



TYPES OF DIABETES MELLITUS INTERLINKED WITH CANCER, OTHER DISEASES AND COMPLICATIONS WITH OR WITHOUT CANCER

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ABSTRACT:

Background: There are two types of Diabetes mellitus which affect millions of people. Type 2 Diabetes mellitus affect human health the most, creating endemic effects worldwide. Rapidly increasing numbers of type 2 Diabetes mellitus cases along with associated diseases are negatively impacting millions of people.

Aim: To determine the link between cancer and Diabetes mellitus, the research started at a clinic.

Methods: Patients who were having Diabetes mellitus for 10-12 years were taken as a sample to determine the impacts of Diabetes mellitus on human health and formation of neoplastic cells in the body of diabetic patients.

Results: Patients with type 1 and type 2 Diabetes mellitus were having chances of cancer at 2-3% and 13%, respectively.

Conclusion: Awareness should be given on the impact of Diabetes mellitus on the health of people, link between Diabetes mellitus and cancer along with the preventative measures which could be taken to prevent Diabetes mellitus and its associated diseases.

KEYWORDS: In vivo results, epithelial cancer, stem cells, clinical research, types of cancer.

DOI Number: 10.48047/nq.2023.21.6.NQ23005

NeuroQuantology2023;21(6):33-39

INTRODUCTION:

There are two types of Diabetes mellitus which affect millions of people [1]. Type 2 Diabetes mellitus affect human health the most, creating endemic effects worldwide [2]. Rapidly increasing numbers of type 2 Diabetes mellitus cases along with associated diseases are negatively impacting millions of

people [3]. In diabetic patients most common symptom is weight loss and malnutrition [4]. Due to weight loss and malnutrition immunity of the diabetic patient is compromised which leads to different types of infections [5]. Due to increasing number of diabetes and the associated diseases mortality rates in developing countries are high [6]. The



etiological factors are sedentary life and obesity[7].This research helps in understanding the importance of balanced diet and adopting active lifestyle[8].This research establishes that those people who are affected by Diabetes mellitus are having more chances of developing cancer as compared to the people who are not suffering from Diabetes mellitus. If we compare type 1 to type 2 Diabetes mellitus we will conclude that there is a big difference between the effects of both of these type of Diabetes mellitus as type 1 Diabetes mellitus causes stomach cancer, cervix and ovarian cancer in females [9]. Most these cancerous diseases occur at the age of 9-14 years. In short if we say that there is a link because most of diabetic patients suffer from cancer [10]. Most of the Doctors all over the world are of the view that patients who don't come for regular medical checkups or ignore the advice of doctor are at risk of developing severe form of diseases and complications[11].

METHODOLOGY:

A study was held where we collect the data of different patients who were suffering from type-1 or type-2 diabetes mellitus and visiting the clinics for their regular Medical checkups. Lower age limit was 25yrs in the study and those patients were suffering from diabetes mellitus for at least 8-10yrs.It took us a whole year to complete this study and collect all the data.

We took 760 patients of type 2 diabetes mellitus and 340 patients of type 1 diabetes mellitus. In this study every patient was asked about the onset of symptoms, first visit to doctor, diagnosis of diabetes mellitus, associated diseases like hypertension and ischemic heart disease, history of cancer(whether it was before diabetes mellitus or after diabetes mellitus, drug history, family history of diabetes mellitus, personal history including habits like smoking, socioeconomic status, activity level in daily routine and food habits. Everything related to patient was noted in chronological order.

After compiling detailed information from all the patients selected for this research. We separated patients with type 1 diabetes mellitus from type 2 diabetes mellitus

patients than we compared association of cancer to both types of Diabetes mellitus. Most of these were not regular in their regular medical checkups and never visited the hospital for at least a year and half after the disease. We also separated the patients who were suffering from either of the two types of diabetes mellitus along with cancer from the patients who were suffering from diabetes mellitus alone.

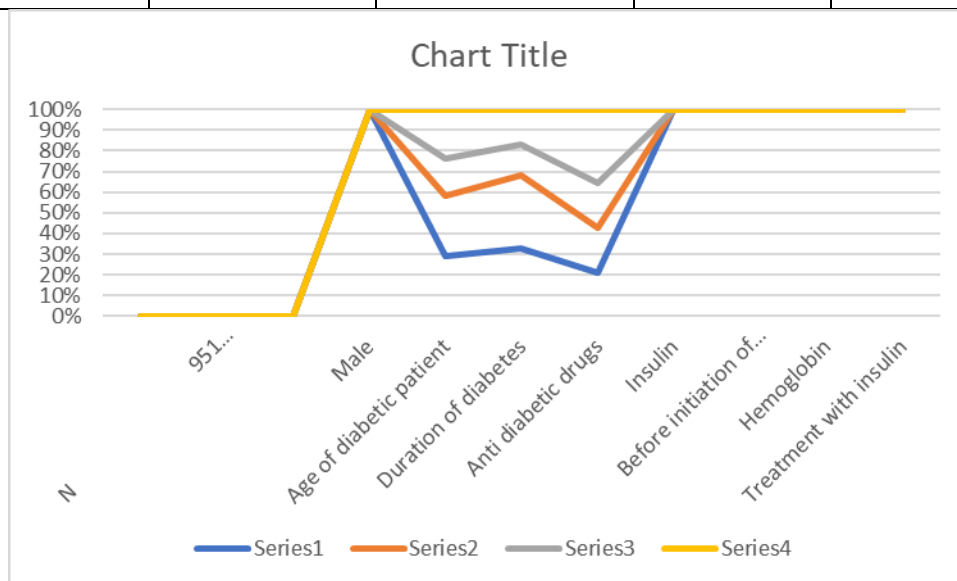
RESULTS:

The average age of the patients was 20-70yrs and their history of diabetes mellitus was about 10-18 years. The patients who got diabetes mellitus at an early age were having more impact on their health as compared to the patients who got the disease at later ages. There was also relation between the deterioration of health and the total time of disease a person suffered. As there was a patient who was about 65 years of age suffering from diabetes mellitus for the last 18 years his Hemoglobin was 8.0 and his body weight was about 80 kg while a Patient with 45 years of age was suffering from diabetes mellitus from last 25 years with Hemoglobin 7 and body weight of 60kg. We took patients taking both types of medication (Oral Medication and Insulin). About 54% of them were smokers out of those 35% left smoking in their past. If we talk about percentage of cancer in diabetic patients then we noticed that about 4% of patients who were suffering from type 1 diabetes mellitus were having cancer but on the other case about 13% of them was those who were suffering from type 2 diabetes mellitus were having cancer. Most of the patients who were suffering from either type of Diabetes mellitus along with cancer were 40-45 yrs. of age and having history of diabetes mellitus for about 13-15 yrs. Results according to their age, gender, blood pressure, body weight, duration of diabetes mellitus, smoking history, their height etc. Than we compared difference between the treatment (Insulin or Oral Medication). Results have shown that there is no difference between patients taking oral medicines or Insulin as the percentage of cancer between them was equal. In females, the ratio of breast cancer was high along with

long history of diabetes mellitus. In male patients mostly with history of smoking current or past were suffering from lung

cancer with the history of diabetes mellitus with about 14-16 years.

N	T2D		T1D	
	951	CA + (n=101.0%) 11.0%	101	CA+ (n=3) 3.0%
Male	544	54%	59.9%	
Age of diabetic patient	68.5%	70.0%	42.5%	56.5%
Duration of diabetes mellitus	51.0%	54.0%	22.7%	26.5%
Anti diabetic drugs	19.0%	19.5%	19.4%	32.1%
Insulin	653	64.5%		
Before initiation of insulin	23	1.2%		
Hemoglobin	278	36.5%	8.4%	6.6%
Treatment with insulin	298	28%	25.6%	23.5%

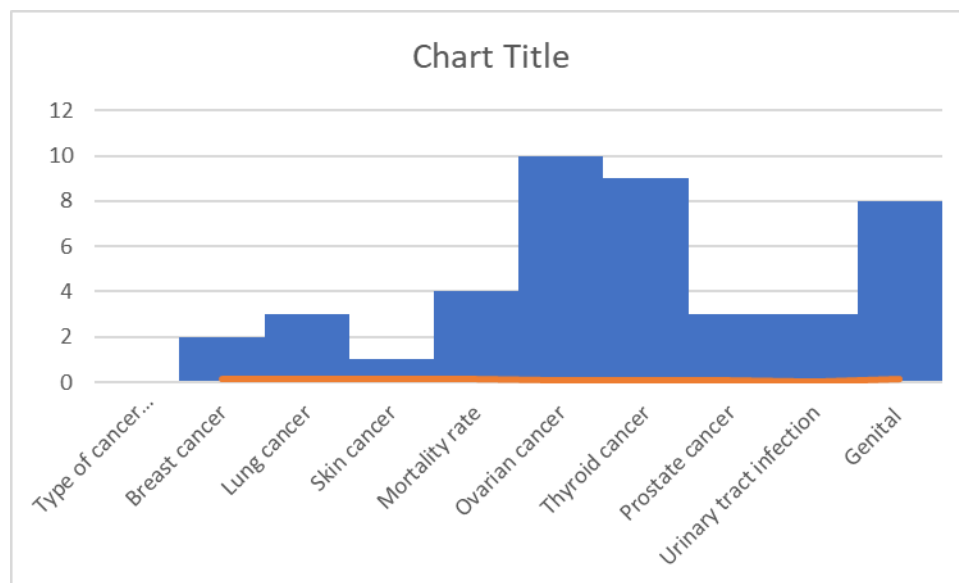


Considering this research, we have noticed that they were patients with long standing history of Diabetes mellitus visiting our clinic for their medical checkup for the first time, after taking results we have seen that type 2 diabetes mellitus patients were about 951, 11% of them were suffering from cancer between the age of 60-65 years and if we look into type 1 diabetic patients then they were about 341 and were having cancer about 13% at the ages of 50-55 years.

Type of cancer	Patients with regular checkup	%
Breast cancer	2	15.8%
Lung cancer	3	13.9%
Skin cancer	1	13.9%
Mortality rate	4	12.9%
Ovarian cancer	10	8.0%
Thyroid cancer	9	6.3%
Prostate cancer	3	6.4%
Urinary tract infection	3	3.2%



Genital	8	17.5%
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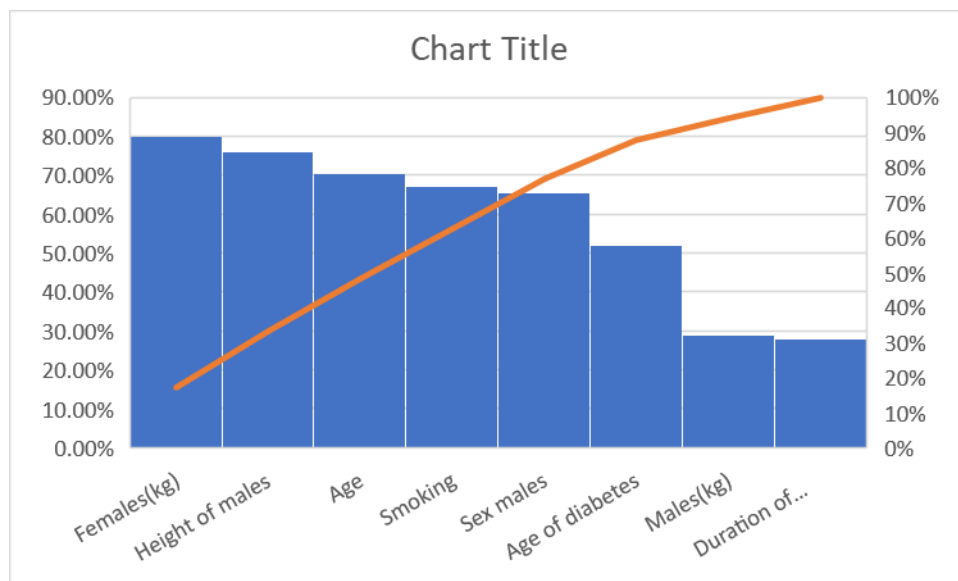


Comparison of patients with cancer and without cancer during diabetes mellitus.

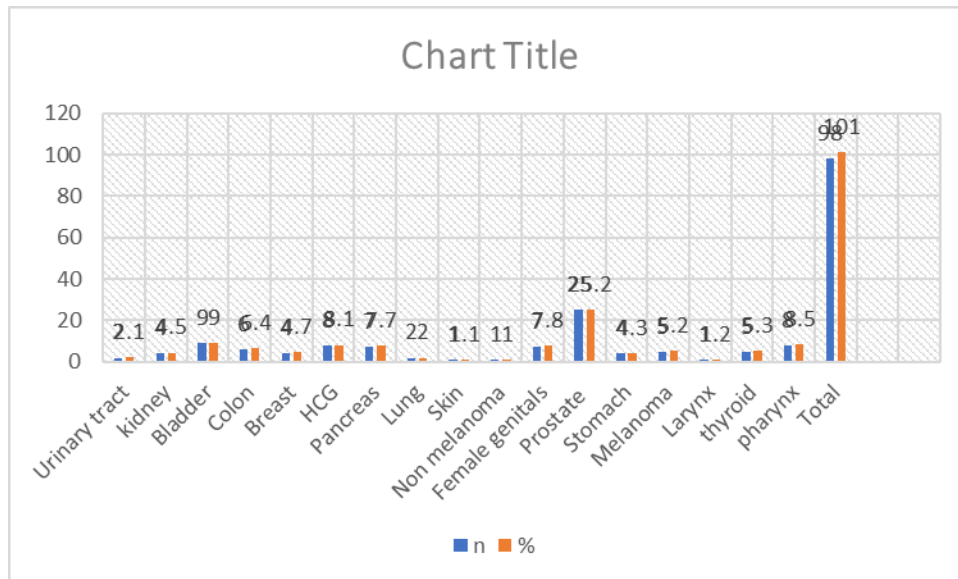
	CA (n=94) 13.4%	T2D CA (n=675)	p	CA+ (n=2) 2.5%	TDM CA- (n=119)	p
Sex males	65.5%	58.9%	NS	51.2%	52.2%	NS
Age	70.5%	69.3%	<0.06	50.0%	47.3%	NS
Age of diabetes mellitus	52%	54.4%	<0.04	39.7%	24.4%	<0.01
Duration of diabetes mellitus	28%	20.0%	NS	12.6%	48.9%	<0.03
Smoking	67%	53.2%	<0.03	51.0%	26.5%	NS
Males(kg)	29%	29.5%	NS	33.2%	81.4%	NS
Females(kg)	80%	82.4%	NS	96.5%	1.3%	NS
Height of males	76%	75.3%	NS	75.5%	1.6%	NS
Height of females	17.0%	12.8%	NS	1.8%	99.9%	NS
Waist of males	15.8%	12.4%	NS	1.7%	88.6%	NS
Waist of females	17.8%	15.2%	NS	1.6%	130.5%	NS
SAP	99.6%	98.1%	NS	101.3%	78.7%	NS
DAP	96.7%	45.8%	NS	98.9%	7.6%	NS
A1c%	13.8%	18.7%	NS	88.9%		NS
A ODs	80.5%	89.5%	NS	130.2%		
Insulin	7.1%	6.9%	NS	74.2%		
Before initiation of insulin	54.1%	55.1%	NS	8.1%		
Duration of	72.3%	77.4%	NS			



treatment						
Co existence	58.0%	69.0%	NS	67.7%	48.5%	NS



	n	%
Urinary tract	2	2.1
kidney	4	4.5
Bladder	9	9.0
Colon	6	6.4
Breast	4	4.7
HCG	8	8.1
Pancreas	7	7.7
Lung	2	2.0
Skin	1	1.1
Non melanoma	1	1.0
Female genitals	7	7.8
Prostate	25	25.2
Stomach	4	4.3
Melanoma	5	5.2
Larynx	1	1.2
thyroid	5	5.3
pharynx	8	8.5
Total	98	101.0



DISCUSSION:

Research is based on a common disease in our society. Some patients who were suffering from diabetes mellitus were selected to find out the occurrence of cancer and type of cancer in those patients [12]. Different types of studies were held considering patients having history of at least 10-12 years of Diabetes mellitus and a detailed procedure was performed on them for best outcomes. Different type Cancer was diagnosed with different percentages in both type of diabetes mellitus [13].

Patients who were regular in their medical checkups were having about 9.5% of cancer while those who were irregular or not getting medical checkups and proper medication were having percentage of about 13% [14]. In patients who were young and suffer from type 1 diabetes mellitus, 3.5% were going for regular checkup and 2.5% were not taking proper medication nor they were getting regular medical checkups and was not going to clinics. In this study, it is noticed that chances of cancer in patients who was suffering with diabetes mellitus was more as compared to any common person who was not having diabetes mellitus of any type and also seen that different types of cancer was noticed between these patients [15]. Their treatment was also not same, as some of the patients were taking oral medicines and some of them were taking insulin to control their level of glucose. But there was no difference between the patients who were taking oral

medication or taking Insulin with respect to occurrence of Cancer.

We also noticed that patients suffering from diabetes mellitus for last 10-12 years, were not going for regular medical checkup for about 6 months.

Cancers was present with different percentages in males and females as breast cancer in females was about 13.2% most of them were not going for their regular checkup for at least a year. On the other hand lung cancer also effected many lives. Smokers who were also suffering with diabetes mellitus were more at risk of developing lung cancer, ranging about 10.4%. Some cardiac issues were also seen during this research.

CONCLUSION:

After considering 951 patients linked to type 2 diabetes mellitus and 340 patients linked to type 1 diabetes mellitus with variation in patterns of taking medication and regular medical checkups we came to conclusion that there was not much difference between those patients who was taking oral medication to those who were taking insulin with respect to getting cancer. Different types of cancers got diagnosed between them as breast cancer in women, colon cancer, throat cancer, lung cancer etc. Lung cancer mostly occur due to smoking. Most of the patients who were having diabetes mellitus didn't get any cancer. We have also noticed few cardiac issue and hypertension associated with diabetes mellitus during this study, leaving very serious impact on patients life. So



doctors should give awareness to their patients on the serious impacts of diabetes mellitus and its associated diseases and how to prevented these diseases like diabetes mellituscancer and heart diseases.

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