



# ASSOCIATION OF ABO BLOOD GROUPS WITH BREAST CANCER IN DIWANIYA CITY, IRAQ

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## Abstract

This study was conducted in Al-Diwaniyah General Hospital in Diwaniyah province for the period January to February 2019. The study included (100) breast cancer patients after examination and diagnosis by Oncologists physicians. Breast cancer patients were divided into four groups depending on the blood group. The study aimed to discover the blood group most likely to develop breast cancer in Diwaniyah province as a result of the lack of studies on this type of relationship in this province.

The results showed a high response to breast cancer in women with blood type (O). The results are in the following percentages (7%, 17%, 24%, and 52%) (AB, A, B, and O), respectively. The study included other criteria such as age, use of contraceptive pills, the period between pregnancy and infant feeding and marital status of patients. The results explained that there is a high sensitivity to breast cancer, especially among women older than 50 years who take birth control pills and who are artificial-feeding for their babies and for convergent pregnancies. The study proved more Inducible among married women than single women.

**Key word:** Blood group, Breast cancer, Contraceptive pill, Artificial-feeding.

## Introduction

A tumor can be benign (not dangerous to health) or malignant (has the potential to be dangerous) (Shumway, Sabolch and Jagsi, 2020). Benign tumors are not considered cancerous: their cells are close to normal in appearance, they grow slowly, and they do not invade nearby tissues or spread to other parts of the body (The Endogenous Hormones and Breast Cancer Collaborative Group, 2002). Malignant tumors are cancerous. Left unchecked, malignant cells eventually can spread beyond the original tumor to other parts of the body (Bray *et al.*, 2018).

Cancer occurs as a result of mutations, or abnormal changes, in the genes responsible for regulating the growth of cells and keeping them healthy (Lambertini *et al.*, 2018). The genes are in each cell's nucleus, which acts as the "control room" of each cell (Torre *et al.*, 2015). Normally, the cells in our bodies replace themselves

through an orderly process of cell growth: healthy new cells take over as old ones die out, but over time, mutations can "turn on" certain genes and "turn off" others in a cell, that changed cell gains the ability to keep dividing without control or order, producing more cells just like it and forming a tumor (Neve *et al.*, 2006).

The term "breast cancer" refers to a malignant tumor that has developed from cells in the breast, usually, breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple (Al-Hajj *et al.*, 2003). Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast (Ma and Jemal, 2013).

Over time, cancer cells can invade nearby healthy breast tissue and make their way into the underarm lymph nodes, small organs that filter out foreign substances in the body (Telli, 2016). If cancer cells get into the lymph nodes, they then have a pathway into other parts of the

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body (Prat *et al.*, 2015). Breast cancer’s stage refers to how far the cancer cells have spread beyond the original tumour (Carey *et al.*, 2006).

Breast cancer is always caused by a genetic abnormality (a “mistake” in the genetic material) (Foulkes, Smith and Reis-Filho, 2010). However, only 5-10% of cancers are due to an abnormality inherited from your mother or father (Harbeck and Gnant, 2017). Instead, 85-90% of breast cancers are due to genetic abnormalities that happen as a result of the ageing process and the “wear and tear” of life in general (Dent *et al.*, 2007).

There are steps every person can take to help the body stay as healthy as possible, such as eating a balanced diet, maintaining a healthy weight, not smoking, limiting alcohol, and exercising regularly (learn what you can do to manage breast cancer risk factors) (Holliday and Speirs, 2011). While these may have some impact on your risk of getting breast cancer, they cannot eliminate the risk (Stephens *et al.*, 2012). Therefore, the aim of the study was to investigate the blood group most likely to develop breast cancer in women in Najaf province.

**Material and Method**

**Patients**

This study included follow-up (100) cases of breast cancer patients exclusively from Diwaniya governorate who visited the oncology center in the Central Euphrates in Najaf. Between the ages of (20-70) years, which have been confirmed by clinical examinations and sonar to observe the occurrence of infection in patients by the competent doctor.

**Blood samples**

Blood samples were taken in the morning and evening when patients with symptoms of breast cancer were seen at the Euphrates Middle Oncology Center. The doctor examines the patient and sends it to the laboratory unit. Using a medical device, his wine is stabbed to obtain blood for the blood group.

**Detections of ABO groups**

The DG Gel 8 ABO/Rh + Kell card is for the determination of ABO forward and reverses group, and D and K antigens on the surface of red blood cells of human blood samples. (Novartis Vaccines and Diagnostics, Inc., CA, USA).

**Standards considered**

This study included screening blood group of women with breast cancer according to the method of work. The ABO blood group can be determined by gel card method according to technique (tube or gel card) for

analysis, Chi-square test results showed that there was an association between the ABO blood groups and DM type 2.

**Analytical Discussion**

Results are represented as mean ± standard error (SE) and performed using one-way ANOVA by GraphPad Prism® software (GraphPad Software, Inc., La Jolla, CA, USA) L.S.D was Pd<0.05 in study groups and data were compared between groups using T-test.

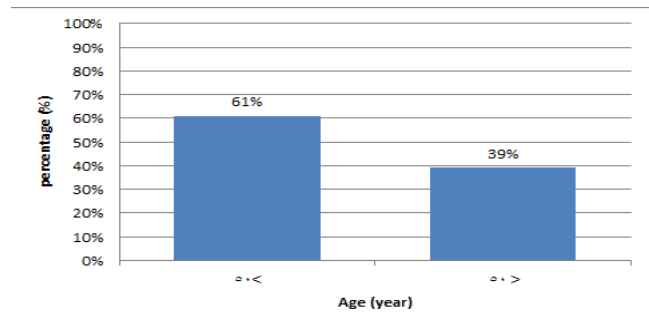


Fig. 1: distribution of breast cancer according to age.

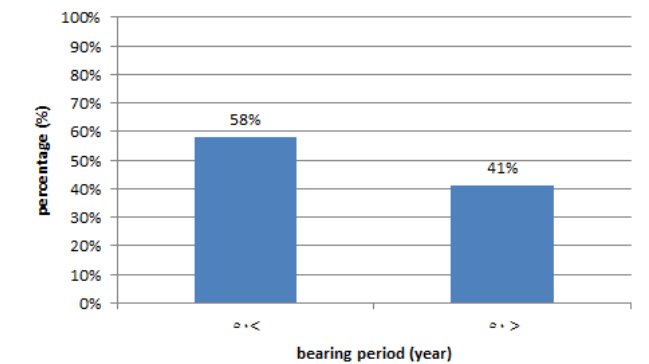


Fig. 2: distribution of breast cancer according to bearing period.

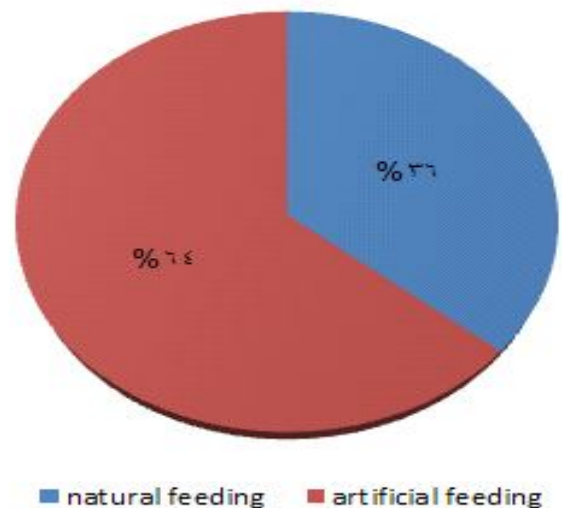
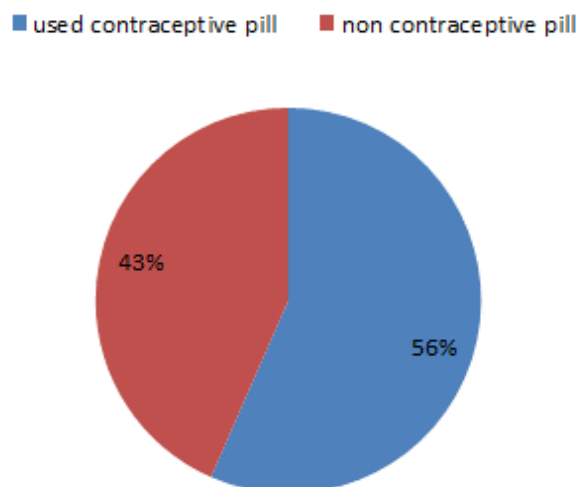


Fig. 3: distribution of breast cancer according to child feeding types.



**Fig. 4:** distribution of breast cancer according to used contraceptive pill.

**Table 1:** distribution of breast cancer according to blood group types.

Blood group types			
O %	A %	B %	AB %
52%	17%	24%	7%

### Results and Discussion

Breast cancer is the most common malignancy threatening the health and life of women and its incidence has increased in recent years in both developed and developing countries (Association of Breast Surgery at, 2009). Biologic mechanisms lead to the development of breast cancer are not clearly understood, but the role of cytokines in cancer immunity and carcinogenesis has been well established (Harbeck *et al.*, 2019). There was significant increase in breast cancer in the age group less than 50 years in this study in our results agreed with study in Egypt (Ferlay *et al.*, 2015).

There a highly statistical difference in patients with breast cancer and childbearing period, this result was an agreement with, in this study we approved by evidence through results that breast cancer was decreased in breastfeeding women with highly statically difference this our result was agreement with (Akram *et al.*, 2017).

The study shows that there was a highly significant difference between the women in taking contraceptive pills, this might be due to the disturbance in body hormones of women that affected by pill (Sun *et al.*, 2017).

In our study there was a considerable highly statistical difference in blood group types and breast cancer, with a group (O) more than other blood groups. This result was an agreement with.

In our study, high number of breast cancer was in infertile period of the patients this at the age of more than 45 years. Other studies showed that the same results, like study in Iran, another study in British in 2017 by holds worth (Miller *et al.*, 2014), showed the same results and this results might be due to the hormonal disturbances that occur in this age of the women (Weigelt, Peterse and Van't Veer, 2005).

In our study the higher frequency of blood group was in (o type, and the lower type was in (AB) in breast cancer patients, this finding was agreed with many studies had been done in this field. Like study in India, reported between blood group and breast cancer with the type (O) (DeSantis *et al.*, 2014).

In the present, the high number of frequencies was in single women of breast cancer patient and considered highly statistically significant differences, this finding was the same in the study.

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