

A Systematic Review Study on the Communication between Diabetes and Cancer: The Serious Risk of Cancer in Diabetic Patients

Mostafa Madmoli^{1*}

Emergency Medical Technician, Dezful University of Medical Sciences, Dezful, Iran.

ABSTRACT

Introduction: Diabetes is a chronic metabolic disease which accounts for 15 percent of healthcare spending in the United States. Patients with diabetes have been reported to increase the risk of cancer by 20 to 25 percent compared to those without diabetes. In this study, we intend to examine the relationship between these two diseases by examining several studies. Therefore, this systematic review was conducted to determine the relationship between diabetes and cancer and the risk of developing cancer in diabetic patients.

Materials and Methods: This study is a systematic review in order to achieve the goal of the study and to enhance the accuracy of its study and comprehension, this integrated overview study was conducted based on the Broome method. Broome's method is based on three steps in the search for texts, data evaluation and data analysis. So, in the search phase, post-retrospective study texts are examined in four stages in terms of inclusion criteria. After obtaining the conditions for entry into the study, the content of the study is evaluated and at the end of the data was analyzed.

Results: Ten articles were reviewed in this study that There was an association between diabetes and cancer and a serious risk for cancer. One of these studies has shown that diabetes is associated with an increased risk of breast cancer. Analysis of all 20 researches that studied in this study. Showed that women with diabetes (versus diabetic men) had a 20 percent increased risk of breast cancer.

Conclusion: There was a serious relationship between diabetes and various types of cancer in this study. Therefore, patients with diabetes need to have a special diet and take the necessary precautions. It should also be emphasized on the screening of breast cancer and other types of cancer by conducting tests and diagnostic work for the rapid diagnosis of cancer among diabetic patients. That to be provided the possibility of early detection of cancer and reduce mortality.

Keywords: Obesity-related cancer, Diabetes, cancer patients, diabetic patients

Introduction

Diabetes is a chronic metabolic disease that accounts for 15 percent of the health care costs in the United States. The prevalence of diabetes in

Iran is about 3-17%, depending on the geographical area and 4 million Iranian people are at risk of it. Increasing your blood glucose can cause early and late complications of diabetes (1-7).

Address For Correspondence:

Mostafa Madmoli, Emergency Medical Technician, Dezful University of Medical Sciences, Dezful, Iran.
E-mail: mostafamadmoli10@yahoo.com

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Complications of diabetes are very common among patients. Foot complications in people with diabetes have various muscular and neuropathic musculoskeletal disorders and circulatory disorders (8-14). Among the many complications of diabetes, it can be said that type 1 diabetes also affects the functioning and functioning of the digestive system. And the most common digestive symptoms include delayed stomach imagination, Gastroparesis, changes in the mobility of the small intestine, Gastroparesis with symptoms of anorexia, nausea, vomiting, premature somnolence and abdominal bloating. Lifestyle behaviors, including nutritional behaviors, play an important role in preventing and managing diabetes (15-21).

One of the disorders found in diabetic patients is depression. Which is one of the most debilitating problems in youth and adolescence (22, 23). Job stress is a combination of stressors and job-related situations which most people agree on being stressful. High occupational stress is known as a known psychosocial factor in cardiovascular disease (24, 25).

Diabetes also affects thalassemic patients. Thalassemia is a hereditary anemia. Blood transfusion has complications, some of which are related to immunologic complications and some Non-immunologic complications. (26-30).

In general, diabetes can cause various diseases, as well as a variety of cancers. Patients with diabetes have been reported to increase the risk of cancer by 20 to 25 percent compared to those without diabetes (31).

In this study, we intend to examine the relationship between these two diseases by examining several studies. Therefore, this systematic review was conducted to determine the relationship between diabetes and cancer and the risk of developing cancer in diabetic patients.

Materials and Methods

This study is a systematic review in order to achieve the goal of the study and to enhance the accuracy of its study and comprehension, this integrated overview study was conducted based

on the Broome method. Broome's method is based on three steps in the search for texts, data evaluation and data analysis. So, in the search phase, post-retrospective study texts are examined in four stages in terms of inclusion criteria. After obtaining the conditions for entry into the study, the content of the study is evaluated and at the end of the data was analyzed.

The study, based on articles published in the last 25 years, was about the risk of developing cancer in diabetic patients. It was conducted by searching articles in search engines, SID, Magiran, Google Scholar, Embase, Science Fiction, Researchgate, Scencedirect, PubMed in Persian and English. In the first stage, 38 articles were found. Of these, 14 articles related to the subject, published in the last 25 years, were reviewed.

Studies in line with the research goal They were written in English or Persian, access to their full text was possible and published over the last 25 years and unnamed studies were deleted without history and non-academic.

To achieve relevant studies, a wide range of keywords including Obesity-related cancer, Diabetes, cancer patients and diabetic patients was used as a one-to-one search, combined with the method "And" and "OR".

Results

Diabetes is a chronic metabolic disease that accounts for 15 percent of the health care costs in the United States. The prevalence of diabetes in Iran is about 3-17%, depending on the geographical area and 4 million Iranian people are at risk of it. Increasing your blood glucose can cause early and late complications of diabetes (1-7). Patients with diabetes have been reported to increase the risk of cancer by 20 to 25 percent compared to those without diabetes (31). In this study, we want that by reviewing 14 articles, understand the link between diabetes and cancer.

Studies have shown that diabetes increases the chance of different types of cancer. For example, several studies have shown that diabetes increases the risk of colorectal cancer. In a study (32), the incidence of colorectal cancer in diabetic

patients was 2.1 times higher than non-diabetic controls. And in another study, the odds of having colorectal cancer in diabetic patients were 1.23 times higher (33). Another study also found that diabetes increased the chances of developing colorectal cancer. In this study, 207 patients with colorectal cancer had 48 patients with diabetes in contrast, of the 207 controls, only 21 were diabetic. So in this study, diabetes can increase the chances of developing colorectal cancer (34).

In a study that was done, found that diabetes is associated with an increased risk of breast cancer. Analysis of all 20 studies studied in this study. Showed that women with diabetes (versus diabetic men) had a 20 percent increased risk of breast cancer. (35).

In a study, this study showed a significant relationship between type 2 diabetes and colon adenomas. Exposure to insulin and thiazolidinedione was associated with the formation of adenoma and none of the types of analgesic drugs and HbA1c levels were predictive of adenoma (31).

In another study, more than 6,000 new cases were diagnosed. In men, there is a risk of total cancer in those with a history of diabetes Increased by 27%. We also saw an increased risk of colon cancer and gastric cancer with borderline significance. In women, the incidence of cancer has increased significantly at the borderline, while the incidence of gastric cancer and liver cancer was statistically significant and the incidence of ovarian cancer was observed at the border (36).

The association between diabetes and primary liver cancer in a study, 59 cases with gallbladder cancer and bile ducts and 1502 controls in the hospital for non-acute illnesses Sixty-four cases of hepatocellular carcinoma have been reported in 87 diabetic patients (37).

In the study, there was no significant relationship between diabetes and gallstone, esophageal and stomach cancers. Diabetes was associated with an increased risk of developing liver, pancreatic, colon, and rectal cancers. The severity of diabetes, due to the length of time or the need for drug therapy, seemed to have a stronger association

with the risk of developing liver, pancreatic and rectal cancers, but it did not have colon cancer (38).

In a study that was done, the risk of developing pancreatic and liver cancers among diabetic patients has increased. The increased risk of pancreatic cancer was fully apparent to people with diabetes. On the contrary, an increased risk of liver cancer was independent of the distance between diabetes and the diagnosis of cancer. There was no relation to esophagus, stomach, colon, rectum, lung, prostate, bladder, and kidney cancer. As a result, diabetes was associated with an increased risk of liver cancer among men (39).

In one study, diabetes mellitus was associated with an increased risk of colorectal neoplasm. The risk of colorectal cancer also increased significantly (40).

Of course, there was no significant relationship between diabetes and cancer in studies. For example, in a study by Dash et al. On African Americans, there was no significant relationship between diabetes and colorectal cancer (41).

According to studies such as (34), (42-44), A significant and positive relationship was found between high-fat diet and consumption of red meat with colorectal cancer.

Discussion

In general, diabetes can cause various diseases, as well as a variety of cancers. Patients with diabetes have been reported to increase the risk of cancer by 20 to 25 percent compared to those without diabetes. (31). In this study, we intend to examine the relationship between these two diseases by examining several studies. Therefore, this systematic review was conducted to determine the relationship between diabetes and cancer and the risk of developing cancer in diabetic patients.

According to the study (32-34), which showed diabetes mellitus increases the chances of developing colorectal cancer, colorectal cancer is a common and fatal illness with a high incidence of occurrence in different parts of the world and is the third leading cause of cancer deaths in the world (45). Cancer occurs when parts of the body

begin to grow uncontrollably. One of the common cancers in women and men is colorectal cancer. Colorectal cancer is the fifth cancer in males and the third cancer in women in Iran (46, 47). The best way to prevent this disease is by feeding properly and using fiber in the diet. Constipation should be prevented if constipation is one of the most important causes of colorectal cancer.

Also, according to study (35), which showed diabetes was associated with an increased risk of breast cancer, and people with breast cancer at the age of menopause are more likely to have diabetes. Even statistics show that people with diabetes also have a chance of developing breast cancer, and about 20% of these people develop breast cancer. Lifestyle changes can reduce the risk of breast cancer. One of the factors that people with breast cancer are at risk for diabetes are estrogen resistance in the stages of chemotherapy. Using some medications such as glucocorticoid in chemotherapy can increase your blood glucose, use of these drugs is to prevent inflammation and nausea. When the body resists insulin, it is prone to spreading diabetes and a variety of cancers this may happen in people who have breast cancer. Also, in diabetics, with increased levels of insulin, breast tissue changes that increase the risk of developing breast cancer. Statistics show that people with advanced breast cancer and at the same time have diabetes, they have larger tumors than other breast cancer patients and in these people, the possibility of spreading the disease is also higher in the case of diabetes.

Also, in study (36), we saw an increased risk of colon cancer and gastric cancer with borderline significance. Overall, it can be said that the study showed that diabetes is associated with a serious risk of developing a variety of cancers.

Conclusion

There was a serious relationship between diabetes and various types of cancer in this study. Therefore, patients with diabetes need to have a special diet and take the necessary precautions. It should also be emphasized on the screening of breast cancer and other types of cancer by

conducting tests and diagnostic work for the rapid diagnosis of cancer among diabetic patients. That to be provided the possibility of early detection of cancer and reduce mortality.

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