Women younger than 50 years with endometrial cancer

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Summary

Purpose of investigation: The purpose of the study was to evaluate if known risk factors for endometrial cancer in menopausal women are also related to endometrial cancer in younger ages.

Methods: Eighty-one patients with a mean age of 46.3 years diagnosed with endometrial cancer (EC) (histologically confirmed) from January of 1992 to December of 2004 were included in the study. The EC group of patients was compared with 100 patients (control group) randomly selected from the gynecologic clinic (inclusion criteria: age 43-48 years) without any endometrial cancer diagnoses that were evaluated for the same factors.

Results: Mean BMI was 34.4 kg/m^2 (SD = 8.8) in the first group and 28.3 (SD = 7.6) in the second one ($p < 0.001$). None of the women in the EC group reported any history of oral contraception. With the exception of hypertension and ovarian cancer (probably related to small numbers) all other comparisons were statistically significant (although some only marginally).

Discussion: From the results of our study, it seems that body mass index (BMI), parity, type of menstrual cycles, history of polycystic ovarian (PCO) syndrome and diabetes are possibly related to endometrial cancer in women younger than 50 years of age, and the strongest relation was found with increased BMI. Also, there was no increased incidence of hypertensive disease in the EC group.

Conclusion: Prospective studies are needed for final conclusions.

Key words: Adenocarcinoma; Endometrial carcinoma; Hypertension; Diabetes; Oral contraception; Postmenopausal menopausal women.

Introduction

Adenocarcinoma of the endometrium is a common gynecological tumor and the commonest gynecological cancer in the USA. The peak incidence of endometrial carcinoma occurs at the age of 61 years [1].

Women whose menopause is delayed beyond the age of 55, who are relatively infertile and overweight or hypertensive are more likely than other women to develop endometrial cancer [2]. In the developed world, more than 5% of women diagnosed with endometrial cancer are under 50 years of age at the time of diagnosis and 2-5% are diagnosed before age 40 [3].

The purpose of the study was to evaluate if known risk factors for endometrial cancer in menopausal women are also related to endometrial cancer in younger ages.

Methods

Eighty-one patients with a mean age of 46.3 years diagnosed with histologically confirmed endometrial cancer (EC) from January of 1992 to December of 2004 were included in the study.

Body mass index (BMI), parity, hypertension, diabetes, oral contraception, polycystic ovarian syndrome/PCOS (confirmed diagnosis), irregular menstrual cycles (intervals of more than 40 days or less than 20 days on at least 5 occasions) and personal or family history of cancer were examined as factors possibly related to endometrial cancer.

The EC group of patients was compared with 100 patients (control group) randomly selected from the gynecologic clinic (inclusion criteria: age 43-48 years) without any endometrial cancer diagnoses that were evaluated for the same factors.

Entering the individual data values, the Student's independent t-test (non-paired) was used to assess the significance of differences between the two groups for BMI. Both groups had approximately normal populations (normal distribution of values) and the test compared their means.

The chi-square test (with more than 20 subjects in each group) was used for characteristic comparisons.

Results

Mean BMI was 34.4 kg/m^2 (SD = 8.8) in the EC group and 28.3 (SD = 7.6) in the control group ($p < 0.001$) (Table 1).

Fifty-five and 45 patients were nulliparous in the first and second groups, respectively ($p = 0.002$).

Table 1. — *Comparison of body mass index values between the group of patients with endometrial cancer (EC) and the control group (CG).*

Body Mass Index	EC	CG
< 28	14	44
28.1 to 30	7	11
30.1 to 32	6	6
32.1 to 34	14	9
> 34	40	30
Total	81	100

Revised manuscript accepted for publication September 12, 2005

Thirty and 23 patients reported irregular menstrual cycles in the first and second groups, respectively ($p = 0.03$) and a confirmed diagnosis of PCO syndrome was reported in three patients of the EC group but in none of the control group ($p = 0.05$).

None of the women in the EC group reported a history of oral contraception, while five women in the control group reported use of oral contraception for a duration of seven to 38 months ($p = 0.04$): ethinylestradiol 30 μg with desogestrel 0.15 mg (Marvelon), ethinylestradiol 20 μg with desogestrel 0.15 mg (Mercilon) and ethinylestradiol 30 μg with gestodene 0.15 mg (Gynera) were used by two, two and one woman a total of five women, respectively.

Seventeen women in the EC group and seven women in the control group had a history of diabetes ($p = 0.005$).

Twelve women in the EC group and seven women in the control group had a history of hypertension ($p = 0.08$). Finally, two patients in the EC group and none in the control group had ovarian cancer ($p = 0.1$).

With the exception of hypertension and ovarian cancer (propably related to small numbers) all other comparisons were statistically significant (although some only marginally).

Discussion and Conclusion

There appear to be two pathogenetic types of endometrial carcinoma [4]. The type of endometrial carcinoma that occurs in women with no source of estrogen stimulation of the endometrium is present in older, postmenopausal and thin women. On the other hand, the more common type occurs in younger, perimenopausal women with a history of exposure to unopposed estrogen, either endogenous or exogenous [5].

Many of the risk factors for endometrial carcinoma and hyperplasia are related to prolonged unopposed hyperestrogenism [6]. From the results of our study, it seems that BMI, parity, type of menstrual cycles, history of PCO syndrome and diabetes are possibly related to endometrial cancer in women younger than 50 years of age, and the strongest relation was found with increased BMI. It is already known that the risk for endometrial cancer is increased three times in women who are 21 to 50 pounds overweight and ten times in those more than 50 pounds overweight [5]. This relation in postmenopausal women is obvious because after menopause, the ovarian stroma continues to produce androgens, which with adrenally produced androstendione are converted to the estrogen (estrone) in fat cells [6]. As there is no corresponding increase in progesterone to oppose the effects of excess estrogen on the endometrium, this results in endometrial hyperplasia and malignancy in obese patients and approximately half of the women who develop endometrial carcinoma are grossly overweight [1]. This could be partly explained by the association of obesity with endometrial cancer in the EC group in our study but a relatively high percentage (64%) of these women had regular cycles. Nonetheless ovulation and progesterone production could be concluded, taking into account that anovulation presents with amenorrhoea and oligomenorrhea and low serum progesteron, which complicates the previous interpretations [7]. It should also be noted that although increased BMI was strongly related to endometrial cancer in the young women of our study, 30 patients of the control group had a BMI greater than 34 and 27 of them had a BMI which was higher than the mean BMI of the EC group. It seems probable than other factors related to weight play an important role in the etiology of the disease (specific diet, exercise, etc.) but these were not evaluated in our study.

A threefold increase of diabetes mellitus was detected in the EC group which is relatively high in relation to the twofold increase which is generally detected in patients with endometrial carcinoma [1].

There was no increased incidence of hypertensive disease in the EC group but this could be related to small numbers and the fact that the relation of endometrial cancer and hypertension is probably a secondary association [1].

Prospective studies are needed for final conclusions.

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