



The Impact of Obesity and Diabetes on Uterine Cancer Risk

Mohamud Vahid*

Department of Oncology, Islamic University of Raden Intan, Lampung, Indonesia

DESCRIPTION

Uterine cancer also called as endometrial cancer is one of the most common gynecologic cancers in women. The incidence of this cancer has been steadily rising globally and researchers have identified several risk factors that contribute to its development. Among the most significant of these risk factors are obesity and diabetes. Both of these conditions have a severe impact on the development of uterine cancer, influencing the body's hormonal balance, inflammation levels and metabolic processes. Obesity is widely recognized as a significant risk factor for uterine cancer. According to the American Cancer Society, women who are overweight or obese are at an increased risk of developing endometrial cancer compared to those with a healthy weight. The association between obesity and uterine cancer is particularly strong in postmenopausal women [1-3].

One of the key mechanisms by which obesity increases the risk of uterine cancer is through the excessive production of estrogen. Fat cells, particularly those in the abdominal area, convert androgens (male hormones) into estrogen, which can lead to an imbalance in the body's hormonal regulation. Estrogen promotes the growth of the endometrium (the lining of the uterus) and when it is not balanced by the effects of progesterone, the result can be endometrial hyperplasia, a condition where the endometrial lining becomes abnormally thickened, increasing the risk of cancer. In obese women, the increased production of estrogen without the counterbalancing effects of progesterone contributes to the development of endometrial cancer. This hormonal imbalance plays an essential role in the pathogenesis of the disease, as it can lead to the uncontrolled growth of cells in the endometrial lining. Additionally, adiposity (fat tissue) is linked to chronic low-grade inflammation, which further elevates the risk of cancer by promoting an environment conducive to cell proliferation and malignant transformation. Diabetes, particularly type 2-diabetes is another condition that is closely linked to an increased risk of uterine cancer. Type 2-diabetes is characterized by insulin resistance, where the body's cells become less responsive to

insulin, leading to elevated blood sugar levels. Insulin resistance and the resulting hyperinsulinemia (high levels of insulin in the blood) have been shown to play a significant role in the development of uterine cancer [4,5].

Insulin has a direct effect on the growth of certain types of tumors, including endometrial cancer. Elevated insulin levels can stimulate the production of growth factors such as Insulin-like Growth Factor 1, which promotes cell proliferation and inhibits cell death. This creates an environment that encourages cancerous cells to grow and divide. Furthermore, high levels of insulin and glucose can alter the balance of sex hormones in the body, contributing to the hormonal changes that favor the development of endometrial cancer. In addition to hyperinsulinemia, diabetes is often associated with other metabolic disturbances such as obesity, dyslipidemia (abnormal levels of fats in the blood) and hypertension. These conditions collectively contribute to an increased cancer risk. Chronic hyperglycemia (high blood sugar levels) has been shown to promote oxidative stress and inflammation, both of which can damage cells and increase the likelihood of malignant transformations in the uterine lining [6-7].

While obesity and diabetes individually contribute to an increased risk of uterine cancer, their combined effect appears to be even more detrimental. Women who are both obese and diabetic face a substantially higher risk of developing uterine cancer than those with just one of these conditions. This synergistic effect may be attributed to the fact that both obesity and diabetes are linked to similar metabolic and hormonal changes, which together create a highly favorable environment for the development of cancer [8-10].

REFERENCES

1. Shoff SM, Newcomb PA. Diabetes, body size and risk of endometrial cancer. *Am J Epidemiol.* 1998;148(3):234-240.
2. Schmandt RE, Iglesias DA, Co NN, Lu KH. Understanding obesity and endometrial cancer risk: Opportunities for prevention. *Am J Obstet Gynecol.* 2011;205(6):518-525.

Correspondence to: Mohamud Vahid, Department of Oncology, Islamic University of Raden Intan, Lampung, Indonesia, E-mail: vahid@mmh.id

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3. Zhang Y, Liu H, Yang S, Zhang J, Qian L, Chen X. Overweight, obesity and endometrial cancer risk: Results from a systematic review and meta-analysis. *Int J Biol Markers*. 2014;29(1):21-29.
4. Gallagher EJ, LeRoith D. Obesity and diabetes: The increased risk of cancer and cancer-related mortality. *Physiol Rev*. 2015;95(3):727-748.
5. Yin XH, Jia HY, Xue XR, Yang SZ, Wang ZQ. Clinical analysis of endometrial cancer patients with obesity, diabetes, and hypertension. *Int J Clin Exp Med*. 2014;7(3):736.
6. Saltzman BS, Doherty JA, Hill DA, Beresford SA, Voigt LF, Chen C, et al. Diabetes and endometrial cancer: An evaluation of the modifying effects of other known risk factors. *Am J Epidemiol*. 2008;167(5):607-614.
7. Shaw E, Farris M, McNeil J, Friedenreich C. Obesity and endometrial cancer. *Obesity and cancer*. 2016:107-136.
8. Lega IC, Lipscombe LL. Diabetes, obesity, and cancer-pathophysiology and clinical implications. *Endocr Rev*. 2020;41(1):33-52.
9. Lindemann K, Vatten LJ, Ellstrom-Eng M, Eskild A. Body mass, diabetes and smoking, and endometrial cancer risk: A follow-up study. *Br J Cancer*. 2008;98(9):1582-1585.
10. Kim DS, Scherer PE. Obesity, diabetes and increased cancer progression. *Diabetes Metab J*. 2021;45(6):799-812.