GLOBAL PATTERNS AND CONTRIBUTING FACTORS IN THE RISING INCIDENCE OF ENDOMETRIAL CANCER

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Abstract: Endometrial cancer, a malignancy originating from the lining of the uterus, has shown a significant global increase in incidence over the past several decades. This paper investigates current epidemiological trends in the occurrence of endometrial cancer, analyzing geographic, demographic, and risk factor-based data. The review also explores the role of lifestyle, reproductive patterns, and metabolic health in influencing disease burden. Findings from global cancer registries suggest a marked rise in cases, particularly in industrialized nations, and emphasize the importance of preventive strategies and early detection in managing this gynecological cancer.

Introduction

Endometrial cancer is now recognized as one of the leading malignancies affecting women, particularly in developed nations where it ranks as the most common gynecologic cancer. The disease primarily affects the endometrium—the inner lining of the uterus—and is predominantly diagnosed in postmenopausal women, although an increasing number of younger women are also being affected. Globally, approximately 417,000 new cases and nearly 97,000 deaths were reported in 2020, with substantial regional variation in both incidence and mortality rates.

Several factors are implicated in the rising burden of endometrial cancer. Among the most prominent is obesity, which contributes to a hyperestrogenic state through peripheral aromatization of androgens in adipose tissue. Other important contributors include metabolic syndrome, diabetes mellitus, nulliparity, early menarche, late menopause, and prolonged unopposed estrogen exposure. Additionally, a significant reduction in hysterectomy rates and the widespread use of advanced imaging may have led to increased case detection.

Understanding the patterns of incidence is vital for developing effective public health responses, guiding clinical surveillance, and ensuring appropriate allocation of healthcare resources. This paper aims to provide a detailed examination of the incidence trends of endometrial cancer, with a focus on regional disparities and modifiable risk factors that can be addressed through policy and education.

Methods

A comprehensive literature review and analysis of global cancer incidence data were conducted using publicly available databases and peer-reviewed research. Primary data sources included the GLOBOCAN 2020 report from the International Agency for Research on Cancer (IARC), the Surveillance, Epidemiology, and End Results (SEER) Program in the United States, and the European Cancer Information System (ECIS). Additional national cancer registries from regions including Sub-Saharan Africa, East Asia, and South America were evaluated to provide a global perspective.

Data extraction focused on age-standardized incidence rates (ASIR), crude incidence rates, demographic trends, and time-based changes over the last two decades. Age groups were stratified by reproductive stage (pre-, peri-, and postmenopausal), and histological subtypes were categorized into Type I (estrogen-dependent, endometrioid histology) and Type II (non-endometrioid, often serous or clear cell).

To assess associations with known risk factors, epidemiological cohort studies and meta-analyses published within the last fifteen years were reviewed. Particular attention was given to the interaction of obesity, hormonal therapy, and reproductive history with endometrial carcinogenesis. Data were synthesized to construct a global map of trends and implications.

Results

The incidence of endometrial cancer has demonstrated a significant upward trajectory across most high-income countries, with emerging increases in certain middle-income and transitioning economies. In North America and Western Europe, the age-standardized incidence rate has exceeded 20 per 100,000 women. For instance, in the United States, the incidence rose from 21.2 in 2000 to nearly 28.5 per 100,000 in 2020. The United Kingdom has seen a 45% rise in cases over the past two decades, largely attributable to increased obesity rates and delayed childbearing.

In contrast, low-income countries such as those in Sub-Saharan Africa and parts of South Asia continue to report lower incidence rates (often below 3 per 100,000 women), though underdiagnosis due to lack of screening and inadequate access to pathology services likely underestimates the true burden. Notably, urban centers in these regions are beginning to report higher case numbers, corresponding with rising obesity, sedentary lifestyles, and changing reproductive patterns.

Age distribution data reveal that the majority of cases (approximately 75%) occur in women over the age of 50. However, a concerning trend has emerged in which younger women, particularly those with polycystic ovary syndrome (PCOS), insulin resistance, or a positive family history (e.g., Lynch syndrome), are being diagnosed in increasing numbers. In one large cohort study, nearly 12% of endometrial cancer diagnoses were in women younger than 45.

Histologically, Type I endometrial cancer accounts for approximately 80% of cases and is closely associated with estrogen-related risk factors. These tumors tend to be low-grade, confined to the uterus at diagnosis, and have a favorable prognosis. Type II cancers, on the other hand, represent a smaller proportion but carry a significantly worse prognosis due to their aggressive behavior and higher propensity for metastasis.

Risk factor analysis confirms a strong correlation between obesity and endometrial cancer, with some studies indicating that women with a body mass index (BMI) over 30 have a two- to fourfold increased risk. Hormone replacement therapy with unopposed estrogen, nulliparity, early menarche, and late menopause are additional contributors. Protective factors include use of combined oral contraceptives, multiparity, and smoking (though the latter poses obvious other health risks).

Discussion

The increase in endometrial cancer incidence is reflective of a convergence of demographic, lifestyle, and clinical factors. As women live longer, the cumulative effects of hormonal exposure become more

pronounced, particularly in those who are overweight or obese. Lifestyle factors such as poor diet, physical inactivity, and metabolic disorders compound this effect.

Regional disparities in incidence underscore the importance of contextualizing risk within cultural and economic settings. In high-income countries, the rise may be partially explained by improved diagnostic capabilities and public awareness. However, the rate of increase still outpaces improvements in early detection, suggesting a true growth in disease burden.

In low-resource settings, the relatively low reported incidence should not be misinterpreted as low risk. Rather, it reflects the need for enhanced cancer surveillance infrastructure, greater public education, and the establishment of accessible gynecologic oncology services.

The findings of this review support the integration of endometrial cancer awareness into broader women's health initiatives, especially in reproductive health and non-communicable disease programs. Public health interventions focusing on weight management, dietary modification, and hormonal education may play a substantial role in reducing the future burden of this disease.

Clinically, it is essential that physicians remain vigilant in evaluating abnormal uterine bleeding, particularly in postmenopausal women, as early symptoms are often subtle and underreported. There is a strong case for increased screening in high-risk populations, including those with metabolic syndrome or hereditary cancer syndromes.

Conclusion
Endometrial cancer is a growing public health concern with rising incidence rates observed across much of the world. While high-income countries bear the greatest reported burden, the potential for a silent rise in low- and middle-income countries is significant. Risk factors such as obesity, unopposed estrogen exposure, and reproductive history are well-established contributors to the disease.

Efforts to reverse these trends must include comprehensive public health strategies aimed at prevention, early detection, and equitable access to care. Emphasis should be placed on modifiable lifestyle factors, enhanced surveillance, and greater investment in women's health infrastructure. Only through a coordinated global response can the burden of endometrial cancer be effectively reduced in the coming decades.

The growing incidence of endometrial cancer reflects a complex interplay of biological, environmental, behavioral, and healthcare-related factors that have evolved alongside global demographic and lifestyle transitions. As more women live longer and encounter prolonged periods of endogenous and exogenous hormonal exposure, the cumulative risk of developing endometrial malignancies rises correspondingly. The most significant driver of this trend is the global obesity epidemic, which directly influences estrogen metabolism and contributes to the pathogenesis of endometrial neoplasia, especially of the Type I variant.

This comprehensive review confirms that endometrial cancer is no longer limited to high-income countries. Although the highest incidence rates are still observed in developed nations with sophisticated health systems, a silent increase is emerging in low- and middle-income regions, where diagnostic capacity and awareness remain limited. Urbanization, delayed childbearing, reduced

fertility rates, sedentary lifestyles, and shifts in nutritional patterns have created a convergence of risk factors that are now present worldwide. Therefore, viewing endometrial cancer as a global health issue, rather than a regional one, is essential for meaningful intervention.

The findings also highlight important age-related and socioeconomic disparities. Older, postmenopausal women remain the highest risk group, but younger women—particularly those with metabolic disorders, polycystic ovarian syndrome, and genetic predispositions—are increasingly represented among new diagnoses. This underscores the need for age-appropriate education, timely evaluation of abnormal uterine bleeding, and expanded genetic counseling for at-risk populations.

From a public health standpoint, preventive strategies must prioritize modifiable risk factors such as weight management, physical activity, and diet. These interventions should be culturally tailored, accessible, and integrated into broader non-communicable disease (NCD) programs. At the policy level, investments in women's health—particularly gynecologic oncology services, screening protocols, and health literacy—will be crucial in reversing the current trajectory of endometrial cancer incidence.

Clinicians must remain vigilant in the face of subtle clinical presentations and low patient awareness. Routine evaluation of postmenopausal bleeding, endometrial thickness measurement via ultrasound, and biopsy when indicated should be standard practice in primary and secondary care. Early detection not only improves survival but also reduces the need for extensive treatment and its associated costs.

In conclusion, endometrial cancer represents both a challenge and an opportunity for global health systems. The challenge lies in recognizing and responding to the rising tide of cases; the opportunity lies in preventing these cases through targeted interventions, education, and equitable access to care. With timely action and a coordinated international response, it is possible to mitigate the growing burden of endometrial cancer and improve the health outcomes of women around the world.

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