

Predictors of Equitable Receipt of Next Generation Sequencing in Endometrial Cancer Patients Receiving Cancer Care in the Deep South

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Introduction

- Socioeconomic status remains a predictor of endometrial cancer prognosis and is correlated with advanced disease in patients.
- Next Generation Sequencing (NGS) provides the ability to prescribe targeted cancer therapies and increases patient survival (Maruthi 2022).
- Race, ethnicity, and insurance status impact the use of NGS analysis, though the degree of impact remains unclear.
- The objective of this study was to examine sociodemographic predictors of NGS utilization in endometrial cancer patients.
- We hypothesize that utilization of NGS analysis will be correlated to race, ethnicity, and insurance status due to both clinical practice patterns and biases in the healthcare system.

Methods

- A retrospective research study was performed using data collected from 126 endometrial cancer patients scheduled for surgery between 2018 and 2022 in a Southern healthcare system through use of the electronic medical record (EMR).
- Analytic factors of interest include race, ethnicity, insurance status, marital status, age, and recurrence free and survival (RFS).
- Factors were analyzed using mean and standard deviation for continuous variables and percentage of n for categorical variables.
- Differences in categorical variables were tested across groups using fisher exact tests while Wilcoxon rank sum tests were used for continuous variables.

Results

Variable	All (126)	Yes (36)	No (90)	P-value	%
Black Race	55	11	44	0.073	20
White Race	60	20	40	0.326	33.3
Other Race	10	5	5	0.147	50
Hispanic	6	4	2	0.057	66.7
Non-Hispanic	119	32	87		26.9

Table 1: Utilization of NGS by Race and Ethnicity

Variable	All (126)	Yes (36)	No (90)	P-value	%
Medicaid	26	7	19	1	26.9
Medicare	57	17	40	0.844	29.8
Private	31	8	23	0.82	25.8
Freecare	11	4	7	0.509	36.4
Tricare	1	1	0	0.286	100

Table 2: Utilization of NGS by Insurance Status

Variable	All (126)	Yes (36)	No (90)	P-values	%
Age	60	62	60	0.15	
Married	41	14	27	0.401	34.1
Not Married	85	22	63		25.9
Recurrence (m)	11.4	19.3	8.3	0.188	

Table 3: Utilization of NGS by Age, Marital Status, and Time to Recurrence

- Of the 126 patients in the study, 36 received NGS testing and 90 did not.
- 20% of the 55 black patients, 33.3% of the 60 white patients, and 50% of the 11 patients with other races received genetic testing (p-value=.088).
- 6 patients identified as Hispanic and 4 received NGS testing (66.7%) compared to 26.9% of the 119 patients identified as non-Hispanic (p=0.057).
- Fourteen of 41 married subjects received NGS testing (34.1%) compared to 22 of the 85 nonmarried patients (25.9%, p=0.401).
- Median age for those that received NGS was 62 compared to those that did not receive testing at 60 (p=0.15).
- There was no significant difference based on insurance type (Medicaid, Medicare, Free Care/uninsured, Private, or Tricare) for who received NGS, (p= .101)
- Average time to recurrence for the overall sample was 11.4 months. Patients who received NGS testing had an average recurrence of 19.3 months. Patients who did not had an average recurrence of 8.3 months (p=0.188).

Conclusion

- A significant difference of NGS utilization based on sociodemographic factors of the patient was not found
- A trend of underutilization based on race and ethnicity was observed.
- The study was limited by small sample size, and investigation of the impact of race and ethnicity on NGS testing warrants further investigation to ensure equitable precision cancer care delivery.

References

Maruthi VK, Khazaeli M, Jeyachandran D, Desouki MM. The Clinical Utility and Impact of Next Generation Sequencing in Gynecologic Cancers. *Cancers (Basel)*. 2022 Mar 7;14(5):1352. doi: 10.3390/cancers14051352. PMID: 35267660; PMCID: PMC8909263