

Research Article

Diabetes Mellitus and Hypertension are Risk Factor for Endometrial Cancer

Diabetes Mellitus dan Hipertensi sebagai Faktor Risiko pada Kanker Endometrium

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Abstract

Objective: To find out whether diabetes mellitus and/or hypertension is associated with endometrial cancer and could increase the staging of the cancer.

Method: This was an analytic retrospective descriptive study with cross sectional design. Data were taken from the medical record of patients diagnosed as having endometrial cancer in Obstetrics and Gynecology Department of Dr. Hasan Sadikin Hospital from 1st January 2007 - 31st December 2011 and analyzed descriptively.

Result: There were 125 cases of endometrial cancer. Prevalence was 2.56 %. The incidence increased in age > 40 y/o (92 %) and had diabetes mellitus and/or hypertension (66.4 %).

Conclusion: Diabetes mellitus and/or hypertension were associated with risk factors of endometrial cancer but not proven to increase the staging of the cancer.

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Keywords: diabetes mellitus, endometrial cancer, hypertension

Abstrak

Tujuan: Mengetahui apakah diabetes mellitus dan/atau hipertensi berhubungan dengan kanker endometrium dan meningkatkan stadium dari kanker.

Metode: Penelitian retrospektif deskriptif analitik dengan metode potong silang. Data diperoleh dari rekam medik pasien yang dirawat dengan diagnosis kanker endometrium di Departemen Obstetri dan Ginekologi Fakultas Kedokteran Universitas Padjadjaran/Rumah Sakit Dr. Hasan Sadikin tanggal 1 Januari 2007 - 31 Desember 2011. Data dianalisis secara deskriptif.

Hasil: Didapatkan sebanyak 125 kasus kanker endometrium. Prevalensi 2,56 %. Kejadian meningkat pada umur > 40 tahun (92 %) dan mempunyai penyakit diabetes mellitus dan/atau hipertensi (66,4 %). Namun diabetes mellitus dan/atau hipertensi tidak terbukti meningkatkan stadium dari kanker endometrium.

Kesimpulan: Diabetes mellitus dan/atau hipertensi berhubungan dengan faktor risiko dari kanker endometrium tetapi tidak terbukti meningkatkan stadium dari kanker.

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Kata kunci: diabete mellitus, hipertensi, kanker endometrium

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INTRODUCTION

Endometrial carcinoma is the most common malignancy of the female genital tract, accounting for almost one half of all gynecologic cancers in the United States. In 2006, it is estimated that there were 41,200 new cases and 7,350 cancer-related deaths. Endometrial carcinoma is the fourth most common cancer, ranking behind breast, lung, and bowel cancers, and the eighth leading cause of death from malignancy in women. Overall, about 2 % to 3 % of women develop endometrial cancer during their lifetime.¹

Endometrial cancer is a disease that occurs primarily in postmenopausal women and the inci-

dence is increasing along with advancing age. The role of estrogen in the development of most endometrial cancers has clearly been established. Any factor that increases exposure to unopposed estrogen increases the risk for endometrial cancer.²

Several studies have identified risk factors of endometrial cancer among older women, such as overweight status, estrogen replacement therapy, null parity, infertility, diabetes mellitus, and hypertension.³⁻¹⁰ Most of these risk factors are related to prolonged, unopposed estrogen stimulation of the endometrium. Nulliparous women have 2 to 3 times the risk of multiparous women. Infertility and a history of irregular menses as a result of

anovulatory cycles (prolonged exposure to estrogen without sufficient progesterone) increase the risk. Natural menopause occurring after the age of 52 years old increases the risk for endometrial cancer as much as 2.4 times compared with women who had menopause before 49 years of age, probably as a result of prolonged exposure of the uterus to progesterone-deficient menstrual cycles.^{4,9,11-14}

Diabetes is associated with hypertension which in turn have been related to endometrial cancer risk.¹⁵⁻¹⁷

We therefore investigated whether a diabetes mellitus and hypertension associated with endometrial cancer and increased the staging of the cancer.

METHOD

This was analytic retrospective descriptive study with cross sectional design. Data were taken from medical record of patients admitted with diagnosed of endometrial cancer in Obstetrics and Gynecology Department of Dr. Hasan Sadikin Hospital from 1st January 2007 - 31st December 2011 and analyzed descriptively.

RESULT

There were 125 cases of endometrial cancer from 4872 gynecologic cancer that was admitted in Obstetrics and Gynecology Department of Dr. Hasan Sadikin Hospital from 1st January 2007 - 31st December 2011 with prevalence of 2.56 %.

Table 1. Distribution of endometrial cancer cases by age.

Age (y/o)	Cases (n)	Percentage (%)
< 40	10	8.0
40 - 50	36	28.8
> 50	79	63.2
Total	125	100

Table 1 showed that the prevalence of endometrial cancer increased by age, in which 92 % of the patients were above 40 years old. The age of those patients were distributed at 33 to 79 years old.

Table 2. Distribution of endometrial cancer based on underlying disease.

Underlying disease	Cases (n)	Percentage (%)
Diabetes	15	12.0
Hypertension	35	28.0
Diabetes and hypertension	33	26.4
None	42	33.6
Total	125	100

Table 2 showed that 66.4 % of the endometrial cancer patients had either diabetes mellitus and/or hypertension as their underlying disease.

Table 3. Correlation between underlying disease and endometrial cancer stage.

Underlying disease	Stage				Total
	I	II	III	IV	
Diabetes	5	4	6	0	15
Hypertension	8	8	14	5	35
Diabetes and hypertension	6	7	14	6	33
None	13	13	12	4	42
Total	32	32	46	15	125

Table 3 showed that the underlying disease either diabetes mellitus and/or hypertension cannot be proven to increase the staging of endometrial cancer.

DISCUSSION

Generally, the etiology of endometrial cancer is multi-factorial. The pathogenesis may be explained by the estrogen theory. Increased availability of estrogen to the estrogen sensitive endometrium increases the risk of endometrial cancer. Thus their separate and mutual effects on the plasma estrogen concentration explain the contribution of different risk factors. The main source of plasma estrogen in premenopausal women is the ovary. In postmenopausal women, the primary source of estrogen is the extra glandular conversion of androstenedione to estrone and estradiol. This aromatization occurs in adipose tissue, which is particularly rich in enzymes facilitating this process. In postmenopausal women the concentration of plasma estrogen is reduced by 70 % to 80 % of premenopausal level.¹⁸

In this study, the association between diabetes mellitus and/or hypertension with endometrial cancer was showed in 66.4 % patients. Some studies have found diabetes to be a risk factor for endometrial cancer among premenopausal women,¹⁹ whereas other studies have not been able to confirm this association.²⁰⁻²² The influence has been explained by higher levels of estrone and lipids in the plasma of women with diabetes.²³

Hypertension in some studies have reported an odds ratio as great as 2.1 among postmenopausal women, possibly as a result of an association between hypertension and body weight.³ Other studies have not been able to demonstrate this association.⁴

Women with diabetes mellitus and hypertension are at increased risk for endometrial cancer. Comorbid factors, primarily obesity, account for much of this risk,^{24,25} but some studies have found independent effects, as well.^{4,15,26-33} The risk of developing endometrial cancer is higher in type 2 than type 1 diabetics. Diets high in carbohydrates and associated hyperinsulinemia, insulin resistance, and elevated levels of insulin-like growth factors may play a role in endometrial proliferation and development of endometrial cancer; this is an area of active investigation.^{27,34-37}

In this study, we can see that diabetes mellitus and hypertension seems to be not associated with increasing staging of the endometrial cancer.

Other prospective study should be held using another method to improve the quality of this study.

CONCLUSION

Diabetes mellitus and/or hypertension were associated with risk factors of endometrial cancer but not proven to increase the staging of the cancer.

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