Disparities in biomarker testing in ovarian cancer: a real-world analysis

OBJECTIVE: Every year, 22,000 people are diagnosed with ovarian cancer and approximately 14,000 die from this disease. Biomarker testing has become critical in ovarian cancer with the advent of biomarker-targeted chemotherapies, such as poly(ADP-ribose) polymerase (PARP) inhibitors, and a minimum of germline genetic testing is now universally recommended at diagnosis by major cancer organizations. Although the 5-year survival rate is 46% in ovarian cancer, with PARP inhibitors, the 25% of patients who are biomarker-positive for homologous recombination deficiency (HRD) mutations, such as germline or somatic breast cancer susceptibility genes (BRCA1 and BRCA2), can triple their progression-free survival, and some may be cured. In other cancers, uptake of biomarker testing has been uneven and may worsen racial and insurance disparities in cancer.

STUDY DESIGN: We conducted a retrospective cohort study of patients with epithelial ovarian cancer diagnosed from 2011 to 2021, using the nationwide deidentified, electronic health record–derived Flatiron Health database. This database includes data from approximately 280 cancer clinics, representing approximately 800 sites of care in both academic and community practices in the United States. We used multivariable Poisson regression modeling to analyze the association of biomarker testing with patient, sociodemographic, health-system, and cancer factors, allowing us to control for possible confounders. We report relative risks for documented receipt of biomarker testing overall and for each biomarker: BRCA (germline and/or somatic) and HRD or genomic instability score (GIS).

RESULTS: Of 8519 patients with ovarian cancer, 55.4% underwent any biomarker testing (95% confidence interval [CI], 54.3–56.4), 55.3% underwent BRCA testing (95% CI, 54.3–56.5), and 6.1% underwent HRD/GIS testing (95% CI, 5.6–6.6). The rate of ever testing increased from 36.0% among patients diagnosed in 2011 (95% CI, 32.5–39.5) to 65.6% among patients diagnosed in 2020 (95% CI,
Eating Medicare insurance, lack of documented insurance, Eastern Cooperative Oncology Group (ECOG) performance status of ≥2, and ovarian cancer with a non-serous histology were associated with lower likelihood of biomarker testing, whereas a later year of diagnosis and advanced stage of disease at initial diagnosis were associated with greater likelihood of biomarker testing (Figure). Race, ethnicity, and age were not significant mediators of biomarker testing. Findings were similar for BRCA and HRD/GIS testing when stratified (Supplemental Figure).

**CONCLUSION:** Despite recommendations for universal genetic testing by the American Society of Clinical Oncology and the Society of Gynecologic Oncology, only 55% of patients with ovarian cancer underwent biomarker testing in our large national sample. Although testing increased over time, one-third of patients diagnosed in 2020 did not receive testing. Rates were even lower among Medicare patients, despite Medicare coverage of genetic testing after cancer diagnosis, potentially limiting access to biomarker-targeted therapies. Targeted efforts to improve uptake of biomarker testing, such as providing in-clinic testing or automating somatic HRD testing after negative germline testing, may help improve cancer care equity.

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Exploring the relationship between regular physical activity and the 24-hour glucose cycle in gestational glucose intolerance and gestational diabetes mellitus

OBJECTIVE: Physical activity (PA) is recommended for gestational diabetes mellitus (GDM) for its metabolic benefits, but PA’s impact on the 24-hour glucose cycle has yet to be explored.

STUDY DESIGN: Our pilot feasibility trial (ClinicalTrials.gov Identifier NCT04209348) compared a behavioral PA intervention with a general wellness intervention for gestational glucose intolerance (GGI) (glucose ≥130 mg/dL on the 50-g, 1-h screening at 24–28 weeks’ gestation) or GDM (by the Carpenter and Coustan criteria). Patients from the University of Tennessee Medical Center were enrolled (N=20; institutional review board #4547) and completed study visits at 30 to 31 weeks and 36 to 37 weeks of gestation. Because of COVID-19 protections, participants opted in to the continuous glucose monitor (CGM) assessment. Thus, a subset wore Dexcom G6 CGMs (Dexcom, Inc, San Diego, CA), linked to a masked receiver, on the posterior of the upper arm for 7 days (14 participants at baseline, 11 at follow-up, and 10 at both). Participants also completed surveys, which included the Stanford Leisure-Time Activity Categorical Item (L-Cat), a single item that has strong psychometrics. The L-Cat categorized PA behavior in the past month according to national PA recommendations (ie, sufficient vs insufficient).

Typical 24-hour glucose functions were estimated with B-splines (ie, third-degree polynomials with 17 knots) via functional data analysis in JMP software (version 16) from SAS (SAS Institute, Cary, NC). Standard least-squares regression of the functional data analysis—generated 24-hour mean glucose, controlling for GDM, was also
Relative risks were obtained from multivariable Poisson regression models including all listed variables. The proportion of patients with unknown covariates ranged from 0% (age) to 14% (insurance); all patients were included in analyses by using “unknown” categories in model.

BMI, body mass index; ECOG, Eastern Cooperative Oncology Group; GIS, genomic instability score; HRD, homologous recombination deficiency.