Poster 35: Geographic Differences in Circulating Tumor DNA (ctDNA) Testing and Use in Gynecologic Cancers

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Topic
Genetics

Objectives
Circulating tumor DNA (ctDNA) consists of tumor-derived DNA fragments detectable in blood and is being studied as a noninvasive biomarker for minimal residual disease detection, treatment monitoring, recurrence surveillance, and mutation identification. Despite growing interest, consensus guidelines for ctDNA use in gynecologic oncology are lacking. This study assessed real-world ctDNA testing practices in gynecologic cancers.

Methods
A 16-question anonymous online survey was distributed via REDCap to physician members of the Society of Gynecologic Oncology (SGO) and International Gynecologic Cancer Society (IGCS). The survey collected provider demographics, geographic region, ctDNA and molecular testing practices in ovarian (OC), endometrial (EC), and cervical cancer (CC), and barriers to testing. Participation was voluntary with partial responses allowed. Percentages were calculated per question, and Fisher's exact test was used for categorical comparisons.

Results
A total of 365 responses were received and included in the analysis. Respondents comprised 75.1% gynecologic oncologists, 16.7% pathologists, 4.4% medical oncologists, 1.1% radiation oncologists, and 2.7% other or unspecified specialties. Geographic distribution was as follows: 38.4% from North America, 22.2% Asia, 14.5% Africa, 11.5% Europe, 8.5% Latin America/Caribbean, and 4.9% Oceania or not specified. Overall, 18.1% reported using ctDNA testing in any gynecologic cancer. Utilization was highest in North America, with ctDNA testing reported in 23.6% of OC cases ($p=0.004$), 21.4% of EC cases ($p=0.0002$), and 17.1% of CC cases ($p< 0.0001$), compared to significantly lower rates elsewhere. Among those who used ctDNA, the most common application was surveillance for early recurrence, followed by monitoring treatment response.

Conclusions
Clinical use of ctDNA in gynecologic oncology remains limited globally, with greatest uptake in North America. Barriers likely include limited clinical evidence, regulatory constraints, and insurance coverage restrictions—currently, in North America coverage is largely limited to ovarian cancer. Despite these challenges, ctDNA holds promise for precision oncology, underscoring the need for further research to inform guidelines and broader clinical integration.

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Abstract Table or Graph

Circulating Tumor DNA Testing and Use by Geographic Region

	Africa (n=53)	Asia (n=81)	Europe (n=42)	Latin Am/ Caribbean (n=31)	North America (n=140)	Oceania/ Unknown (n=18)	p value
Testing in OC	2 (3.8%)	8 (9.9%)	7 (16.7%)	3 (9.7%)	33 (23.6%)	1 (5.6%)	0.004
Use to monitor treatment response	0 (0.0%)	3 (37.5%)	1 (14.3%)	1 (33.3%)	19 (57.6%)	0 (0.0%)	*
Use during surveillance to monitor for early recurrence	1 (50.0%)	2 (25.0%)	3 (42.9%)	1 (33.3%)	24 (72.7%)	0 (0.0%)	*
Use for prognostication to determine risk of recurrence	0 (0.0%)	2 (25.0%)	1 (14.3%)	1 (33.3%)	9 (27.3%)	0 (0.0%)	*
Use for other reason	0 (0.0%)	5 (62.5%)	4 (57.1%)	0 (0.0%)	5 (15.2%)	1 (100.0%)	*
Testing in EC	0 (0.0%)	5 (6.2%)	4 (9.5%)	2 (6.5%)	30 (21.4%)	1 (5.6%)	0.0002
Use to monitor treatment response	--	3 (60.0%)	2 (50.0%)	1 (50.0%)	18 (60.0%)	0 (0.0%)	*
Use during surveillance to monitor for early recurrence	--	3 (60.0%)	3 (75.0%)	0 (0.0%)	19 (63.3%)	0 (0.0%)	*
Use for prognostication to determine risk of recurrence	--	3 (60.0%)	2 (50.0%)	1 (50.0%)	9 (30.0%)	0 (0.0%)	*
Use for other reason	--	1 (20.0%)	1 (25.0%)	0 (0.0%)	7 (23.3%)	0 (0.0%)	*
Testing in CC	0 (0.0%)	2 (2.5%)	0 (0.0%)	0 (0.0%)	24 (17.1%)	0 (0.0%)	<0.0001
Use to monitor treatment response	--	1 (50.0%)	--	--	15 (62.5%)	--	*
Use during surveillance to monitor for early recurrence	--	1 (50.0%)	--	--	19 (79.2%)	--	*
Use for prognostication to determine risk of recurrence	--	1 (50.0%)	--	--	4 (16.7%)	--	*
Use for other reason	--	1 (50.0%)	--	--	4 (16.7%)	--	*

Note: percentages within each disease/testing category based on the number of providers who indicated they conduct such testing.

* P value not calculated due to limited responses