCA mutation status.
- Subsequent regulatory warnings lead to evolving clinical recommendations, and real-world comparative data on survival outcomes and prescribing patterns of these agents remain limited.

Objectives

Primary

- Estimate real-world survival outcomes of maintenance niraparib and olaparib in patients with relapsed ovarian cancer treated at BC Cancer.

Secondary

- Describe changes in niraparib prescribing patterns following the FDA restriction limiting use to BRCA-mutated patients.
- Determine the proportion of patients discontinuing PARP inhibitor therapy due to adverse effects within 6 months of treatment initiation.

Methods

Retrospective chart review of patients with relapsed epithelial ovarian cancer who received niraparib or olaparib as maintenance therapy at BC Cancer between December 1, 2021, and July 31, 2025. Overall survival (OS) and progression-free survival (PFS) were estimated using Kaplan-Meier analysis using SPSS 14.0. Prescribing patterns and treatment discontinuation due to adverse effects were analyzed descriptively.

Results

Table 1. Baseline Characteristics

Patient Characteristics	Niraparib, n=33 Number of Patients (%)	Olaparib, n=20 Number of Patients (%)
Median Age at Treatment Start (range)	73 (51-87)	70 (45-82)
Mutation Status		
BRCA1m	0	11 (55)
BRCA2m	2 (6)	7 (35)
BRCA1/2m	0	1 (5)
No mutation	31 (94)	1 (5)
Stage at Diagnosis		
I	0	3 (15)
II	3 (9)	2 (10)
III	18 (55)	12 (60)
IV	10 (30)	3 (15)
Unknown	2 (6)	0
Primary Treatment		
Upfront Debulking	14 (42)	11 (55)
Interval Debulking	15 (45)	9 (45)
No Surgery	4 (12)	0
Debulking Outcome		
No Residual Disease	17 (52)	9 (45)
Residual Disease	8 (24)	8 (40)
Unknown	4 (12)	3 (15)
No Surgery	4 (12)	0

Figure 1. Niraparib Progression Free Survival

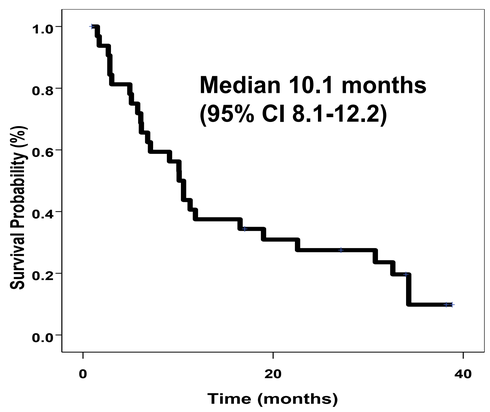


Figure 2. Niraparib Overall Survival

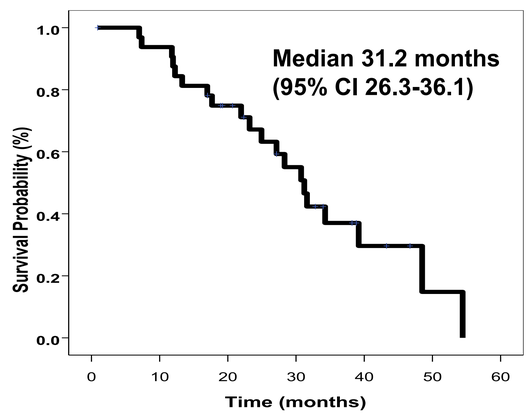


Figure 3. Olaparib Progression Free Survival

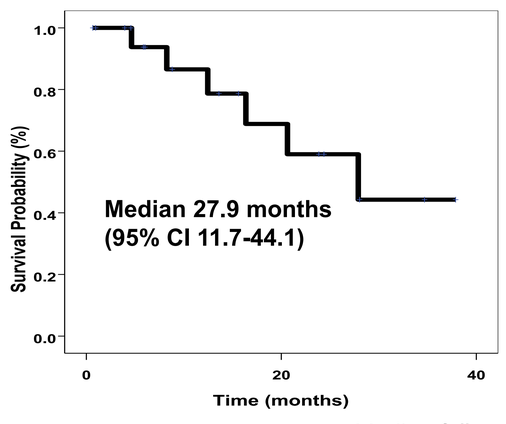
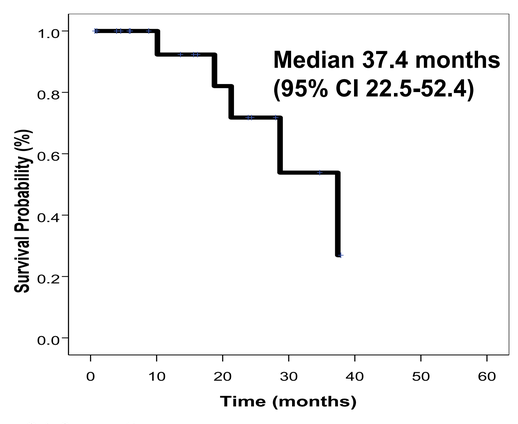


Figure 4. Olaparib Overall Survival



Median follow up time 34.0 months

Figure 5. Niraparib Initiation Before and After FDA Restriction

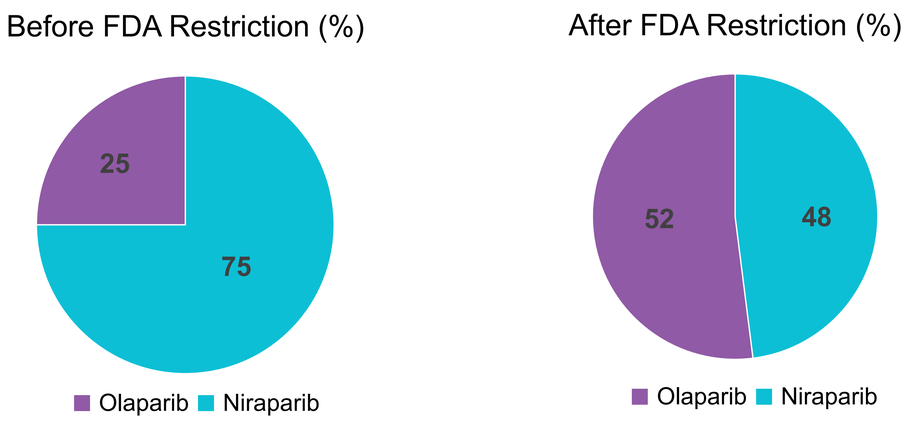


Figure 6. Timeline

Study Period
Dec1, 2021 – Aug 31, 2025

Oct 2016	Sep 2017	Oct 2020	May 2021	Dec 2021	Nov 2022	Feb 2023
• NOVA PFS Analysis	• SOLO2 PFS Analysis	• NOVA OS Analysis Data Cutoff	• SOLO2 Final OS Analysis	• BC Cancer Niraparib Protocol Activation	• Niraparib FDA Restriction	• Niraparib Health Canada Warning

Table 2. Comparison with Landmark Trials

PARPi	Median PFS or OS	Our study results in months	95% CI	Landmark trial comparison of PARPi versus placebo	HR (95% CI)
Niraparib	PFS	**10.1 m**	(8.1-12.2)	**9.3 m** vs. 3.9 m*	0.45 (0.34-0.61)*
	OS	**31.2 m**	(26.3-36.1)	**31.0 m** vs. 34.8 m*	1.06 (0.81-1.37)*
Olaparib	PFS	**27.9 m**	(11.7-44.1)	**19.1 m** vs. 5.5 m†	0.30 (0.22-0.41) †
	OS	**37.4 m**	(22.5-52.4)	**51.7 m** vs. 38.8 m†	0.74 (0.54-1.00) †

PARPi = PARP inhibitor *NOVA (non-gBRCA), n=350. † SOLO2 (gBRCA), n=295

Results Continued

Table 3. Other Findings

	Niraparib (n=33)	Olaparib (n=20)
Reason for Discontinuation		
Toxicity Within 6 Months	1 (3%)	1 (5%)
Toxicity	2 (6%)	1 (5%)
Disease Progression	24 (73%)	6 (30%)
NOVA OS Analysis	2 (6%)	—
Other	1 (3%) self-discontinued	1 (5%) lost to follow-up
Still on treatment at data cutoff Aug 31, 2025	4 (12%)	12 (60%)

Discussion

- The limited number of events, small sample size, and insufficient follow-up duration in the olaparib group yielded unstable survival estimates.
- Prescribing patterns suggest reduced initiation of niraparib in BRCA-wild type patients following updated survival data from the NOVA trial and subsequent regulatory safety communications.
- The observed reduction in second-line niraparib use may also be influenced by activation of first-line maintenance niraparib protocols at BC Cancer also in December 2021, which may have shifted some patients to earlier-line PARP inhibitor use and ineligible for second-line therapy.
- Genetic testing results were available for all patients prior to treatment initiation, suggesting limited access to biomarker testing was unlikely to have influenced PARP inhibitor selection.

Strengths

- Multi-centre cohort including patients from six regional BC Cancer centres
- Study period spans regulatory safety communications, enabling evaluation of temporal changes in prescribing patterns

Limitations

- Retrospective design
- Misclassification of treatment setting in the pharmacy dispensing data may have led to incomplete capture of eligible patients
- Small sample size, limited number of events, insufficient follow-up duration in olaparib group limit reliability and generalizability of survival outcomes

Conclusion

Niraparib survival outcomes observed in this study appeared similar to those reported in landmark clinical trials. Further longer and larger studies would better characterize olaparib survival outcomes.

Following updated survival data and regulatory safety communications, use of niraparib in BRCA-wild type patients decreased.

Contact

Erin Cho, PharmD, RPh
BC Cancer, Vancouver, British Columbia
erin.cho@bccancer.bc.ca

References

1.Matulonis UA, Herrstedt J, Oza A, Mahner S, Redondo A, Berton D, et al. ENGOT-OV16/NOVA trial of niraparib in recurrent ovarian cancer: Survival and long-term safety. Gynecol Oncol 2025 -04;195:192–199.
2.Poveda A, Floquet A, Ledermann JA, Asher R, Penson RT, Oza AM, et al. Olaparib tablets as maintenance therapy in patients with platinum-sensitive relapsed ovarian cancer and a BRCA1/2 mutation (SOLO2/ENGOT-Ov21): a final analysis of a double-blind, randomised, placebo-controlled, phase 3 trial. The Lancet Oncology 2021 -03-18;22(5):620.