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Association of ABO and Rh Blood Groups with the Carcinoma of the Cervix with Special Reference to Jammu Region

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ABSTRACT

Aim

The present study was designed to investigate the association of ABO blood group types in cervical cancer.

Material and Methods

The study sample consisted of 248 subjects as confirmed cases of cervical cancer and 254 individuals as controls. Data about the blood group types was collected from the blood bank of Govt. Medical College, Jammu.

Results

A statistical significant difference in the distribution of ABO blood groups between the patients and controls was observed. The incidence of B-type group was the highest in the patients as well as in the control subjects this was followed by O blood group.

Conclusion

The results concluded that B blood group may be considered as a risk factor in carcinoma of the cervix.

Key words: ABO, Rh Blood groups, Carcinoma, Cervix, Jammu.

INTRODUCTION

ABO blood types, an easily accessible factor in patient's genetic make up, has been associated with many diseases. Enough has been presented in support and denial of the hypothesis that chronic diseases are associated preferentially with selected ABO and other blood groups (Rotkin, 1965). ABO blood groups are a stable feature of a population and they differ among various socio-economic, geographical and ethnic groups (Beardmore *et al.,* 1983). In India, ABO frequency is variable, the frequency of B group ranges from 6% in Negritos of Andamans to 48% in Birjis of Bihar while group A is 20-30% in Western and Eastern Himalayas (Barua, 2002). The blood group frequency in North India is B>O>A>AB (Bhasin *et al.,* 1992).

Carcinoma cervix accounts for 15% of all cancers diagnosed world wide in females (Boyle and Ferlay, 2005). It is the second most common cancer in female globally and 80% of this cancer occurs in the developing countries. The incidence of CaCx is the highest in Africa, India and Central / South America and lowest in Oceania, North America and most Muslim counties (Kamangar et al, 2006). India has a high incidence of cervical cancers with roughly 87,500 newly diagnosed patients every year, thereby making approximately 16% of the world's total cases (Tatsuzaki and Levin, 2001).

Since the discovery of an association between stomach cancer and blood type A by Arid and Bentall in 1953, there have been several studies on the possible relationship of blood types to certain

diseases. In the present studied population the probable association of ABO blood group with the CaCx was worked in Jammu region of J&K State, India. The study aimed at assessing the utiliy of ABO blood group as a preclinical marker.

MATERIAL AND METHODS

Present study comprises of the collection of the data about the blood groups of the patients suffering from cervical cancers from the Dept. of Gynae and Obstetrics, Govt. Med. College, Jammu. A total of 248 confirmed cases of carcinoma cervix uteri were taken up for the study of their blood group type. Besides this, 254 women were taken as control in order to rule out the association of the commonest occurring blood group type in both diagnosed and in control samples.

RESULTS

The results showed that the frequency of the blood group B (41.53%) was the highest followed by blood group O (21.77%), blood group AB (15.9%) and blood group A (13.30%). In control samples, high frequency of blood group B (42.5%), followed by O group (26%), A (21.7%) and AB (9.8%) was seen. There was statistically significant differences in the distribution of ABO groups between the patients and controls (P value<000)

Table 1:

Total no. of the subjects	N	BG A	BG B	BG O	BG AB	P value	RH +VE	RH-VE
No. of patients	248	39 (13.30%)	103 (41.53%)	54 (21.77%)	33 (15.9%)	.000	229 (92.3%)	19 (7.66%)
Controls	254	55 (21.7%)	108 (42.5%)	66 (26.0%)	25 (9.8%)	.000	246 (96.9%)	8 (3.14%)

Level of significance α= 0.05
N= total no. of the subjects
BG: Blood Group
Rh= Rhesus factor

DISCUSSION

Reports on the association of blood group with CaCx are contradictory. Mittal (1970) reported that the increased incidence of cervical cancer among the patients belonging to group O. The results concluded that there were no significant statistical difference in the A, B, O and AB blood groups distribution among the patients with the cancer of the uterine cervix.

Mitra *et al.,* 1962 in a study on the patients at the Chitaranjan Hospital, Kolkata did not record the defined association between ABO blood groups and patients of cancer of the cervix. This study was intriguing because cervical cancer is more prevalent in India as compared to Europe or United States yet normal blood group frequencies showed about 26% of A for India compared to about 42% of a in Europe and the united states.

Kour *et al.,* (1992) found a strong association between the carcinoma patients and blood group A, and a slightly weaker association with the blood group B. There was no significant association with RhD blood group.

Sharma *et al.,* 2007 in a study on the probable association of blood group with CaCx, reported almost the same frequency of blood group B and O i.e (36.11%) and (35.19%) followed by A (19.44%) and AB (9.26%) in the cases of the patients suffering from carcinoma of the cervix.

Kim and Kim (2010) studied the associations of ABO blood groups with various

gynecologic diseases like endometriosis, uterine leiomyoma, ectopic pregnancy, female infertility, malignant neoplasms of cervix and ovary. The results showed that blood group A was more predominant with 39.8% and blood group O was less predominant with 19.9% in case of endometriosis and in case of malignant neoplasm of the cervix, blood group A was predominant followed by blood group O.

In the present study, an increased incidence of blood groups B, O, AB and A has been seen among the females with the cervical cancers by 41.53%, 21.77%, 15.9% and 13.30% respectively. Present findings support the reports of Sharma *et al.,* 2007 as in these studies, the probability of cervical cancers has been found to be the highest in the B group females followed by blood group O type. Also in the control subjects, blood group B showed the highest frequency (42.5%). The study thus concludes that the blood group B may be considered as a risk factor for a female to suffer from the cervical cancer.

CONCLUSION

From the available data and present study, it may be concluded that blood group B has the strongest association with the cervical cancer however, the association of the blood group type with the diseases like cancer is quite controversial therefore, ethnic background and other risk factors may also be taken into consideration to understand the individual patient' s risk. The information on blood type as a risk factor for cancer is one of many tools naturopaths may use when creating a plan for preventative medicine with their patients. The studies seem to show a fairly consistent modest correlation between several cancers and ABO type. The identification of genetic and environmental factors among racial and ethnic groups should offer some insights into the observed data and advance opportunities to better understand the control and development of cancer.

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