

Relationship between ABO blood group and breast cancer at AL-Nassyria city / Iraq

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Abstract:

The current study included 200 patients with breast cancer that resemble to patient samples were collected from AL-Nassyria hospital also 279 samples as control which was collected from blood bank at AL-Nassyria province . The study attempted to correlate ABO blood group with incidence to breast cancer .The results shown that type A of ABO blood group high frequency then followed by type O with in AL-Nassyria region also the results reported that A, B, O and AB blood groups frequencies of patient samples percentage were 60%, 20%, 10% and 10% respectively as well as the ABO blood groups frequencies of control samples percentage were 26%, 28%,38% and 8% respectively. The results observed there is high significant differences between ABO blood group frequencies of cancer patients and ABO blood group frequencies of control samples .The results indicated that the blood type should be considered one of risk factor as well as regarded as preclinical marker.

Introduction:

The more significant of breast cancer diseases in AL-Nassyria province as well as ruler and urban regions due to there are highly numbers of people which suffering from this type of cancer , in obviously. Many previous studies have shown the association between ABO groups and various cancers which elevated risks. Fo some diseases, a correlation of blood group antigen expression in tumor with metastasis and prognosis has been reported for various

human malignancies such as, colon, breast and prostate cancer as the blood group carbohydrates expressed on cell surface of metastasis cancer cells function as cell adhesion molecules. The loss or presence of blood group antigens can increase cellular motility or facilitate the interaction between tumor cells and endothelial cells (Barua, 2002) ABO blood group genes are mapped at 9q 34.2 region in which genetic alteration is common in many cancer.

Thus, blood group of distant organs (Park, *et al.*, 1999). Additionally, ABO genes are distributed differently among socioeconomic status is one of the risk factors for diseases. The study aims to provide useful information on the risk factor by correlate ABO blood group frequency with breast cancer which may be regarded preclinical marker. At a first time, reporter were showing an association between blood group A and gastric cancer (Arid *et al.*, 1953).

Materials & Methods:

The current study has been performed on 200 patients which incidence to breast cancer according to histopathological diagnosis. All samples were collected from Nassyria hospital whereby 279 healthy donors have been regarded as control sample of was collected from blood blank of Al-Nassiryia governorate (Salman, 2007). The percentage of ABO blood groups frequencies has been estimated to cancer patients and healthy control samples to explain the correlation of ABO blood group with breast cancer. ABO blood groups frequencies of both cancer patients and healthy control samples were compared by Chi-square.

Results:

The present study provided the distribution ABO blood groups of cancer patients in different percentage for A type, B type, O type, AB type were 60% (120), 10% (20), 20% (40), and 10% (20) respectively. For healthy control, ABO BLOOD groups percentage were 26% (72), 28% (77), 38% (107), and 8% (23) respectively. The result pointed out the breast cancer patients with blood group type A were higher than followed by blood group

type O as well as this study observed there is higher significant differences between ABO blood group of breast cancer patients and ABO blood group of healthy control samples. The histogram (1) explained the close association between breast cancer and type of blood groups.

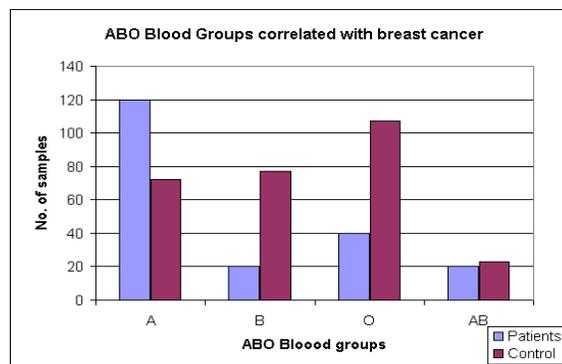


Figure (1) : ABO group correlated with breast cancer.

Discussion:

The current study appeared that ABO blood group was significantly correlated whereas the results were corresponding with many previous studies that they referred to A blood group was higher incidence to breast cancer and followed by O type than other groups (Anderson and Hass, 1984; Tryggvadottir *et al.*, 1988; Barua *et al.*, 2002). On the other hand, this study was disagreement with study has been reported in India which suggested the B blood group was more susceptible to affect breast cancer (Guleria *et al.*, 2005). This disagreement attributed to different region according to geographical location as well as the ethnic population (Wu *et al.*, 1984). Many authors researched ABO blood group correlation with different type of cancer so as together stated that closely associated, although a variance of provided results (Pack *et al.*, 1999);

Moldyvay *et al.*,2002 ; Marionneau *et al.*,2002). Thus, the ABO blood group antigens expression maybe effected by genetic change of tumors (Pettrakis and King,1977) so as the blood group genes are mapped at 9q in which the genetic alteration is common in many cancer (Hun, *et al.*,2000).

The present study founded that there is high significant differences between ABO blood group of cancer patients and ABO blood group of control samples which is attributed to important suggestion that the ability of type of ABO blood groups to induce special cancer reliable on population racezim and genetic susceptible . Hence many reporters have shown the blood group antigen expression in tumor is correlated with metastasis and prognosis (Nakagoe *et al.*,2000 and Moldvay *et al.*,2000). The loss or presence of blood group antigens can increase cellular motility or facilitate the interaction between tumor cells and endothelium of distant organs (Ichikawa,1998). Also authors also propose that there is a small association between blood type A and cancer development. Type A individual appear to be at moderately increased risk many cancers. Delation or reduction of histo-blood group A or B antigen in tumor of A or B individual of correlated with the degree of malignancy and metastatic potential in many types of human cancers. The expression of histo-blood group A antigen has been reported to increase resistance to apoptosis and facilitate escape from immune control in rat colon carcinoma cells (Marionneau *et al.*,2002).In colon cancer ,a weak association with A group and an altered blood group antigen expression related to progression of malignancy has been reported

(Itzkowitz,1992) . The ability of type of ABO groups to induce special cancer reliable on population racism and genetic susceptible.

Conclusion:

1. ABO blood group was highly correction with breast cancer.
2. The majority of patient with A blood group followed by O blood group in AL-Nassyria governorate.
3. ABO blood group can be regarded preclinical marker.
4. ABO blood group provided genetic susceptible affecting to breast cancer.
- 5- Type A of blood groups has significant role to induce cancer , rapidly.

Recommendations:

- 1- Accrue study of serotype of ABO blood group and it relationship with Breast cancer.
- 2- Avoid relatives marriage with in closed population to decrease of genetic susceptible.
- 3- Educate the population about risk factors of breast cancer.
- 4- Consider the type blood group one of risk factors.

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