

A Study on Incidence of GIT (Stomach) Cancer in Relation to Age, ABO Blood Group and Rh Factor in Bangladesh

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Abstract-The prime objective of this study was to elucidate the incidence of GIT (Stomach) cancer in relation to ABO blood group and Rh factor in Bangladesh, so as to assess the utility of ABO blood group as a preclinical marker. The study was conducted on 450 histological proven cancer patients attending in the department of radiotherapy of three big hospitals in Bangladesh. The age, sex, ABO blood type and pathological status of all the patients were collected. Among the 450 cancer patients, GIT cancer was diagnosed in 385 patients of which 184 patients were male and 201 were female. The data were analyzed by statistical method to get the inference. When all the patients of GIT cancer were analyzed together, there was a highest frequency of data from stomach cancer. Furthermore, within the stomach cancer group, the highest proportion of patients was of A+ blood type. This indicates that the prevalence of stomach cancer is more common among the individuals with A+ blood group. Racial and ethnic distribution of blood groups is an important factor for predicting cancer risk and the identification of genetic and environmental factors among racial and ethnic groups should offer some insights into an observed epidemiological data and opportunities to better understand the control and development of cancer.

Index terms- Age range, Blood group, GIT (Stomach) Cancer, Graphical analysis, Preclinical marker, Questionnaires, Rh factor.

1. INTRODUCTION

THE ABO blood type, an easily accessible factor in patient's genetic makeup, has been associated with many diseases, though the explanation for the association with ABO blood groups and some disease is still unclear. A correlation of blood group antigen expression in tumor with metastasis and prognosis has been reported for various human malignancies, such as GIT, breast and prostate cancer as the blood group carbohydrates expressed on cell surface of metastatic cancer cells function as cell adhesion molecules. The prime objective of this project was to elucidate the incidence of GIT (Stomach) cancer in relation to ABO blood group and Rh factors in Bangladesh, so as to assess the utility of ABO blood group as a preclinical marker. Cancer, known medically as a malignant neoplasm, is a broad group of various diseases, all involving unregulated cell growth.

In cancer, cells divide and grow uncontrollably, forming malignant tumors, and invade nearby parts of the body. The cancer may also spread to more distant parts of the body through the lymphatic system or bloodstream. Not all tumors are cancerous. Benign do not grow uncontrollably, do not invade neighboring tissues, and do not spread throughout the body. There are over 200 different known cancers that afflict humans.[1]. Determining what causes cancer is complex. Many factors are known to increase the risk of cancer, including tobacco use, certain infections, radiation, lack of physical activity, obesity, and environmental pollutants[2]. These can directly damage genes or combine with existing genetic faults within cells to cause the disease [3]. Approximately five to ten percent of cancers are entirely hereditary. Stomach cancer, or gastric cancer, refers to cancer arising from any part of the stomach. Stomach cancer causes about 8, 00,000 deaths worldwide per year[4]. The ABO system is the most important blood-group system in human-blood transfusion. The associated anti-A and anti-B antibodies are usually immunoglobulin M, abbreviated IgM, antibodies. ABO IgM antibodies are produced in the first years of life by sensitization to environmental substances such as food, bacteria, and viruses. The O in ABO is often called 0 (zero, or null) in other languages [5]. The present study was performed in an attempt to find the relation, if any, between the type of blood and the prevalence of cancer.

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2. MATERIALS AND METHODS

2.1 Plan of the study:

1. Preparation of questionnaire
2. Visit to the hospital.
3. Performing interview with patients and counseling with physician or medical practitioner to fill the questionnaire
4. Analyzing the questionnaire.

2.2 Materials Used:

To conduct survey, questionnaire method was chosen to collect the data from the patients. Ten questions were framed and made in printed form. In hospitals printed questionnaire was filled through performing interviews with patients, physician or medical practitioner and the patient's files were checked. The present study was undertaken on 450 histological proven cancer patients attending in the Department of Radiotherapy of the following hospitals of Bangladesh from the period of august, 2012 to September,2012.

1. Chittagong Medical College and Hospital
2. Bangabandhu Medical University and Hospital.
3. Dhaka Medical College and Hospital.

The data of age, sex, ABO blood type and pathological status of cancer patients, during the period July to September, 2012 attending the Blood Bank with requisition for transfusion were collected.

1. NAME: MOMENA AKTER
 2. ADDRESS: HALISHAHAR, CHITTAGONG
 3. AGE: 61
 4. SEX: MALE FEMALE
 5. BLOOD GROUP: A+
 6. ANY HISTORY OF CANCER PATIENT IN FAMILY? YES NO
 7. IS PATIENT SMOKER? NOT SMOKER
 8. IF THE PATIENT HAD HEPATITIS BEFORE YES NO
 9. IF PATIENT HAD HPV INFECTION YES NO
 10. IF HAD CHRONIC CONSTIPATION YES NO
 11. CANCER OCCURE AT:
 GIT (STOMACH) CANCER

Fig: 1 filled up questionnaires.

2.3 Method Used:

The data were analyzed after collection by statistical method to get the inference. For the study, the bar chart and the pie chart were used to represent the scenario observed from the study.

3 RESULTS AND DISCUSSION

Total number of patients consulted: 450
 Male: 210
 Female: 240
 Number of patient of from blood group:

Blood group	No. of patients
A+	130
B+	114
AB+	47
O+	138
A-	6
B-	3
AB-	5
O-	7

Table: 1 Total number of patients of different blood group

3.1 Calculation of percentage of different cancer patients

Type of cancer	No. of patient	Percentage
GIT cancer	315	70
Lung cancer	35	7.78
Breast cancer	11	2.44
Brain tumor	14	3.11
Larynx cancer	75	16.67

Table: 2 Calculation of percentage of different cancer patients.

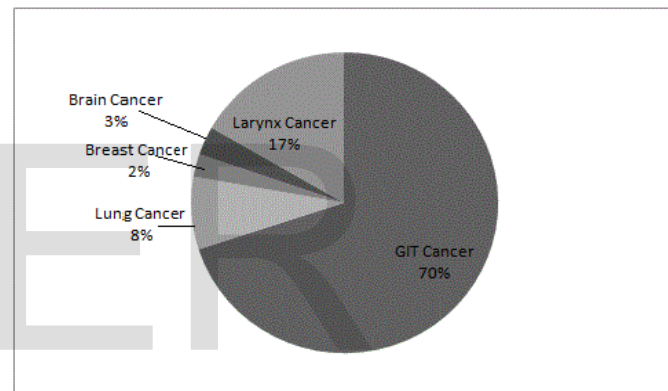


Fig: 2 Percentage of number of different cancer patients

Discussion: At above graphical representation we see that the number GIT cancer patients occupy the largest percentage than other cancer patients. So we can assume that largest percent of cancer patients are suffering from GIT cancer.

3.2 Calculation of Percentage of GIT Cancer patients (Gender wise)

	Male	Female
No. of patients	135	180
Percentage	42.86	57.14

Table: 3 Calculation of Percentage of GIT Cancer Patients (Gender wise)

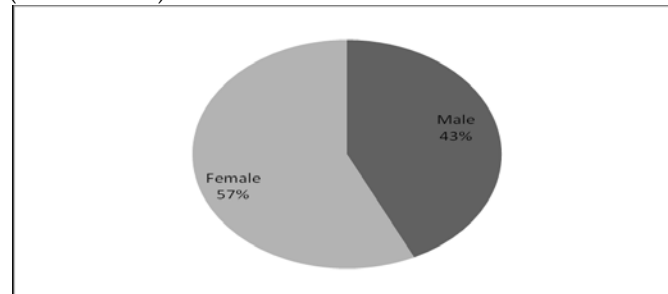


Fig: 3 Calculation of Percentage of GIT Cancer Patients (Gender wise)

Discussion: Above graphical representation indicates that the number of female GIT cancer patients occupies the largest percentage than male GIT cancer patients.

3.3 Calculation of percentage of patients of different GIT cancer

Type of GIT cancer	No. of patient	Percentage
Stomach cancer	232	73.65
Esophageal cancer	50	15.87
Colon cancer	8	2.54
Liver cancer	20	6.35
Anal cancer	5	1.59

Table: 4 Calculation of percentage of patient of different GIT cancer

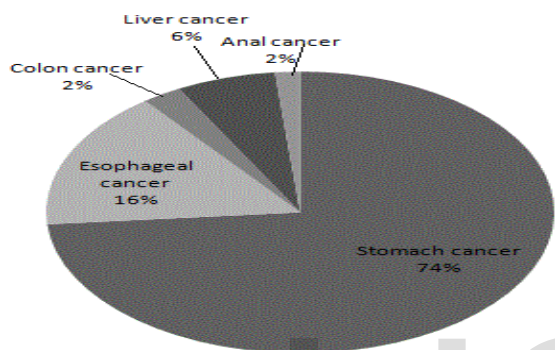


Fig: 4 Percentage of patients of different GIT cancer.

Discussion: This graphical representation indicates that the number of stomach cancer patients occupies the largest percentage than other type of GIT cancer patients.

3.4 Calculation of percentage of GIT Stomach cancer patients. (Age group wise)

Age range	No. of patients	Percentage
1-10	72	26.18
11-20	4	1.45
21-30	33	12.0
31-40	10	3.64
41-50	43	15.64
51-60	40	14.55
61-70	20	7.27
71-80	10	3.64

Table: 5 Calculation of percentage of GIT (Stomach) cancer Patients (Age range wise)

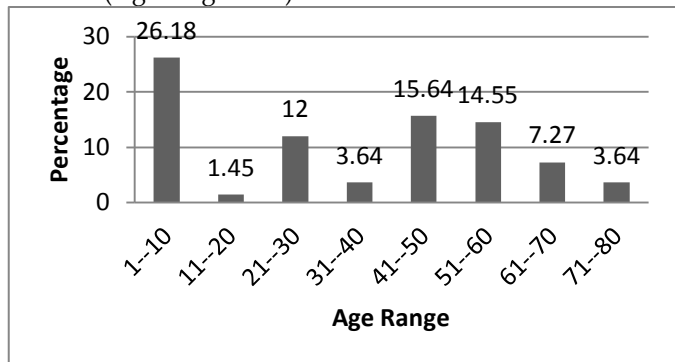


Fig: 5 Calculation of percentage of GIT (Stomach) cancer Patients (Age range wise)

Discussion: From this chart it is evident that patients from 1-10 years of age occupy largest percentage of GIT (stomach) cancer patients. Age groups from 41-50 and 51-60 also share considerably large percentage, about 15.64 and 14.55% respectively.

3.5 Calculation of percentage of different blood group holder GIT(Stomach) cancer patient.

Blood group	No. of patient	Percentage
A+	104	44.827
B+	35	12.727
AB+	13	4.737
O+	70	25.455
A-	3	1.091
B-	2	0.727
AB-	2	0.727
O-	3	1.091

Table: 6 Calculation of percentage of different blood group holder GIT (Stomach) cancer patients.

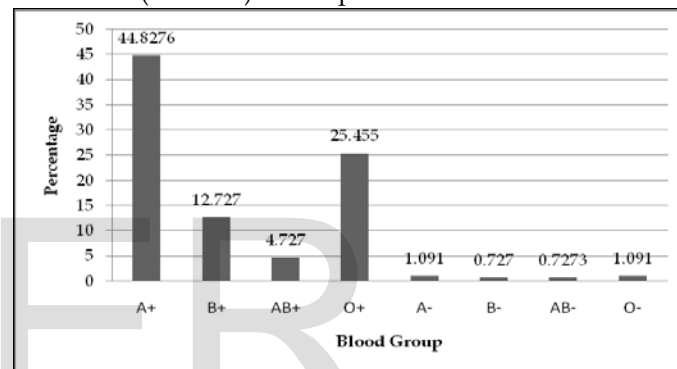


Fig: 6 Calculation of percentage of different blood group holder GIT (Stomach) cancer patients.

Discussion: Above graphical representation indicates that the number of A+ blood group holder patient occupies the largest percentage of cancer patients than other blood group holders and the value is 44.83%. Patients from O+, B+ and AB+ blood type occupies 25.455%, 12.727% and 4.727% respectively. The other blood types i.e. person with Rh negative blood have considerably lower percentage of incidence of cancer. The percentage value for them occupies below or just above one percent of all patients surveyed.

4. CONCLUSION

As net results from the survey that,

- The highest percent (70%) of cancer patients are suffering from GIT cancer in Bangladesh.
- Female patients are suffering more from GIT cancer than the male patients and the value is 57.14% in comparison to 42.86% for male.
- Highest number of people from age range of 1- 10 years are suffering from GIT (Stomach) cancer than people from other age groups.
- Largest numbers of people with Rh positive blood are diagnosed GIT cancer than people with Rh negative blood type.

The present study indicates that the prevalence of GIT (stomach) cancer is more common among the individuals with Rh positive blood group and it is especially prevalent in people with A+ blood type.

5. ACKNOWLEDGMENT

This study would not have been possible unless we couldn't get help from Dr. Mohammad Nasir Uddin, MBBS, BCS (Health), Assistant Registrar of Radiotherapy department of Chittagong Medical College and Hospital. He helped us for collecting data from patients. We are obliged to our friend Jannatul Ferdous Mithu who supported and encouraged us throughout the process.

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