EuroSciCon

2nd Edition of International Conference on

Clinical Oncology and Molecular Diagnostics

June 11- 13, 2018
Dublin, Ireland

Julie Smith Gagen, Arch Cancer Res 2018, Volume 6
DOI: 10.21767/2254-6081-C1-005

UTILITY OF MOLECULAR PROFILING FOR DIAGNOSING PATIENTS WITH CANCER OF UNKNOWN PRIMARY IN A POPULATION-BASED COHORT

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Purpose: Cancer of unknown primary (CUP) patients has metastatic cancer with no identifiable primary tumor after a battery of guideline-recommended diagnostic tests. Currently, no guideline recommending organization recommends molecular profiling to identify the primary tumor. We characterized the effectiveness of molecular profiling diagnostic testing on receipt of site-specific treatments and overall survival among a population-based sample of CUP patients diagnosed between 2005 and 2015.

Methods: Patients with cancer of unknown primary were identified in the Surveillance Epidemiology and End Results (SEER)-Medicare database (n=10,575). SEER is the cancer registry used to calculate US population-based incidence rates of cancer. Medicare database contains all billed medical procedures received before and after a cancer diagnosis. The effectiveness of the diagnostic procedures regarding overall survival was examined in patients who received the initial battery of guideline-recommended diagnostic tests and survived at least three months (to allow time to receive the molecular diagnostic testing) using Cox proportional hazards regression and mediation analysis for treatment effects.

Results: Only 35.3% of CUP patients received timely guideline recommended initial diagnostic procedures. Receipt of all guideline-recommended initial diagnostic procedures was associated with a 15% reduced risk all-cause death, 36.9% of this reduction in death would remain if everyone received treatment. Receipt of molecular profiling was all associated with a nearly a 50% lower risk of death relative to comparable patients not receiving this molecular profiling, as indicated by the statistic, a hazard ratio (95% confidence interval) of 0.67(0.56,0.80).

Conclusions: This research expands on small clinical studies demonstrating the benefit of molecular diagnostic tests to a population-based cohort of patients who received molecular testing despite a lack of clinical guideline support. This research provides evidence to guideline producing organizations of the utility of molecular provides in a large and diverse population-based cohort; namely more effective treatment and longer survival.

Recent Publications

1. Smith-Gagen J, Loux T, Drake C and Pérez-Stable E J (2016) How does managed care improve the quality of breast cancer care among Medicare insured minority women? Journal of Racial and Ethnic Health Disparities 3(3):496-507.
2. Tung W C, Lu M, Smith-Gagen J and Yao Y (2016) Latina women and cervical cancer screening: Decisional balance, and self-efficacy. Clinical Journal of Oncology Nursing 20(3):E71-6.
3. Deadmond M A and Smith-Gagen J (2015) Changing incidence of myeloproliferative neoplasms: trends and subgroup risk profiles in the United States, 1973-2011. Journal of Cancer Research and Clinical Oncology 141(12):2131-8.
4. Mnatsakanyan E, Tung W C, Caine B and Smith-Gagen J (2014) Cancer of unknown primary: time trends in incidence, United States. Cancer Causes and Control 25(6):747-57.

Biography

Julie Smith Gagen MPH, PhD is an Associate Professor at the University of Nevada, Reno in the School of Community Health Sciences which offers MPH and PhD programs. As an epidemiologist, she uses epidemiology to inform health policy to promote equity in utilization and access to healthcare. Her current area of focus is on the real-world use of diagnostics and treatments for patients with cancer of unknown primary. Another area of focus is on prevention treatments that can slow the progression of nonalcoholic steatohepatitis and liver cancer. She has published in many peer-reviewed high impact journals including but limited to *Statistical Methods in Medical Research, Journal of Epidemiology and Community Health, Psycho-Oncology, Journal of Cancer Research and Clinical Oncology, and Cancer Causes and Control.*

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