RISK FACTORS OF ENDOMETRIAL CANCER IN PALERMO

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Summary: A case-control study on 150 cases and 300 non-neoplastic controls admitted to the Obstetric and Gynaecologic Clinic B of the University of Palermo from 1977 to 1986 was carried out in order to assess the risk factors of corpus uteri cancer in Palermo area.

Age at menarche <11, menopausal status, nulliparity, diabetes and obesity were found significantly associated with the risk of cancer; family history of neoplastic disease was slightly under statistical significance.

It can be concluded that the same etiologic factors of endometrial cancer, as in other areas, may be operating in Palermo women.

INTRODUCTION

Endometrial cancer is the second most frequent cancer in females, after breast cancer, in developed countries ([1]).

Several analytical studies have investigated the associated risk factors, including reproductive factors, diet, methabolic diseases ([2-5]). Although data for some factors were largely coincident in many studies, both qualitatively and quantitatively, for some others conflicting results were reported.

Since it is likely that factors of the "ecological" type, concerning lifestyle, ancestry, diet, may be operating differently in populations geographically and socially distinct, we have carried out a case-control study on 150 cases of corpus uteri cancer observed in the Department of Gynaecology in Palermo between 1977 and 1986.

PATIENTS AND METHODS

All cases of endometrial cancer admitted to the Obstetric and Gynaecologic Clinic B of the University of Palermo between January 1st 1977 and December 31st 1986 were studied. All cases had histologically confirmed diagnosis; 97% of them were adenocarcinomas.

Two controls for each case, without neoplastic pathology but of the same age (±2.5 years) as the case and admitted to the Clinic in the same year were randomly chosen. Hysterectomized women were excluded from the control group.

Data on age, education, occupation of patient and husband, age at menarche, menopause, regularity of the cycle, parity, number of miscarriages, age at first birth, weight, height, previous benign diseases of the reproductive organs (miomas, polyps, ovarian cysts), diabetes, hypertension, family history of neoplasia and blood group were obtained from medical records. An index of socioeconomic status was calculated by a scoring system taking into account years of education, and occupation both of the patient and of her husband (when married).

Data analysis. Statistical significance of difference between cases and controls in the distribution of each variable was assessed by means of Chi square test and, when appropriate, by Chi square for trend. Odds ratios were calculated and 95% confidence limits were computed according to Woolf ([6]). Mantel-Haenszel method ([7]) was used to adjust for confoundings when appropriate.

RESULTS

One hundred and fifty cases of endometrial cancer (mean age 62±8.1 years) and 300 controls (mean age 61.9±8.3 years) were studied. In table 1 distribution for age of cases and controls is shown.

Data concerning reproductive factors (age at menarche, menopausal status and age at menopause, regularity of menstrual

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Table 1. – *Distribution of cases and controls for age.*

	Cases	Controls
Total	150	300
Mean age	62.0	61.9
SD	8.1	8.3
Range	42-84	40-83
Age: 40-44	3	6
45-49	5	10
50-54	17	36
55-59	35	64
60-64	33	70
65-69	29	58
70-74	18	38
75-79	7	16
80-84	3	2

cycle, age at first birth, parity, number of miscarriages) are shown in table 2.

Risk of endometrial cancer was increased in women with early menarche (<11 years): menarche at 13-14 had an OR of 0.36 (95% CL 0.14-0.97) and late menarche (>= 15 years) an OR of 0.25 (95% CL 0.08-0.76); a linear trend was present ($p<0.05$). Menopausal status was associated to the risk of cancer, with an OR of 3.61 (95% CL 1.24-10.51), while no significant differences were observed with respect to age at menopause and regularity of menstrual cycle.

Age at first birth was not associated with endometrial cancer, while risk of cancer decreased with the number of children: patients having had 1-2 births had an OR of 0.23 (95% CL 0.12-0.43), 3-4 births an OR of 0.13 (95% CL 0.07-0.25) and more than 4 births an OR of 0.06 (95% CL 0.03-0.14) versus nulliparity; a linear trend was clearly present ($p<0.01$). Also the number of miscarriages was related to cancer risk, but it was no longer significant after adjusting for parity.

Hypertension was not a risk factor, while diabetes had an OR of 2.06 (95% CL 1.22-3.49). Obesity, evaluated by means of Quetelet index, was found to be a risk factor: a Quetelet index >30 had an OR of 2.38 (95% CL 1.00-5.64) and a linear trend was present ($p < 0.05$); when adjusting for presence of diabetes its significance disappeared (see tab. 3).

No differences between cases and controls were found with respect to previous benign diseases of the reproductive organs, socioeconomic status or blood group. Family history for neoplastic disease had an OR of 2.18 (95% CL 0.99-4.78), with a p slightly above 0.05 (see tab. 3).

DISCUSSION

The results of the present study confirm that cases of endometrial cancer in Palermo area also share most of the risk factors observed in other female populations. Early age at menarche, menopausal status (but not age at menopause), nulliparity or low parity, diabetes and family history of neoplasia are associated with corpus uteri cancer in Palermo women. Obesity, as judged by the Quetelet index, was also associated and a significant trend was shown. However, when adjusting for diabetes, statistical significance disappeared, although OR of Quetelet index >30 versus <25 was 1.98. Since weight and height data were available for few cases and controls, confounding effect of diabetes could be lowered if a larger number of cases and controls had been tested.

The number of miscarriages appeared to be a protective factor, but no trend was shown and statistical significance was lost when adjusting for parity, although OR for 1-2 versus no abortion was 0.59 and confidence limits were just below statistical significance.

Hypertension and socioeconomic status failed to show an association with cancer risk. Family history of neoplastic disease

Table 2. – *Distribution of cases and controls for reproductive factors.*

	Cases	Controls	OR	95% CL	p trend
Age at menarche					
<11	10	8	1 *		
11 - 12	56	100	0.45	0.17-1.20	
13 - 14	57	125	0.36 **	0.14-0.97	
>=15	15	47	0.25 **	0.08-0.76	<0.05
Menopause					
No	4	27	1 *		
Yes	146	273	3.61 **	1.24-10.51	–
Age at menopause					
<40	3	6	1 *		
40 - 44	9	24	0.75	0.15-3.65	
45 - 49	34	73	0.93	0.22-3.95	
50 - 54	74	120	1.23	0.30-5.08	
>=55	16	36	0.89	0.20-4.01	N.S.
Menstrual cycle					
Regular	123	237	1 *		
Irregular	12	37	0.62	0.32-1.24	–
Age at first birth					
<20	4	17	1 *		
20 - 24	17	54	1.34	0.40-4.52	
25 - 29	18	47	1.63	0.48-5.50	
>=30	15	27	2.36	0.67-8.31	N.S.
Parity					
0	49	20	1 *		
1 - 2	52	91	0.23 **	0.12-0.43	
3 - 4	37	113	0.13 **	0.07-0.25	
>=5	12	76	0.06 **	0.03-0.14	<0.01
No. of miscarriages					
0	110	158	1 *		
1 - 2	28	113	0.36 **	2.22-0.57 **	
>=3	12	29	0.59	0.29-1.21	N.S.
No. of miscarriages stratified for parity					
0			1 *		
1 - 2			0.59	0.34-1.04	
>=3			1.07	0.00-56.56	

* Reference category
** p <0.05

Table 3. – *Distribution of cases and controls for other factors.*

	Cases	Controls	OR	95% CL	p trend
Socioeconomic class					
1	4	9	1 *		
2	16	53	0.68	0.18-2.50	
3	37	57	1.46	0.42-5.09	
4	40	99	0.91	0.26-3.12	
5	4	9	1.00	0.19-5.29	N.S.
Blood group					
O	68	125	1 *		
A	51	105	0.98	0.57-1.39	
B	23	51	0.83	0.47-1.47	
AB	5	15	0.61	0.21-1.76	–
Family history					
No	89	168	1 *		
Yes	15	13	2.18	0.99-4.78	–
Previous miomas					
No	148	249	1 *		
Yes	0	2	0.67	0.03-16.60	–
Previous polyps					
No	137	268	1 *		
Yes	11	31	0.69	0.34-1.42	-
Prev. ovarian cysts					
No	145	293	1 *		
Yes	3	4	1.52	0.33-6.86	–
Hypertension					
No	96	213	1 *		
Yes	53	86	1.37	0.90-2.08	–
Diabetes					
No	117	264	1 *		
Yes	32	35	2.06 **	1.22-3.49	–
Quetelet index					
<25	12	35	1 *		
25 - 30	25	38	1.92	0.84-4.39	
>30	22	27	2.38 **	1.00-6.54	<0.05
Quetelet index stratified for diabetes					
<25			1 *		
25 - 30			1.85	0.70-4.90	
>30			1.98	0.70-5.58	

* Reference class
** $p < 0.05$

had an OR of 2.18 and was just below statistical significance.

It can be concluded that endometrial cancer in Palermo women is attributable to the same etiologic factors as in other areas where such studies have been conducted.

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