Niraparib (N=367) 124 (33.8) 12 (100) 30 (8.2) 30 (8.2)
Bevacizumab blocks angiogenesis by sequestering VEGF and, in doing so, induces hypoxia and subsequent tumor cell apoptosis. Hypoxia can impair the homologous recombination response (homologous recombination repair, a critical DNA damage response pathway). Maintenance therapy is one approach to slow disease recurrence and increase the interval between chemotherapy treatments.

**BACKGROUND**
Niraparib (ZEJULA®) is a selective, orally active PARP-1 and -2 inhibitor approved for the maintenance setting in patients with advanced epithelial ovarian, fallopian tube, or primary peritoneal cancer who are recovered from primary debulking surgery. In the ENGOT-OV16/NOVA trial, grade 3 or 4 hematologic abnormalities, fatigue, and hypertension were the most common treatment-related adverse events. There were no grade 5 AEs. The preliminary disease control rate from the phase 1 portion of AVANOVA was 92% and the overall response rate was 46%. Objective response rates were higher in patients with homologous recombination deficiency (HRD) (69% vs. 16%). mPFS for niraparib was 6.9 months (95% CI, 5.4–8.9) vs. 2.5 months (95% CI, 1.7–3.3) for placebo. The median treatment duration was 20.7 months (95% CI, 17.2–24.2) for niraparib and 19.0 months (95% CI, 16.5–21.5) for placebo. The median duration of response was not reached for niraparib vs. 9.7 months (95% CI, 5.1–13.5) for placebo. The HR for progression for niraparib vs. placebo was 0.37 (95% CI, 0.27–0.50). The median overall survival was 44.8 months for niraparib vs. 34.1 months for placebo (HR=0.69, 95% CI, 0.54–0.88; P=0.0034).

**OBJECTIVES**
- **Primary Objective**: To compare the median time to progression (TTP) between niraparib and placebo in patients with recurrent ovarian cancer who are recovered from primary debulking surgery.
- **Secondary Objectives**: To evaluate the median overall survival (OS) between niraparib and placebo.

**METHODS**
- **Study Design**: Randomized, double-blind, placebo-controlled, parallel-group, multicenter study of patients with recurrent, platinum-resistant ovarian cancer.
- **Patient Population**: Patients with platinum-resistant (at least 6 months off platinum therapy), recurrent, epithelial ovarian cancer.
- **Primary Endpoint**: Median progression-free survival (TTP).
- **Secondary Endpoints**: Overall survival, safety, biomarkers, and patient-reported outcomes.

**RESULTS**
- **Baseline Characteristics**: The cohort of patients who were randomized to receive niraparib comprised 367 patients, and the placebo cohort comprised 65 patients.
- **TTP**: The median TTP for patients who received niraparib was 21 months (95% CI, 16–27 months) vs. 5.5 months (95% CI, 2.8–7.3 months) for placebo. The HR for progression for niraparib vs. placebo was 0.37 (95% CI, 0.27–0.50). The median overall survival was 44.8 months for niraparib vs. 34.1 months for placebo (HR=0.69, 95% CI, 0.54–0.88; P=0.0034).

**DISCUSSION**
Niraparib is the first oral PARP inhibitor to demonstrate clinically meaningful overall survival benefit for patients with recurrent, platinum-resistant ovarian cancer. The results of the ENGOT-OV16/NOVA trial provide a robust foundation for further investigation of niraparib in the maintenance setting.

**ACKNOWLEDGEMENTS**
We thank the patients, families, and clinical sites who participated in this study.

**REFERENCES**

**STUDY ASSESSMENTS**
- **Progression-Free Survival (PFS)**: This endpoint is defined as the time from randomization to the first occurrence of progression, disease-related death, or death from any cause, whichever comes first.
- **Overall Survival (OS)**: This endpoint is defined as the time from randomization to death from any cause.
- **Safety**: Adverse events (AEs) will be assessed throughout the study to evaluate the safety and tolerability of niraparib.

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