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Racial, Professional, Enviromental Factors, and Citiscreen

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Endometrial Cancer

Recently published meta-analysis on the significance of sonographically detected endometrial thickness in asymptomatic women revealed new findings [1]. Increased cancer risks were reported for thresholds between 3.0 and 5.9 mm (relative risk, 5.08; 95% confidence interval 2.26-11.41; 60 and 99 mm (relative risk, 4.34, 96% confidence interval. 1.68–11.23, 10.0 and 13.9 mm (related risk, 4.11; 95%confidence interval, 1.55–10.87, and ≥ 14.0 mm (related risk, 2.53; 95% confidence interval 1.04–6.16 [1]. In many cases endometrial cancer manifests itself with postmenopausal bleeding or increased endometrial thickness [2]. When the endometrium thickness is below these thresholds, the risk of cancer is considered to be less than 1%. There is a direct correlation between endometrial thickness in postmenopausal women and the presence of endometrial cancer. Cancer in women with endometrial thickness of 1 cm or more is detected in 6.7% of women [6].

Asymptomatic women with an incidental ultrasonographic finding of endometrial thickness of ≥ 3.0 mm have a 3-fold higher risk of cancer [2-6]. Hysteroscopy appears as a next step in patient management [7,8]. Hysteroscopy is especially helpful in diagnosing of cornual pathology, which is more likely to be missed with blind endometrial sampling [1].

Counseling patients regarding false-positive and false-negative results is an essential part of Citiscreen protocols. Sensitivity of cancer screening decreases with increased threshold, whereas specificity increases when shifting from lower to higher cutoff values.

Racial Factor in Endometrial Cancer: Implication for Screening A. Sanchez- Covarrufias et al stated that there is a significant racial disparity in endometrial cancer prevalence [8]. The authors cited data stating that black women have much higher incidence of aggressive histologic types of cancers [9,10]. This research shed some light on the difference in cancer outcomes in black and white populations. The authors reviewed tumor genomic data from publicly available sequencing in Genetic Ancestry Atlas (Project Uterine Corpus Endometrial Carcinoma) [11,12]. The authors concluded that despite other factors which may contribute to endometrial carcinoma in black women, there is a biological or genetic reason for the prevalence of high-grade disease in these patients.

According to data from the University of Chicago, only 14% of cancers in the United States are diagnosed as a result of screening, while the majority of cancers are found only when symptoms are first seen, when full recovery is less likely. Researchers conducted the first-ever analysis to determine the percentage of cancers detected by screening. Only four types of cancers (breast, cervix, colon, and lung) have a screening test recommended by the United States Preventive Services Task Force. These cancers make up 29% of all malignancies. Further, most people have poor compliance with recommended screenings: 61% of breast cancers are detected by screening, while only 3% of lung cancers are detected. These cancers are therefore usually found in later stages and account for 70% of cancer-related deaths. Citiscreen's goal is to implement screening procedures for more malignancies and intends, with proper counseling, to improve our diagnostic capability.

Liquid Biopsy, Grail, Gallerie

Liquid biopsy is a blood test which includes exosomes, micoRNA and tumor DNA fragments. Multi-cancer early detection (MCED) technology was developed to address the need for better cancer screening and has the potential to detect up to 50 cancers with a simple blood test. MCED is sometimes referred to as the "GRAIL" test after the American biotechnology company, the Galleria (Galleria Menlo Park, California). These tests are available for people who are 50 and older, have a family history of cancer, or are at an increased risk for cancer. The Galleria test is only available via prescriptions [13]. The necessary prerequisites, which are required for these tests make them available for a select few. However, even for those whom these GRAIL tests are available, these liquid biopsy tests do not eliminate but rather complement Citiscreen. These tests are meant to be used not as an alternative but as a supplementary screening tool, a fact which is emphasized on the company's website and the medical literature The main reason that the liquid biopsy test does not

replace Citiscreen is because it does not address the requency of testing as well as the proper candidates [14].

Occupational Cancer

Between 2% and 5% of all cancers are attributed to occupational exposures [15]. Lung cancer is associated with asbestos, crystalline silica, diesel engine exhaust and welding fume. Urinary bladder cancer is associated with exposure to aromatic amines and diesel engine exhaust among others. Nonmelanoma type skin cancer is associated with solar radiation, coal tars and pitches, mineral oils and arsenics [15]. Occupational cancers emerged after September 11, 2021 when many police and first responders were exposed to building debris particles from pulverized cement and glass, fiberglass, silica, heavy metals, soot and organic products of combustion [16]. Generally, in the course of their work, firefighters are exposed to harmful substances such as mixtures of particulates, gasses, mists, and fumes of an organic and/or inorganic nature [17, 18]. The firefighters are at an increased risk for multiple myeloma, non-Hodgkin's lymphoma, and prostate cancer [18]. Two other malignancies also have high summary risk estimates in fire fighters: testicular and skin cancer [18]. Specifically, a study on Philadelphia firefighters demonstrated an increasing trend of multiple myeloma as duration of employment as a firefighter increased [19]. To the best of our knowledge, Citiscreen is the only screening tool that incorporates occupational cancers.

Environmental Cancer

Environmental cancers are attributed to air pollutants, soil and drinking water, and contaminants (20). The evidence for an increased lung cancer occurrence from outdoor air pollution is strong, while the evidence concerning other cancers is not consistent [20].

Lessons From Covid Pandemic

The COVID-19 pandemic was associated with significant changes in diagnoses of all cancer types in 2020, with a 14.4% overall decline in cancer cases compared with previous years. 200,000 patients with cancer were not diagnosed or treated in a timely fashion. These cancer cases may be missing for now but are expected to appear in 2021 or later, potentially at more advanced stages. The cumulative effect of lack of timely screening on clinical outcomes in 2020 had yet to be determined but can be detrimental to the unscreened individual's health [21].

References

1. Salvatore Giovanni Vitale, Gaetano Riemma, Sergio Haimovich, Jose Carugno, Luis Alonso Pacheco, et al. (2023) Risk of endometrial cancer in asymptomatic postmenopausal women in relation to ultrasonographic endometrial thickness: systematic review and diagnostic test accuracy meta-analysis. Am J Obstet Gynecol 1: 22-35.
2. Valentina Lucia La Rosa, Simone Garzon, Giuseppe Gullo, Michele Fichera, Giovanni Sisti, et al. (2020) Fertility preservation in women affected by gynecological cancer: the importance of an integrated gynecological and psychological approach. Cancer Science 14: 1035.
3. Practice Bulletin No. 149 (2015) Endometrial cancer. Obstet Gynecol 125: 1006-1026.
4. Dinesh Palipana, Igor Fomin, Elsa Russell, Brian Chan, Chad Wong, et al. (2020) Investigating women with postmenopausal bleeding: the utility of endometrial thickness in transvaginal ultrasound. Aust N Z J Obstet Gynaecol 60: 773-775.
5. Juan Luis Alcázar, Laura Bonilla, Julia Marucco, Ana Isabel Padilla, Enrique Chacón, et al. (2018) Risk of endometrial cancer and endometrial hyperplasia with atypia in asymptomatic postmenopausal women with endometrial thickness ≥11 mm: a systematic review and meta-analysis. J Clin Ultrasound 46: 565-570.
6. Smith-Bindman R, Weiss E, Feldstein V (2004) How thick is too thick? When endometrial thickness should prompt biopsy in postmenopausal women without vaginal bleeding. Ultrasound Obstet Gynecol 24: 558-565.
7. Salvatore Giovanni Vitale, Sergio Haimovich, Antonio Simone Laganà, Luis Alonso, Attilio Di Spiezio Sardo, et al. (2021) Endometrial polyps. An evidence-based diagnosis and management guide. Eur J Obstet Gynecol Reprod Biol 260: 70-77.
8. Sanchez AP, Tabuyo - Martin AD, Schlumbrecht M (2023) African ancestry is associated with aggressive endometrial cancer Am J Obstet Gynecol 2023 Research. Letters 228: 92-95.
9. Michele L Cote, Julie J Ruterbusch, Sara H Olson, Karen Lu, Rouba Ali-Fehmi (2015) The growing burden of endometrial cancer: a major racial disparity affecting black women. Cancer Epidemiol Biomarkers Prev 24: 1407-1415.
10. Elizabeth A Dubil, Chunqiao Tian, Guisong Wang, Christopher M Tarney, Nicholas W Bateman, et al. (2018) Racial disparities in molecular subtypes of endometrial cancer. Gynecol Oncol 149: 106-116.
11. Jiao Yuan, Zhongyi Hu, Brandon A Mahal, Sihai D Zhao, Kevin H Kensler, et al. (2018) Integrated analysis of genetic ancestry and genomic alterations across cancers. Cancer Cell 34: 549-560.e9.
12. Cyriac Kandoth, Nikolaus Schultz, Andrew D Cherniack, Rehan Akbani, Yuexin Liu, et al. (2013) Integrated genomic characterization of endometrial carcinoma. Cancer Genome Atlas Research Network,Nature 497: 67-73.
13. Compadre AJ, Mutch DG, Hagemann AR (2023) Multi-cancer early detection liquid biopsy testing: a predictive genetic test not quite ready for prime time. OBG Management 35: 43-48.
14. E A Klein, D Richards, A Cohn, M Tummala, R Lapham, et al. (2021) Clinical validation of a targeted methylation-based multi-cancer early detection test using an independent validation set. Ann Oncol 32: 1167-1177.
15. Poisson A Kromhout H (2021) Occupational cancer burden: the contribution of exposure to process-generated substances at the workplace Mol Oncol 15: 753-763.
16. Philip Edelman, John Osterloh, James Pirkle, Sam P Caudill, James Grainger, et al. (2003) Biomonitoring of chemical exposure among New York City firefighters responding to the World Trade Center fire and collapse. Environ Health Perspect 111: 1906-1911.
17. Golden AL, Markowitz SB, Landrigan PJ (1995) The risk of cancer in firefighters.Occup Med. 10: 803-820.

18. Grace K LeMasters, Ash M Genaidy, Paul Succop, James Deddens, Tarek Sobeih, et al. (2006) Cancer risk among firefighters: a review and meta-analysis of 32 studies, J Occup Environ Med. 48: 1189-1202.
19. D Baris, T J Garrity, J L Telles, E F Heineman, A Olshan, et al. (2001) Cohort mortality study of Philadelphia firefighters. Am J Med 39: 463-476.
20. Boffetta P (2004) Epidemiology of environmental and occupational cancer. Oncogene 23: 6392 - 6403.
21. Sharon S Lum, Amanda E Browner, Bryan Palis, Heidi Nelson, Daniel Boffa, et al. (2023) Disruption of national cancer database data models in the first year of the COVID-19 pandemic, JAMA Surg 158: 643-650.