

## ASSOCIATION BETWEEN BREAST CANCER AND ABO BLOOD GROUPS IN NAGPUR REGION

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### ABSTRACT

**Background:** Most of the study has showed that incidence of breast cancer is closely associated with the ABO system of blood group. Present study is an attempt to test the actual facts concerning issue. **Objective:** To find the association of incidence of ABO blood group in female patient of breast cancers in Nagpur region. **Study design:** Observational study was conducted on randomly selected 60 histological proven breast cancer female patients from local regional cancer hospital. **Result:** Among 60 female breast cancer patients no association was observed to blood group. **Conclusion:** The chance to cause breast cancer cannot be merely linked with blood groups.

**Key words:** ABO blood group, breast cancer.

### INTRODUCTION

Cancer is becoming a major trouble throughout the world in current scenario.<sup>[1]</sup> Breast cancer, oral cancer, prostate cancer, colon cancer, rectal cancer, and lung cancer and various types of cancers that are becoming more common in the Indian people.<sup>[2]</sup> Breast cancer in the Nagpur region is to be found at second position this may be due to unawareness of the disease because of illiteracy, poverty, tendency of concealing the disease to society; visit to hospital after severe symptoms grow, lengthy treatment procedure and side effects.<sup>[3]</sup> In India, preferred treatment measures for breast cancer are surgery, mastectomy, chemotherapy, radiation therapy, hormonal therapy and immunotherapy. These therapies are generally used in combination. All these strategy are not easy to use because generally cancerous tumors are not easily diagnosed in initial stage. So early detection of tumor is very difficult to patient, this problem could be resolved by some easy technique like

self breast examination suggested at least one time in a month. Nevertheless mammograms have been a major push within medicine as a means of early detection. The best way to fight breast cancer is to have a plan that helps you detect the disease in its early stages because many of patients have actually discovered their tumor by method of self-examination of breast.<sup>[4]</sup>

Generally prognosis of advanced stage breast cancer is not good therefore early detection of breast cancer may be helpful to patient as well as doctor for suitable choice of treatment. For this rationale, most of the researchers and epidemiologists are annoying to find various aspects for early detection of breast cancer during past years. There are two basis for the cause of breast cancer one is genetic and another is environmental. Cancer-causing biological, chemical, and physical agents are referred to as 'carcinogens' and therefore tobacco smoke, unhealthful dietary habits and expo-

sure to chemicals and radiation are recognized as carcinogen which is responsible to instigate cancer.<sup>[5]</sup> In addition to this advance technology in the molecular biology of cancer regarding study of cancer-causing viruses or (oncovirus) is going on. During the past years, the role of genetic factors in the development of malignancy is widely accepted. The role of inheritance in breast tumour genesis has been clearly established. Numerous studies have conducted to uncover the association between breast cancer and blood types. However, the results were different and there are many controversies. For this issue, The various studies related to different aspects of breast cancer has or is being carried out all over the world, but the breast cancer developing risk factors in patients and high-risk people have not been well understood yet, On reviewing most of the researches has shown that there is close association in cancer risk with blood type while other not. Blood group is an important risk factor for some malignancies, including pancreatic and stomach cancer.<sup>[6]</sup> However, it is quiet unclear whether the risk of breast cancer is higher in any specific ABO type. Some research show positive association

Researches that show positive association of breast cancer with ABO blood types are

1. Blood type A has the most association with breast cancer according to the findings of Yazd females and states that it can be used as a pre clinical marker in treatment and consulting patients as high risk for breast cancer.<sup>[7]</sup>
2. Study in Indian people of Jodhpur shows that there was an association exists between blood groups A with breast cancer in sample population.<sup>[8]</sup> While north Indian study reveal that cancer patients, incidence of A group was higher in breast.<sup>[9]</sup>

Researches that show no positive association of breast cancer with ABO blood types are

1. Gates *et al.* examined the association between serologic blood type and incident breast cancer among 67,697 women, including 3,107 cases. It showed no significant association was noted between blood type and overall or breast cancer specific mortality. The results suggest no association between ABO blood group and breast cancer risk or survival.<sup>[10]</sup>
2. Another study of meta analysis of ABO type show in consistent result.<sup>[11]</sup>
3. Meta-analysis of the ABO blood types had no association with breast cancer risk. In the random effects model of all 14 studies, blood types A, B, O and AB were not associated with a breast cancer risk. The four kinds of blood type showed the same risk for breast cancer in both the community and the hospital group.<sup>[12]</sup>
4. Study of breast cancer in women of Isfahanian show no relative frequency in specific blood group for blood type could not be influenced as a risk factor in breast cancer.<sup>[13]</sup>
5. Previous study also state that the effect of blood type a on breast cancer risk was considered too small to be use in identifying women at high risk.<sup>[14]</sup> Therefore an association between the ABO blood group and cancer risk was studied.

## AIM AND OBJECTIVE

- Aim: To evaluate the possible association between blood groups and risk of breast cancer.

## MATERIALS AND METHODS

**Study design:** This is an observational study. It was conducted at Nagpur after obtaining necessary permission from institute and ethical committee.

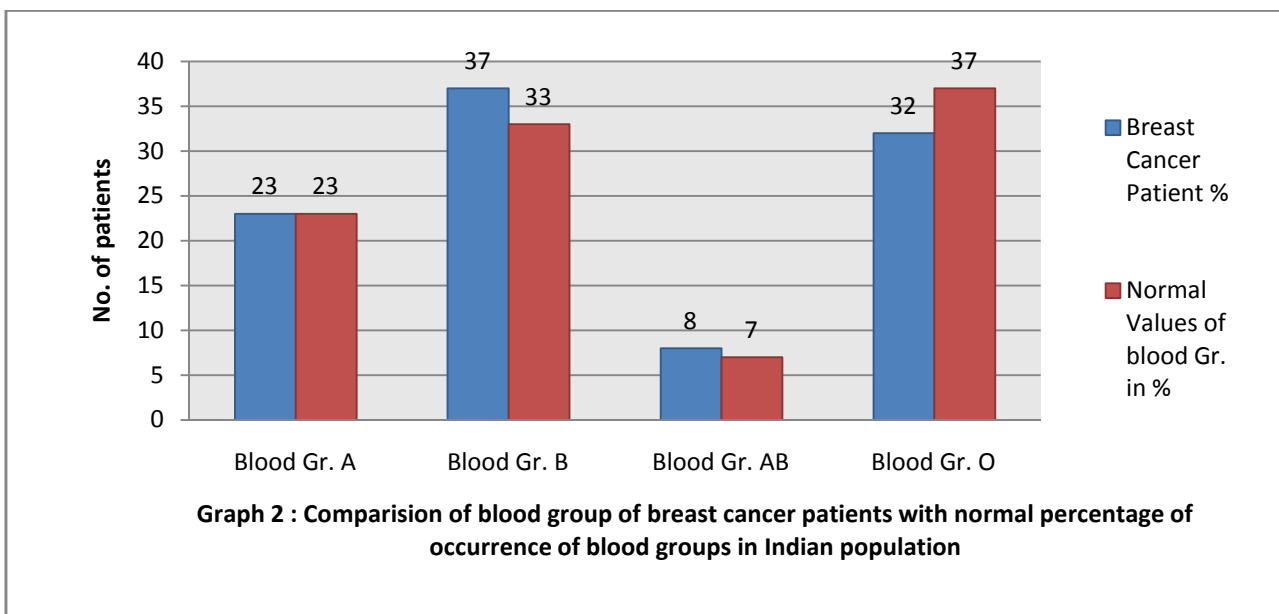
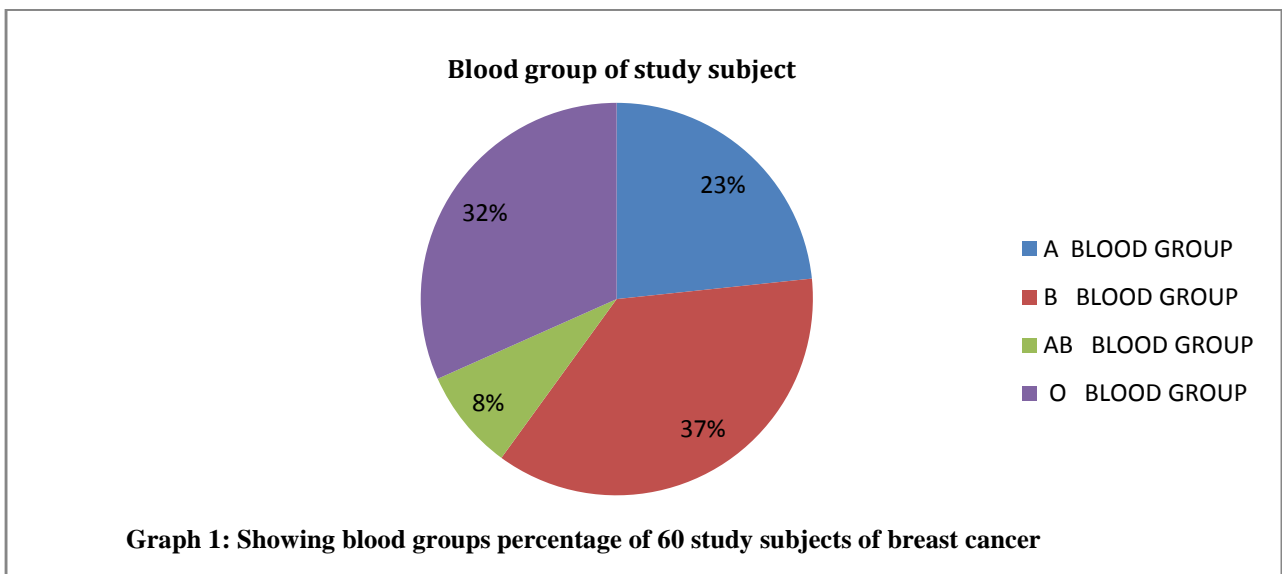
**Selection of subject:** There were histological proven 60 female individuals of breast cancer between age group 30 to 70 years was selected randomly from regional and private cancer hospitals in Nagpur.

**Method:** The data of already diagnosed female breast cancer patient randomly with name, age, sex, ABO blood type were collected during year 2015-16.

**OBSERVATION AND RESULT**

**Table 1: Showing blood groups of 60 study subjects with percentage.**

Blood group	Study subject	% of study subject	% of normal occurrence of blood groups in India. <sup>[17]</sup>
A	14	23 %	23 %
B	22	37 %	33 %
AB	5	8 %	7 %
O	19	32 %	37 %
Total	60	100 %	100 %



Compare between blood groups of 60 subjects with normal Indian people percent. The analysis of the data of blood groups was made by using Chi square test in which,  $\chi^2 = 0.6576$  and (P value 0.8831), shows non-significant differences.

## RESULT

The randomly selected breast cancer patient are found to be more in B blood group (37%), than O blood group (32%), B blood group (23%), AB blood group (8%) and result shows non-significant difference when compared with normal percentage of occurrence of blood groups in Indian population.

## DISCUSSION

Some previous studies have reported significant association between breast cancer and ABO blood group and breast cancer risk. Majority of the larger studies observed no association with breast cancer. It suggests that, there is still uncertainty to consider ABO blood group to breast cancer to determine as risk factors. Present study found non-significant association between ABO blood types and breast cancer incidence. The data of 60 breast cancer patients showed that breast cancer risk is almost same in all ABO types. It may be due to look at a little the geographical and ethnological aspects of the correlation between blood groups and cancer of the breast and therefore distribution of study subjects and their blood group was found similar to that of local regional population and therefore association could not be differentiable by ethnicity. However, previous study make focus on the role of genetic factors in the development of malignancy and accepted without hesitancy. This may be because of ABO blood group has been linked with risk for several tumour types, including gastric and pancreatic cancer.<sup>[15]</sup> There should be sufficient data to establish the asso-

ciation between blood type and cancer risk. Therefore meta-analysis can offered a more precise estimation of the breast cancer risk in different blood types. Most of the meta-analysis showed non-significant association in their conclusion. Although genomic wide association study provide supportive relationship between the ABO and glycosyltransferase gene and cancer risk.<sup>[16]</sup> It is now well recognized that mutation or inappropriate activation of a number of genes are involved in development of human cancer, including tumor suppressor genes, The existence of 'tumor suppressor genes' in normal cells is now well established, These are best known for controlling several cell functions, including regulation of the cell division cycle, repair of the damaged cell's DNA, and programmed cell death. The loss or inactivation of tumor suppressing genes may remove a block to cell for proliferation and provide useful environment for the development of the cancer. Therefore, further studies on various blood groups of breast cancer patient in large series are needed to clarify the relationship between blood group and disease. Although, often it is said that prevention is better than cure then attention should be set to solve the problems which can be under our control. Therefore Indian women need to be aware of variable risk factors for breast cancer to adopt appropriate practices for prevention. There is an urgent call for more effective national and state wide cancer literacy programmers and by community level organization and the health system, intensive health promotion and involvement of programmed on risk factors, prevention, screening and management for breast cancer in practical. Training on the latest evidence regarding breast cancer risk factors should be offered to healthcare providers and community workers to raise their cancer literacy so they can then transmit this knowledge to the society. Con-

tinuing medical education program with awareness on breast cancer in the curriculum of nursing at institutional level and other healthcare training institutions should be a priority for women's health in the country. However, in comparison to trends of cancer occurrence from past few year reports, there has been a noticeable change in the pattern of cancer study. From this study some clues can be drawn for understanding the severity of the problem.

## CONCLUSION

Evidence for association of blood groups with breast cancer is controversial, some study exhibit blood groups showed positive association and others study reveal negative. Blood type needs to be considered together with other risk factors to understand. Further studies on blood groups in large series are needed to make clear the association between blood group and disease. However, in comparison to trends of cancer occurrence from past few year reports, there has been a noticeable change in the pattern of cancer study. Therefore, chance to cause breast cancer cannot be merely linked with blood groups.

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