

**The Association and Relation of Blood Group with Lung  
Cancer in Erbil Governorate**

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**Abstract**

Lung Cancer is one of the leading causes of cancer deaths in the U.S. It is expected that about 180,000 new cases will be diagnosed within the U.S. this year, and of these, about 160,000 people will die. While the incidence of lung cancer has been declining in men since the 1980s, it is still rising in women. The most well known risk factor for lung cancer is cigarette smoking (which has been linked to 85 to 90 percent of all cases). Other well known risk factors include exposure in the workplace to certain substances (including asbestos and some organic chemicals), radiation exposure, radon exposure (especially in smokers), and even second-hand environmental tobacco smoke. Because of the close associated of lung cancer with cigarette smoking, It is expected that this strong risk factor possibly overwhelm blood type differences.

## **Introduction**

Cancer is a common cause of death in the Western world, after cardiovascular disease. However, there is significant variation with age, sex and geography in the incidence of the various malignancies.. The first suggestion of an association between ABO blood group antigens and malignancy was made almost 100 years ago, yet the role of the ABO blood group in cancer risk and prognosis remains controversial<sup>(1)</sup>. 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 possible relationship of blood types to certain diseases<sup>(2)</sup>. 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<sup>(3)</sup>. The huge interest in blood type stems from the developing awareness that blood type antigens are incredibly important components in the process of cell maturation and control; for example the appearance or disappearance of blood type antigens is a hallmark of malignancy in many common cancers<sup>(4)(5)</sup>. On the contrary, autoimmune disorders tend to be associated with blood type O<sup>(5)</sup>.

## **Objective**

The aim of this study is:

To find any association between lung cancer and ABO blood group. know what is the frequency of each blood group in relation to patients with lung cancer.

## **Patients**

This study has been carried in Rizgary teaching hospital in Erbil on 100 histologically proved patients with lung cancer(50male & 50 female) and classified according to their blood group and frequency of each sample estimated statistically, then compared with each other.ABO blood grouping was performed by the tube method in all the cancer patients.

## **Results**

This study shows the distribution of ABO blood groups among patients with lung cancer as follow: blood group type (A) 48% (48) , blood group type (O) 35% (35) , (B) 13% (13) , and( AB) 4% (4). For male patients,blood groups percentage were as follow:type A (81%)40, type O (10%)5,type B (6%)3, type AB (3%)2. For female patients,blood groups percentage were as follow:type A (16%)8, type O (61%)30,type B (20%)10, type AB (3%)2. When we compare the distribution of blood group among male patients and female patients with lung cancer the result is highly significant as shown in table (4) and fig (4) by using chi test.

## **Discussion**

In this study, the incidence of A group was higher in male lung cancer patients, followed by O group. Quite similarly Loddenkemper et al<sup>(6)</sup> have reported a significantly higher incidence of lung cancers in A blood group patients, with a peak in young patients not older than 50 years. whereas in female patients the incidence of O group was higher followed by B group.With the exception of bladder cancer, there is a statistical association between increased risk of cancer and people

## The Association and Relation of Blood Group with Lung

### Cancer in Erbil Governorate

with blood type A<sup>(7)</sup>. This includes colon cancer, ovarian and breast cancer, liver and pancreatic cancer, prostate cancer and brain tumors. That is not to say people of other blood types don't get cancer. It simply means that blood type (A), people have less defense against it.

It seems that cancer cells have certain type (A) qualities that make it almost invisible to the immune system in blood type (A) people<sup>(8)</sup>. The blood group type is one of the genetic factors which affect the risk of different cancers. Studies of associations ABO blood groups have shown increased relative risks for some of blood groups<sup>(9) (10)</sup>.

### Conclusions

1. The highest percentage of patients with lung cancer was in the blood group (A) and followed by blood group type (O) for male patients.
2. The highest percentage of patients with lung cancer was in the blood group (O) and followed by blood group type (B) for female patients.

Table (1): The distribution of blood group among patients with lung cancer.

Blood group	Frequency	Percentage
A	48	48
O	35	35
B	13	13
AB	4	4
	100	100

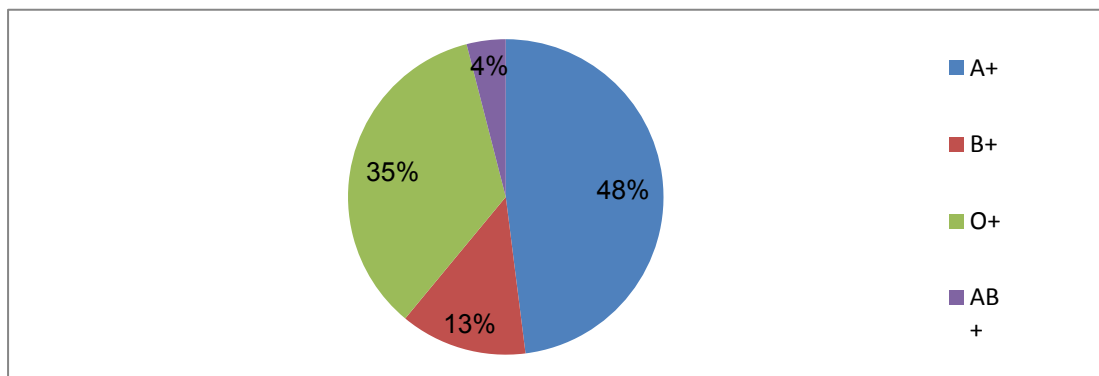


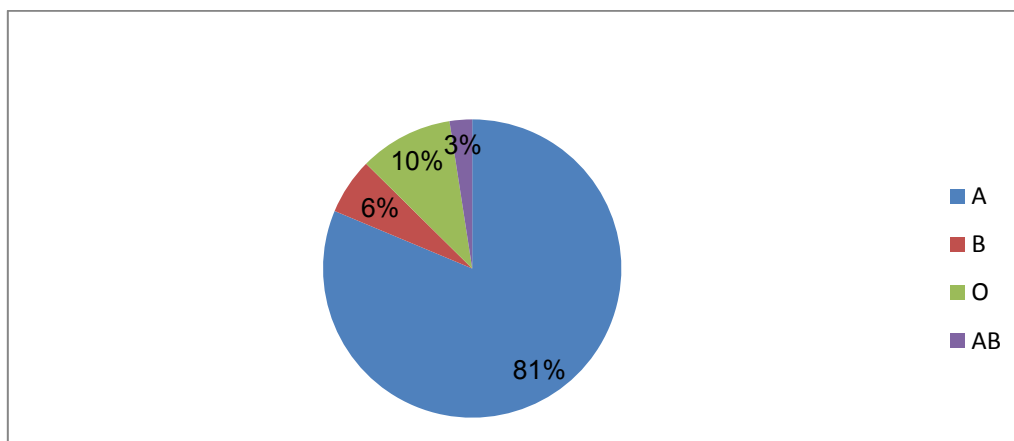
Figure (1): The distribution of blood group among patients with lung cancer.

## The Association and Relation of Blood Group with Lung

### Cancer in Erbil Governorate

Table (2): the distribution of blood groups among male patients with lung cancer.

Blood group	Frequency	Percentage
A	40	81
O	5	10
B	3	6
AB	2	3
	50	100



Figure(2) Distribution of blood group among male patients

Table (3): the distribution of blood group among female patients with lung cancer.

Blood group	Frequency	Percentage
A	8	16
O	30	61
B	10	20
AB	2	3
	50	100

## The Association and Relation of Blood Group with Lung

### Cancer in Erbil Governorate

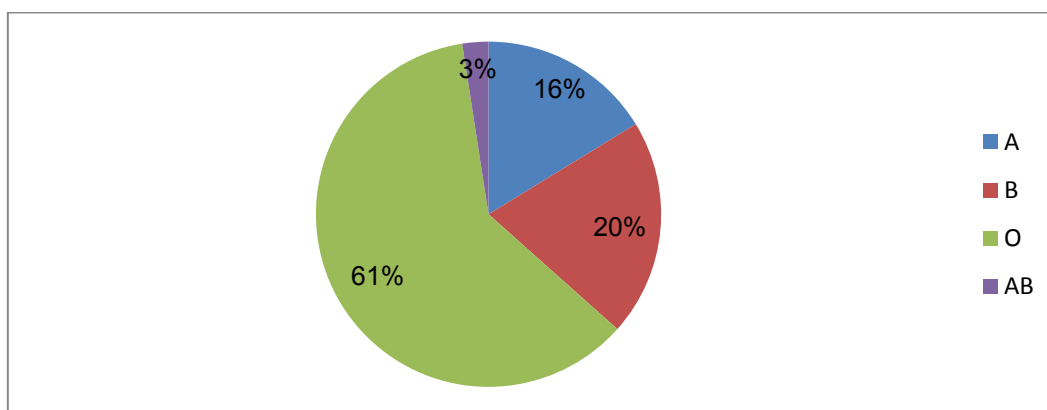


Figure (3) Distribution of blood groups among female patients.

Table (4): compare the distribution of blood group among male patients and female patients with lung cancer

Blood group	Male patients		Female patients		P value	Significancy
	Frequency	percentage	Frequency	Percentage		
A	40	81	8	16	0.000	HS
B	3	6	10	20	0.000	HS
O	5	10	30	61	0.000	HS
AB	2	3	2	3	0.000	HS
	50	100	50	100		

## The Association and Relation of Blood Group with Lung

### Cancer in Erbil Governorate

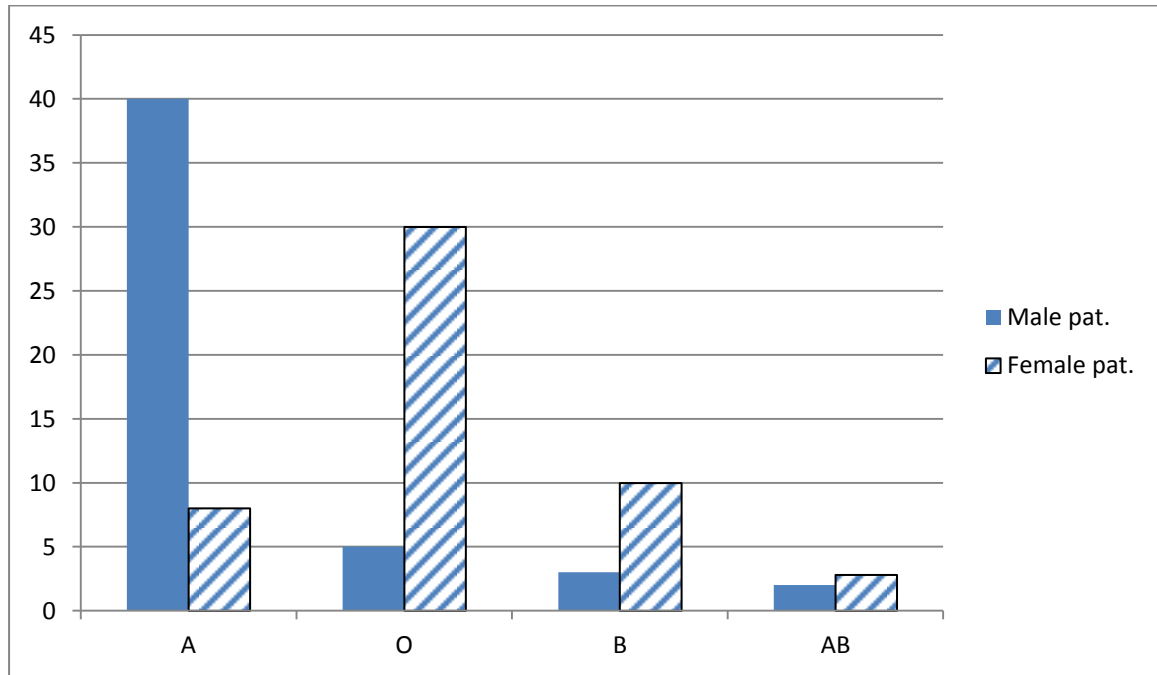


Figure (4): The distribution of blood groups between male & female patients with lung cancer .

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## **The Association and Relation of Blood Group with Lung**

### **Cancer in Erbil Governorate**

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