

## Unveiling the Nexus between Ambient Air Pollution and Gynecological Cancer

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### Description

#### Cancer and its global impact

Cancer, characterized by the uncontrolled growth of abnormal cells within the body, has become an emerging and widespread health concern on a global scale. The burden of cancer has escalated worldwide, making it a common illness that affects individuals from various walks of life [1-3]. The World Health Organization (WHO) has declared cancer a significant public health issue, attributing it to countless deaths across the globe [4]. In 2015 alone, cancer was responsible for more than 8.7 million fatalities, marking it as the leading cause of death both globally and within specific regions like China [5,6].

Gynecological cancers can arise from various factors, and the development of these cancers is often multifactorial. Here are some of the key reasons associated with the risk of gynecological cancers. Inherited genetic mutations can increase the risk of certain gynecological cancers. Advancing age is a significant risk factor for gynecological cancers. Hormonal imbalances can contribute to the development of gynecological cancers. A family history of gynecological cancers can increase an individual's risk. If close relatives (such as mother, sister, or daughter) have had ovarian, uterine, or breast cancer, there may be a genetic predisposition that raises the risk for other family members. Environmental exposures, such as exposure to certain chemicals or toxins, may contribute to the risk of gynecological cancers. Additionally, lifestyle factors such as smoking, obesity, and a diet high in processed foods and low in fruits and vegetables have been associated with an increased risk.

#### The alarming rise of gynecological malignancies

Gynecological malignancies, primarily affecting women, have witnessed a surge in their prevalence. Among these, endometrial, ovarian, and cervical cancers stand out as the most frequently diagnosed [7,8]. Reports from the National Central Cancer Registry (NCCR) underline a gradual increase in both the incidence and mortality rates of cancer worldwide [9,10]. Consequently, the burden of this disease has had a profound impact on life expectancy in the 21<sup>st</sup> century [11]. The risk of cancer development often intensifies over time, correlating with environmental factors that contribute to pollution [12,13].

#### A global issue demanding global solutions

Cancer has become a global problem that necessitates a global solution. Its treatment typically involves a combination of surgical procedures, chemotherapy, and radiotherapy. While these treatments aim to combat the disease, they inadvertently increase the financial strain on affected families and significantly diminish the quality of life for both patients and their loved ones [14].

#### The urgent need for environmental risk assessment

Amidst the grim statistics and increasing cancer prevalence, it is crucial to identify the environmental risk factors that contribute to the development of gynecological cancers and formulate effective strategies for their prevention and reduction. Ambitious efforts to mitigate these risks have led to studies that demonstrate the detrimental impact of ambient air pollution on cancer and related diseases.

#### Conclusion

Gynecological cancers are among the most serious and devastating diseases worldwide, with their burden continuously mounting in China and other industrialized nations. The global escalation of cancer cases, particularly cervical, endometrial, and ovarian cancers, poses significant public health challenges, subjecting women to both physical and psychological distress. As we grapple with this global crisis, there is an undeniable urgency to delve into the influencing factors that underlie these malignancies. The quest for understanding these factors and their consequences is imperative, as cancer's repercussions are far-reaching, affecting families, societies, and economies alike.

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