

BLOOD GROUPS AND CANCER OF THE CERVIX UTERI

by

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Numerous reports have appeared in the literature during recent years which associate ABO blood groups with various diseases, following the reports by Aird *et al* (1953, 1954) of a significantly higher incidence of blood group A in cases of cancer of the stomach and of group O in patients with peptic ulcer. Investigations have been carried out at many centres to find out whether persons of different ABO groups differ intrinsically in their susceptibility to certain diseases.

As early as 1921, Alexander analysed blood groups in 50 patients with malignant neoplasms and concluded that groups B and AB were peculiarly susceptible to various forms of neoplasms and that group O patients were more stable or resistant. He also observed that neoplasms in individuals with groups B and AB were severe and rapidly growing while those in groups O and A were of low malignancy and of long duration. Johannsen (1925) based his conclusions from a series of 370 various malignant tumours including 107 cases of uterine cancer and concluded that A and AB individuals were more susceptible and B and O relatively more resistant to

the external influences that provoke carcinoma.

Krofors and Kinnunen (1954) drew attention to the relationship of gynaecological carcinoma to ABO groups after an analysis of 300 patients with uterine or other gynaecological cancer and found a clear cut predominance of blood group O in cancer patients. Beolchini *et al* (1957) showed an excess of group A in a sample of 205 patients from Milan. Helmbold *et al* (1958), on analysis of 7115 patients from a number of centres in Western Germany, observed that uterine cancer was more common in women of group A than in those of group O. Mitra *et al* (1962) reported the results of their study of ABO blood groups in 623 cases of cancer of female genital organs and cancer of the breast (including 521 cases of cancer cervix) but did not find any significant relationship. Rotkin (1965) analysed ABO and Rh frequencies amongst 353 cases of cancer cervix and similar number of controls but did not find any significant variation in the two categories of cases. Majupuria and Gupta (1966) found a highly significant preponderance of group A individuals amongst 150 patients of cancer cervix. Tyagi *et al* (1967) grouped 556 cases of cancer cervix and found a significant increase in patients with group AB. Gupta

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(1968) found a significant increase in blood group A amongst 208 cases of cancer cervix.

This paper reports the results of our study on the incidence of A, B, O

Observations

The distribution of A, B, O and AB blood groups amongst patients with cancer of cervix and the control group is given in Table 1. An in-

TABLE I
Distribution of A, B, O, AB blood groups in cases of cancer cervix and controls

Group	Patients with Cancer Cervix		Controls		Difference in Per cent
	Number ^a	Per cent	Number	Per cent	
A	163	23.29	484	24.20	+ 0.91
B	257	36.71	770	38.50	- 1.79
O	227	32.43	560	28.00	+ 4.43
AB	53	7.57	186	9.30	- 1.73
Total	700	100.00	2000	100.00	

$X^2 = 5.875$, degree of freedom = 3, 0.20 $P = 0.30$

and AB blood groups in patients with cancer cervix.

Material and Methods

Patients with cervical cancer admitted to Gynaecological and LPRI Wards of S.N. Hospital, Agra, were included in the study. The diagnosis of cancer cervix was established by clinical, cytological and histopathological examinations. ABO blood groups of these cases were determined by the slide method using standard Anti-A and Anti-B sera. The red cell grouping was confirmed by performing serum grouping using known group A and group B cells.

A control series of 2000 apparently healthy females was constituted by girl students of the Medical College, lady doctors and nursing staff of the Hospital and female voluntary donors registered at the Blood Bank.

For testing the significance of observed data the X^2 values were calculated according to the method suggested by Aird *et al* (1953).

Increased incidence of cervical cancer is observed amongst patients belonging to group O as compared to controls. However, statistical analysis of the data reveals that the distribution of blood groups in patients with cancer cervix and the controls does not show any significant difference, the X^2 for three degrees of freedom being 5.875.

Discussion

Carcinoma cervix is the commonest malignant tumour in females and is only second to cancer of oropharynx, considering malignant growths in both the sexes. It constitutes 28.52% of 10,691 malignant neoplasms encountered in the Department of Pathology, S. N. Medical College, Agra, during 1950-1968. The exact pathogenesis of cervical cancer is not known. Various factors, like poverty, early marriage, repeated pregnancies malnutrition, etc. have been suggested as contributory factors. The role of genetic predisposition is disputed.

Many investigators have reported that the incidence of carcinoma cervix is relatively greater among persons of group A (Beolchini *et al.*, 1956; Helmbold *et al.*, 1958; Majpuria and Gupta, 1966). Others have suggested a preponderance of group O (Krofors and Kinnunen, 1954) or group AB (Tyagi *et al.*, 1967) amongst patients of cancer cervix. Although there is a larger number of patients with group O in our series, statistically no significant increase of any blood group is observed in these patients. Mitra (1962) and Rotkin (1965) also did not observe any significant association of ABO blood groups in patients with cervical cancer.

In the majority of the reports in the literature the number of cases analysed is small and conflicting results have been reported. There is need for further study of the problem of relationship of blood groups with various diseases at different centres in the country and abroad and the results should be based on analysis of a larger number of cases. It may also be interesting to correlate the clinical course of the disease and prognosis of the case with the blood type.

Summary

No statistically significant difference in the A, B, O and AB blood group distribution was observed amongst 700 patients with cancer cervix as compared with 2000 controls in a study conducted at S. N. Medical College, Agra.

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