

HORMONAL FACTORS IN THE EPIDEMIOLOGY OF MALIGNANT OVARIAN TUMOURS†

by

INDRA RANDHAWA,* M.B.,B.S., M.D., M.R.C.O.G.

PUSPH LATA SOOD,** M.B.,B.S.

TARAVATI GUPTA,*** M.B.,B.S., M.S.

and

R. D. SHARAMA, M.B.,B.S., M.D.

Introduction

The role of oestrogens in the causation of endometrial carcinoma has been well established, but very little study has been done on the aetiopathogenesis of malignant ovarian tumours. There is a suggestion, that the epithelial ovarian tumours may be related to the hormonal secretion of the pituitary-gonad axis. Joly *et al* (1974) have noted a protective effect of pregnancy for cancers of the ovary. In this paper, the hormonal factors in the patients with ovarian cancer have been studied.

Material and Methods

The study is based on 60 consecutive primary ovarian cancers, which were admitted in the Department of Obstetrics and Gynaecology, H.P. Medical College, Lady Reading Hospital, Simla, from October 1974 to June, 1980. The hormonal

factors involved have mainly been studied.

Observations

Parity

In this study, 57 women were married, and 3 were single, one being a girl of 12 years. The parity was taken of the 59 adult women. The fertility was found to be markedly low in the women with ovarian malignancy. Table I shows the incidence of ovarian malignancy in relation to parity. The nulliparity rate was 40.6 per cent (24 cases) and another 23.6 per cent (14 cases) of women were para 2 and less, again showing low fertility.

Another interesting feature was that 15 women (25 per cent) had secondary sterility in the age group of 20 to 30 years, that is at the peak of reproductive life.

TABLE I
Parity

Parity	No. of cases	Percentage
Nullipara	24	40.6
1	8	13.5
2	6	10.1
3	6	10.1
4 and above	15	24.4
	59	23.6

*Professor and Head.

**Registrar.

***Associate Professor.

Dept. of Obstetrics and Gynaecology.

H.P. Medical College, Lady Reading Hospital, Simla.

†Paper presented at, "The First National Congress on Hormones and Human Reproduction", Bombay, November 22 to 25, 1980.

Accepted for publication on 27-5-81.

Age

The malignant ovarian tumours were most common in the 31 to 60 year age group, forming 76.6 per cent, with a peak incidence of 36.6 per cent (22 out of 60 cases) in the 41 to 50 years age group.

Age of Menopause

Thirty women were post-menopausal in this study and the mean age was 43.7 years, which was comparable, with the age of menopause, of women having uterine prolapse. There were however 6 women (10 per cent) still menstruating after the age of 45 years.

Histology of the Malignant Ovarian Tumours

Table II shows the histology of the ovarian cancers. The commonest variety was the papillary cystadenocarcinomas, in 21 cases, giving an incidence of 35 per cent. Eighteen were mesenchymal tumours, giving an incidence of 30 per cent, of all the malignant ovarian tumours.

Discussion

From the preceding observations, it was noted that ovarian cancers are asso-

ciated with low parity. The mean parity of the women with ovarian cancer was only 2.15, which is significantly low for our country. In the present study, the nulliparous women were 40.6 per cent. Gusberg and Frick (1970) also found a high incidence of nulliparous women 32%, with ovarian cancer. Fraumeni *et al* (1969) have also observed relative infertility in nuns and single women to be a common feature of women with ovarian cancer. In the study of Chowdhury *et al* (1977) however, the nulliparous women were only 18.9 per cent.

It was further noted, that secondary sterility was present, in 15 women (25 per cent) in the age group of 20 to 30 years. Chowdhury *et al* (1977) also observed that 76 out of the 95 parous women with ovarian cancer were below para 3. They further stated, that ovarian malignancy occurs more commonly in cases of secondary sterility at the peak of reproductive life, that is between 25 to 30 years of age.

According to Fathella (1972) continuous ovulation in women may play a contributory role, in the neoplasia of the surface epithelium of the ovary. Taking the hypothesis of Fathella (1972) in view, it was noted that there were 37 epithelial

TABLE II
Histology of Malignant Ovarian Tumours

Histology	No. of cases	Percentage
Papillary cystadenocarcinoma	21	35.0
Pseudomucinous cystadenocarcinoma	7	11.6
Solid carcinoma (Adenocarcinoma, Undifferentiated, and Mesonephroma)	9	15.0
Dysgerminoma	7	11.6
Granulosa cell carcinoma	9	15.1
Theca cell carcinoma	1	1.6
Gynandroblastoma	1	1.6
Fibrosarcoma	1	1.6
Malignant Brenner tumour	1	1.6
Report not available	3	5.0

carcinomas in the present study. In these patients the nulliparous women were 19 (51.3 per cent) and 8 (21.6 per cent) had secondary sterility between the 20 to 30 years age group, and only 10 (27 per cent) showed normal reproduction.

The inference to these findings are that pregnancy seems to have a protective effect against the development of ovarian cancer due to the inhibition of ovulation. Similarly, oral contraceptives should be protective against ovarian malignancy, whereas tubal ligation in the age group of 25 to 30 years may lead to a slight increase in the incidence of ovarian malignancy.

The validity of this hypothesis is however awaited.

The mean age of menopause was 43.7 years in this study, which was not significant.

Summary

A study of 60 consecutive cases of primary ovarian cancer, has been made. The hormonal factors in the epidemiology of the tumours have been highlighted.

In this study, it was found that 40.6 per cent (24 cases) of the women with ovarian

cancer were nulliparous, and the mean parity of the patients was only 2.15. It was further noted that 25 per cent (15 cases) of the parous patients had secondary sterility in the age group of 20 to 30 years. These findings suggest that uninterrupted ovulation, leads to an increased incidence of ovarian malignancy, especially of the epithelial neoplasms.

Acknowledgement

"The authors are grateful to Mr. Ranjeet S. Chauhan, for typing the script."

References

1. Chowdhury, R. N. N., Sanyal, M. K., Sanyal, S. and Bhattacharjee, K. K.: *J. Obstet. Gynaec. India*. 27: 723, 1977.
2. Fathell, M. F.: *Obstet. Gynec. Surv.* 27: 751, 1972.
3. Fraumeni, J. F., Lloyd, J. W., Smith, E. M. and Wagoner, J. K.: *J. Nat. Can. Instit.* 42: 455, 1969.
4. Gusberg, S. B. and Frick, H. C.: "Cros-caden's Gynecologic Cancer". 4th Edition. The Williams & Williams Co. Baltimore, 1970, p. 523.
5. Joly, D. J., Lilienfeld, A. J., Diamond, E. L. and Bross, I. D.: *Am. J. Epid.* 99: 190, 1974.