EPIDEMIOLOGICAL STUDY OF OVARIAN MALIGNANCY†

(A Review of 117 Cases)

by

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Although cancer cervix is the commonest malignancy of all cancers of female genital organs, cancer ovary is now the leading cause of death amongst all gynaecological cancers. Cancer of the ovary is important because it is badly neglected both by the patients and by the physicians, resulting in detection of cases mostly in the advanced stage, when neither effective surgery nor chemotherapy can be done.

The present study is to find out the correlation of the epidemiological factors in ovarian cancer. Of 364 cases of ovarian tumours attending the Eden Hospital, Medical College, Calcutta, during the period from 1966 to 1974, 117 were found to be malignant. These cases were critically analysed for various

factors suspected to have a direct or indirect relationship with the epidemiological aspect of ovarian malignancy, e.g., age, marital status, parity, period of secondary infertility, residence, socioeconomic status, religion and menstrual function.

Table I shows the incidence of malignant ovarian tumour in different age groups.

TABLE I
Age Distribution

Age in years	No. of cases	Percentage
Upto 10	5	4.3
11 to 20	14	12.2
21 to 30	11	9.5
31 to 40	32	26.5
41 to 50	25	21.6
51 to 60	20	17.3
61 & above	10	8.6
	117	100.0

The above Table shows that the incidence of malignant ovarian tumour was highest in the age group between 31 to 40 i.e. 26.5 per cent. Of all the malignant cases, 48.1 per cent were found to occur between 31 and 50 years of age.

The vast majority of cases of ovarian cancer were married—107 out of 117 (82.8 per cent). Of these, 70 were married between the age of 16 to 20 years (65.4 per cent). This is of no statistical significance as this is the common age group in which majority of women attending the Eden Hospital are married.

Table II shows incidence of ovarian malignancy in relation to parity.

associated with secondary sterility (3.6 per cent) than malignant ovarian tumours (1.7 per cent). But ovarian malignancy was definitely more commonly observed in those cases where secondary sterility was present at the peak of the age of reproductive period in between 25 and 30 years.

Table IV shows total number of patients with ovarian malignancy in dif-

TABLE II
Parity

Parity		No. of cases (117 cases)	Percentage
NULLIPAROUS		22	18.9
Unmarried		10	8.6
Married		12	10.3
PAROUS		95	81.1
Below	3	76	64.9
More than	3	19	16.2

The above Table represents the relation of parity with incidence of ovarian malignancy, 81.1 per cent occurring in parous women. Of them the number of cases who have less than three pregnancies was higher (64.9 per cent) than the one having more than three pregnancies.

Table III shows the distribution of cases of ovarian tumour in relation to secondary sterility of more than 10 years.

The above Table shows that benign ovarian tumours were more commonly

ferent age group with number and percentage of cases having menopause.

TABLE III

Ovarian Tumour and Cases of Sterility of more than 10 Years

Benign Ovarian tumour	281
Ovarian tumour with sterility	10 (3.6%)
Ovarian malignancy	117
Ovarian malignancy with sterility	2 (1.7%)

TABLE IV
Relationship With the Age of Menopause

Age of Menopause in years	No. of patients	No. of Menopause cases	Percentage
31 to 40	32	12	37.5
41 to 50	25	23	92.0
51 & above	30	30	100.0
	87	65	76.4

Significant finding from the above Table is that ovarian malignancy was of higher incidence (i.e. 92.0 per cent) when the menopause occurred between 41 and 50 years. The total number of patients with ovarian cancer who attained menopause at the age of 31 years and above was 65 out of 87—the percentage being 76.4.

Table V shows an incidence of menstrual disorder in benign and malignant ovarian tumours.

The incidence of ovarian cancer is predominantly higher amongst the Hindus (87.2 per cent) in comparison to the Muslims (10.3 per cent). But although the average hospital attendance of the Muslims is only 3 per cent the incidence of ovarian malignancy was definitely higher among the Muslim (10.3 per cent).

Table VI shows distribution of cases of ovarian malignancy according to involvement of one or both ovaries and source of

TABLE V

Menstrual Disorder in Benign and Malignant Ovarian Tumours

Benign ovarian tumour	: 281	Malignant ovarian tumour	: 117
Menstrual disorder	: 59	Menstrual disorder	: 15
Percentage	: 22.0	Percentage	: 12.8

The above Table shows that although there was increase of menstrual disorder in benign ovarian tumour (22.0 per cent) in comparison to that of malignant tumours (12.8 per cent) there was no statistical significance of the same. Oligomenorrhoea (4.2 per cent) and amenorrhoea (5.6 per cent) in malignant ovarian tumour cases can be explained either by complete destruction of functioning ovarian tissue or low general condition or by both.

Ovarian cancer was commonest amongst the lower socio-economic group —75 out of 117 cases (64 per cent).

secondary ovarian lesions.

Table VI reveals that 87.2 per cent of cases of ovarian malignancy were unilateral. Both the ovaries were found to be involved in 12.8 per cent of cases. Secondary malignant ovarian tumours with bilateral involvement were observed in 5.1 per cent cases. The source of the secondary deposits were traced to stomach (3 cases) colon (2 cases) and gall-bladder (1 case).

Table VII shows distribution of cases of ovarian malignancy according to histopathological varieties.

TABLE VI

Distribution of Ovarian Malignancy in One or Both Ovaries and Sources of Secondary Lesions

Distribution		No. of cases	Percentage
Total No. of Cancer Ovary		117	100.0
No. of Unilateral Cancer Ovary:		102	87.2
No. of Bilateral Cancer Ovary:		15	12.8
Primary:	9		7.7
Secondary:	6		5.1
From stomach	: 3		2.5
From colon	: 2		1.7
From gall-bladder	: 1		0.9

TABLE VII

Distribution of Cases According to Histopathological Varieties

Pathological Variety	No. of cases	Percentage
Serous cystadenocarcinoma	2	1.7
Serous papillary cystadenocarcinoma	39	33.4
Mucinous cystadenocarcinoma	20	17.2
Malignant endometriol tumour (Adenocarcinoma)	10	8.5
Clear cell tumour	15	12.7
Mesonephroma	6	5.1
Krukenberg	9	7.7
Granulosa cell tumour	6	5.1
Dysgerminoma	12	10.2
Teratoma (malignant)	5	4.2
Dermoid cyst (Epidermoid carcinoma)	2	1.7
Leiomyosarcoma	1	0.9
Mixed mesodermal tumour	1	0.9
Arrhenoblastoma	1	0.9
Sarcoma	1	0.9

From Table VII it is seen that the serous papillary cystadenocarcinoma was found in 33.4 per cent of all ovarian malignancy. So this pathological entity is the commonest variety in our study group. Second was mucinous cystadeno-carcinoma 17.2 per cent. Third variety was the clear cell tumour in 12.7 per cent of all cases. There were two types of tumours found in this group and they are mesonephroma (5.1 per cent) and Krukenberg (7.7 per cent). The very interesting feature is the presence of 12 cases of dysgerminoma giving an incidence of 10.2 per cent.

Discussion

Of all the female genital cancers ovarian cancer has got the worst prognosis. According to statistical analysis by the American Cancer Society (1967), death rate from ovarian carcinoma has increased steadily during the last 35 years almost upto four times from 4 per 100,000 of female population in 1940 to 15 per 100,000 female population in 1975. During the same period the death rate

from uterine cancer was reduced by one half. Randall (1954) has reported that women above the age of 40 years are likely to have ovarian cancer in 0.9 per cent and this risk increased to a peak of 4 per cent at the age of 70 years. According to previous reports incidence of ovarian malignancy varies from 10.2 per cent to 15.2 per cent of the female genital cancer (Allan and Hertig, 1949; Dockerty, 1945; Mc. Garrity, 1971). According to McGarrity (1971) ovarian cancer is exceeded only by cervical (58.2 per cent) and endometrial (25.8 per cent) cancer. But the present series suggests that although the incidence of ovarian cancer is outnumbered by cancer cervix, the incidence of the former is almost 3 times more than endometrial cancers.

The commonest age group in the present series for ovarian cancer was 31 to 40 years (26 per cent), followed subsequently by 41 to 50 years (21.6 per cent) and 51 to 60 years (17.3 per cent). This is quite contrary to the findings of the western authors namely Gusberg and Frick (1970) whose most ovarian cancers

occurred in the 5th and 6th decade of life—60 per cent after 50 years, 30 per cent during child bearing and 10 per cent in youth. Higher incidence of ovarian cancer in young age group may be attributed to low socioeconomic and poor nutritional status, leading to pelvic infection and more likelihood of destruction of normal ovarian function. A significant observation in the present study is that the ovarian malignancy more commonly occurs in cases of secondary sterility present at the peak of the reproductive period, that is between 25 and 30 years of age. Nulliparity was present in this series in 18.9 per cent of cases. This incidence is much less than the figures quoted by Golub (1953), Allan and Hertig (1949), Pearse and Berhman (1954) Gusberg and Frick (1970) found the incidence of ovarian cancer in nulliparous women as 32 per cent. This seems to be significant but the nature of the relationship cannot be explained.

A highly significant observation in the present series was increased incidence of ovarian cancer in menopausal subjects. Out of 87 patients in the perimenopausal age from 31 years onward, there were 65 cases in menopause i.e. 76.4 per cent. The commonest age incidence of ovarian malignancy was 41 to 50 years in which ovarian cancer developed in 23 menopausal cases out of 25 i.e. 92 per cent. The corresponding figure of Allan and Hertig's series was 61 per cent (1949): Parker et al series (1960)—63 per cent.

The commonest histological variety in the present series was papillary serous cystadenocarcinoma (33.4 per cent) followed by mucinous cystadenocarcinoma (17.2 per cent), clear cell tumour 12.7 per cent and dysgerminoma 10.2 per cent.

Isaac et al 1974, reported (90 per cent)

adenocarcinoma. The incidence of functioning type of tumours was 14 per cent, whereas in the present series there were 6 cases of granulosa cell tumour, struma ovarii 2 cases, arrhenoblastoma 1. There were 9 cases of Krukenberg tumour in the present series of which 2 were primary. This is usually rare, as Krukenberg tumour is almost always associated with primary lesion situated somewhere else.

Summary

An analysis of 117 cases of ovarian cancer was made for various factors suspected to have a direct or indirect relationship with ovarian malignancy as age, parity, marital status, age of menopause, menstrual disorder, socio-economic status, etc.

The main purpose of this study of the epidemiological aspect of ovarian cancer is to detect particular type of patients, if possible who are in special danger of this malady.

Acknowledgement

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