

## EPIDEMIOLOGICAL STUDY OF OVARIAN NEOPLASMS

DILIP KUMAR CHAKRABORTTI • CHEO MIN SANDRA LEE

### SUMMARY

**An epidemiological study of the Ovarian neoplasms was conducted. Incidence, relation of age, parity socioeconomic status, educational standard, heredity, blood group, diet, addiction and menstrual functions were critically evaluated. Significant risk factors were pointed out for the incidence of ovarian neoplasms specially of malignant type in the population.**

Ovarian neoplasm is the most fascinating tumour in the women in terms of its histogenesis, clinical behaviour and malignant potentiality. It has been mentioned that about 15 to 25 percent (%) of all primary malignancies in female generative organs arise in the ovary (Benson, 1976). It is labelled as the common cause of death from gynaecological malignancies in the West.

Ovary being an intra abdominal organ diagnosis of ovarian malignancy is often late. Unlike carcinoma of cervix, highrisk population of ovarian malignancy has not yet been identified. Hence an attempt to study the epidemiological factors of ovarian neoplasm and also of the malig-

nant type in particular may be of great help to identify the highrisk population. Subsequently screening procedures may be undertaken periodically which would help to diagnose the neoplasm at its earliest stage for better prognosis.

Epidemiology refers to the study of the relationship of the various factors determining the frequency, or incidence, distribution and the control of the disease in a particular human population. These factors were retrospectively studied in cases of ovarian neoplasms admitted in the Gynaecological Unit of the Eden Hospital, Medical College, Calcutta during the last 5 years from January, 1984 to December 1988.

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*Department of Obstetrics and Gynaecology, Eden Hospital & Medical College, Calcutta, West Bengal.  
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**Results and Analysis**

**TABLE - I**  
**INCIDENCE OF OVARIAN NEOPLASMS**

Period of study	Gynec. admission	Ovarian neoplasm	Incidence (%)
1984-1988	28,914	372	1.29

**TABLE - II**  
**INCIDENCE OF BENIGN AND MALIGNANT OVARIAN NEOPLASMS**

Total no. of cases	Benign	Malignant
372	276 (74.2%)	96 (25.8%)

These comprise 0.95% benign and 0.33% malignant ovarian tumours amongst Gynaecological admissions.

**TABLE - III**  
**AGE DISTRIBUTIONS OF OVARIAN NEOPLASMS**

Age group	Benign	Malignant
Upto 20 years (8 - 20 years)	70	14
21 to 40 years	167	8
41 to 60 years	32	61
over 60 years	7	13
<b>Total</b>	<b>276</b>	<b>96</b>

In the benign group highest number of cases i.e. 167 (60.5%) belong to the age group of 21 to 40 years. Amongst the malignant ovarian neoplasms the highest number of cases occurred in the age group of over 40 years i.e. 74 (77%).

This shows that maximum number of ovarian neoplasms occurred in the nulliparous or low parity women. Taking both the groups (benign and malignant) it comprises 285 cases (76.6%) and for the

**TABLE - IV**  
**RELATIONSHIP OF PARITY TO TYPES OF OVARIAN NEOPLASMS**

Parity	Benign	Malignant
Nulliparous	91	36
Para 1 to 2	136	22
Para 3 to 5	35	17
Para over 5	14	21

malignant growth 58 cases (60.4%) belong to this group.

**TABLE - V**  
**ADDICTIONS AND OVARIAN NEOPLASMS**

Nature of tumours	Addicted	No addictions
Benign	68	208
Malignant	59	37
	127(39.1%)	245(65.9%)

A significant number of women amongst the malignant group i.e. 59 out of 96 cases (61.4%) were addicted to betel leaf, tobacco and bidi smoking.

**TABLE - VI**  
**MENSTRUAL FUNCTIONS AND OVARIAN NEOPLASMS**

Ovarian neoplasm	Age of menarche 10-12	13-16	Age of menopause less 40	41-50	over 50
Benign	99	177	—	7	14
Malignant	80	16	4	20	40

This table shows that malignant ovarian neoplasms are associated with a slightly earlier age of menarche. In the majority of the cases menstruation started at the age group of 10 to 12 years (80 cases, 83.3%). In 2 cases of malignant ovarian tumour occurred in pre-pubertal girls. The majority of post-menopausal women were



in the malignant group i.e. 64 out of 85 post-menopausal women (75.2%). Malignant ovarian neoplasms are found to be associated with a slightly delayed menopause (40 cases, 62.5%).

#### **Other factors studied**

1. **Marital status** : In 258 cases (70%) of the ovarian neoplasms the patients were married or widowed, and the rest 110 (30%) were single.
2. **Socio-economic status** : Majority of the cases i.e. 250 (67%) belong to low socio-economic class; this is true for both benign and malignant neoplasm.
3. **Occupation** : Majority of the women, 270 (72.5%) were housewives; applicable to both benign and malignant neoplasms.
4. **Diet** : Most of the patients were non-vegetarian i.e. 318(85.5%) cases were used to take a mixed diet consisting of carbohydrate (rice) and a low quantity of protein and fat. They were thin built, extremely cachectic mostly in the malignant group. Only in 9 cases the patients were obese (over 80 kg).
5. **Education** : Largest group of women i.e. 212(57%) were illiterate; in 136 (37%) the patients had primary/school education and the rest 24 (6%) had higher education.
6. **Racial and hereditary factors** : No significant relationship was found in this study. However, in 5 cases there was history suggestive for ovarian neoplasms of the malignant type in mothers and sisters (5.2%).
7. **Blood group** : No definite correlation was detected between a particular blood group and incidence of ovarian neoplasms specially of malignant type.

Out of 96 cases of the malignant neoplasms in 46 cases (47.9%) the patients were of blood group A, Rh-positive.

8. **Use of hormones** : No correlation was detected amongst women who used exogenous hormones for gynaecological disorders. Relation of oral pill (contraceptive pill) was not studied as the majority of the cases were ignorant of any methods (83.7%). Only 42 cases (11.3%) gave history of using some contraceptive methods including O.C. pill.

#### **Discussion**

The epidemiological research with regard to ovarian neoplasms is sparse. Only few workers in the past attempted to study the epidemiological factors in relation to ovarian neoplasm. The relative frequency of benign and malignant neoplasms have been variously reported as 19.4% (Bennigton et al, 1968), 25% (Rao, 1984) for malignant ovarian neoplasms which are comparable to 25.8% in the present study.

Ovarian neoplasm can occur in all age groups and no age is exempt. Beck and Latour (1975) reported average age of benign ovarian tumours as 41.3 years. In this study the majority of benign tumours occur in the age group of 21 to 40 years (60.5%). On the other hand the malignant growths of the ovary are found mostly in the older patients as reported by most of the previous workers. Corcarden (1956) reported that 60% of the malignant ovarian tumours occur after 50 years of age. In this study the maximum number of malignant tumours (77%) occurred after 40 years of age. Moreover, a significant number of malignant ovarian neoplasms were found



in children and adolescent girls in relation to the total number of gynaecological admission in this age group (8 to 20 years). Thus malignant ovarian neoplasms occurred in the extremes of age group.

Much work has been done to reveal a possible relationship between parity and incidence of ovarian neoplasm. Most of the previous workers (Beral et al, 1978; Thompson et al, 1967 and Cásagraden, 1979) reported a higher incidence of ovarian neoplasms among nulliparous and low parity women. In this study the majority of ovarian neoplasms occurred in the nulliparous or low parity women (76.6%). Major bulk of the malignant neoplasms also occurred in nulliparous or low parity women (60.4%). This suggests that pregnancy or some component of the child bearing process protects directly against ovarian neoplasm and also ovarian malignancy. Fathalla (1971) brought evidence of a possible relationship between repeated involvement of the ovarian surface epithelium in the process of ovulation and frequency of ovarian neoplasms of epithelial origin. In patients denied of the ovarian physiological rest periods afforded by pregnancies (nuns and unmarried fertile women) a higher incidence of ovarian cancer has been reported. This is also shown by the fact that women taking oral contraceptive pill have some protection from ovarian cancer. This might be related to suppression of ovulation and gonadotrophin release. Stone et al (1963) reported that not only the incidence of ovarian cancer to decrease with increase in parity but nulliparous exhibit a poorer response to the disease.

In this study no correlation was detected with regard to socio-economic group, marital status, occupation, consumption

of a particular diet and use of contraceptive pill. Mattison and Thorgeirsson (1978) reported that malignant ovarian neoplasms were highest in the industrial urban regions, workers of rubber and textile industries and among cigarette smokers. But addiction of betel leaf, tobacco and bidi smoking was detected in significant number of women with malignant ovarian neoplasms (61.4%). During the last two decades there have been an increasing body of evidence in the literature in support of the hereditary etiology for a variety of cancers including ovarian cancer. It has been found that sisters and daughters of ovarian cancer cases may harbour an approximately 50% cancer risk. But no definite hereditary association was detected in this study.

Peel (1986) observed that early menarche and late menopause was associated with increased risk of ovarian cancer. A similar finding was detected in the present study as the majority of malignant ovarian tumour cases menstruation started (menarche) at the age of 10 to 12 years (83.3%). In 2 cases malignancy occurred in pre-pubertal girls. Further, the majority of malignant ovarian tumour cases the menopause was delayed (62.5%) and also occurred in post-menopausal women (75.2%).

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