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THE RELATIONSHIP BETWEEN DIET AND TYPE 2: DIABETES IN NIPPUR CITY

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Abstract:
One of the most prevalent illnesses worldwide is type 2 diabetes. The complicated causes of this illness are associated with both irreversible factors like age, genetics, race, and ethnicity as well as changeable risk factors including food, exercise, and smoking. It is therefore a nutritional choice for sugar and carbohydrates, which makes the human body unable to absorb these products as much due to a deficiency in the light chest, Also, diabetes is a result of the fact that the body cannot use glucose for energy, which is why the body must rely on protein and fatty foods as a source of energy. The purpose of this study was to determine the variables that influence diabetes and to look into the connection between dietary practices and type 2 diabetes, including obesity, aging, and failure to adhere to a specific diet. When doing this test for 20 people, we needed a biorx device, Tornica, EDTA, and a syringe in this method. This case control study included 20 individuals aged between 29-82 and residing in the Nippur city district. Most of the patients were diagnosed with type 2 diabetes.

Introduction

Part one: Literature Review

1.1 Diabetes

Diabetes is a prevalent illness that impacts individuals of all ages. Type 2 diabetes is the most prevalent of the several types of the disease. You may manage your condition, lead a healthy life, and prevent problems using a variety of treatment approaches. (Duarte, A.A., Mohsin, S. & Golubnitschaja, O. Diabetes) [1]. Excessively high blood sugar (glucose) levels are the cause of diabetes. Diabetes occurs when the body does not respond properly to the effects of insulin, or when the pancreas does not produce any insulin at all. Diabetes affects people of all ages. All types of diabetes can be controlled with medication and/or lifestyle changes, even though most are chronic (lifelong). (Fernandez-Veledo S, Nieto-Vazquez I, Kramer DK, Vila-Belmar R, Garcia-Guerra L, Lorenzo M.) [2] 1.2.

A historical overview of diabetes and Diabetes poses a major threat to public health and health care systems due to several diseases that arise after its onset There are different places in the geographical spread of the disease. The highest initial prevalence of diabetes was recorded in the eastern Mediterranean region in 1980, followed by a prevalence that reached 0.23%, and it led to a prevalence of 2.3 in 2014. Likewise, the European region appeared in 1980, with two-thirds of the highest prevalence rate. (Ghalioungui P. The

Ebers papyrus: A new English translatio 1987) [3] 1.3. Type 1, type 2, and gestational diabetes are the most prevalent forms of the disease. The body makes extremely little or no insulin when a person has type 1 diabetes. The pancreatic cells that produce insulin are attacked and destroyed by the immune system. Although it can affect people of any age, type 1 diabetes is most frequently diagnosed in teenagers and young adults. To survive, people with type 1 diabetes must take insulin every day. Type 2 diabetes is limited to insulin-resistant tissues that do not respond to insulin, either high or low levels of the hormone are required. When the medication is unable to boost production, renasolin is secreted naturally. For you, insulin What a needy individual. Type: 3 diabetes during pregnancy. During pregnancy, some people develop this type. After giving birth, gestational diabetes typically goes away. On the other hand, type 2 diabetes is more likely to occur in later life if you had gestational diabetes. Diabetes other than type 1 (February 17, 2023)

1.2 Type 2 diabetes (T2DM):

It is a prevalent non-communicable disease, and its rising incidence is a serious worldwide health problem. The International Classification of Diabetes (Diabetes Atlas, 10th Edition, International Diabetes Federation) estimates that 537 million people globally (one in ten persons aged 20–79) possess diabetes in 2021. This figure is predicted to rise to 643 million by 2030 and 783 million by 2045 [5]. Diabetes is more common in low-income nations; by 2030, 69% of cases will be found in developing nations (Shaw JE, Sicree RA, Zimmet PZ. Estimates 2010 and 2030) [6]. The declaration emphasizes results from earlier studies showing a strong correlation between dietary habits and type 2 diabetic mellitus (T2DM). A higher risk of metabolic syndrome and its components, including type 2 diabetes, is linked to diets high in meat, fatty foods, and refined carbs (such as sweets). It is thought that these eating habits lead to insulin resistance, which is a major cause of type 2 diabetes. (Aekplakorn W, Numsangkul S, Tantayotai V, Tatsato) [7]. Fifteen research conducted in Korea and Japan have connected diabetes to foods high in carbs. High consumption of red meat is also associated with an increased risk of diabetes. (Kim K, Yun SH, Choi BY, Kim MK. 2008) [8]. Evidence suggests that dining alone, eating too rapidly, and skipping breakfast are among the dietary habits linked to type 2 diabetes and obesity. (Ballon A, Neuenschwander M, Schlesinger S. Skipping) Your statement effectively sets the context for the study by emphasizing the importance of understanding dietary behaviors as modifiable risk factors for type 2 diabetes mellitus (T2DM). Here's a revised and polished version for clarity and flow: "Dietary behavior is influenced by individual lifestyle choices, including food selection, meal frequency, and intake schedules. Designing successful interventions and programs to modify dietary patterns requires gathering more evidence and understanding the mechanisms underlying these behaviors. Little research has been conducted in Thailand on dietary practices and eating patterns, despite their importance as modifiable risk factors in the prevention and

management of diabetes. Thus, Yimard, Srichan, and Abidichul's study sought to determine the most prevalent dietary practices among Thai people and explore the relationship between these practices and the incidence of type 2 diabetes [9]. This study suggests that changes in daily glucose patterns or mean plasma glucose levels may not always be linked to glycemic management in diabetic patients. This suggests that glycemic control may be regulated or determined by variables other than glycemic fluctuations. Furthermore, the statement about dietary fats highlights the complexity of their relationship with Type 2 Diabetes Mellitus (T2DM). Similar to carbohydrates, dietary fats have shown inconsistent associations with T2DM, suggesting that other dietary, metabolic, or genetic factors may Influence how fats affect diabetes risk and management. This underscores the importance of individualized dietary recommendations rather than broad generalizations about macronutrients. (Peterson DB, Lambert J, Gerring S, Darling P, Carter RD) [10].

1.3 Symptoms

Blood sugar levels determine the symptoms of diabetes. Some individuals, especially those with type 2 diabetes, gestational diabetes, or prediabetes, may not experience any symptoms. Type 1 diabetes, however, usually presents with more severe and rapid symptoms.

- Experiencing increased thirst.
- Urinating frequently
- Accidentally losing weight.
- Urine contains ketones. When fat and muscle are broken down, ketones are produced.

Occurs when there is insufficient insulin in the body.

- Weakness and exhaustion.
- Mood swings, such as irritability.
- Impaired vision.
- Slow healing of wounds.
- A higher risk of infections, including skin, gum, and vaginal infections. (Beyond Type 1. Forms of Diabetes 2/17/2023.)[11] 18

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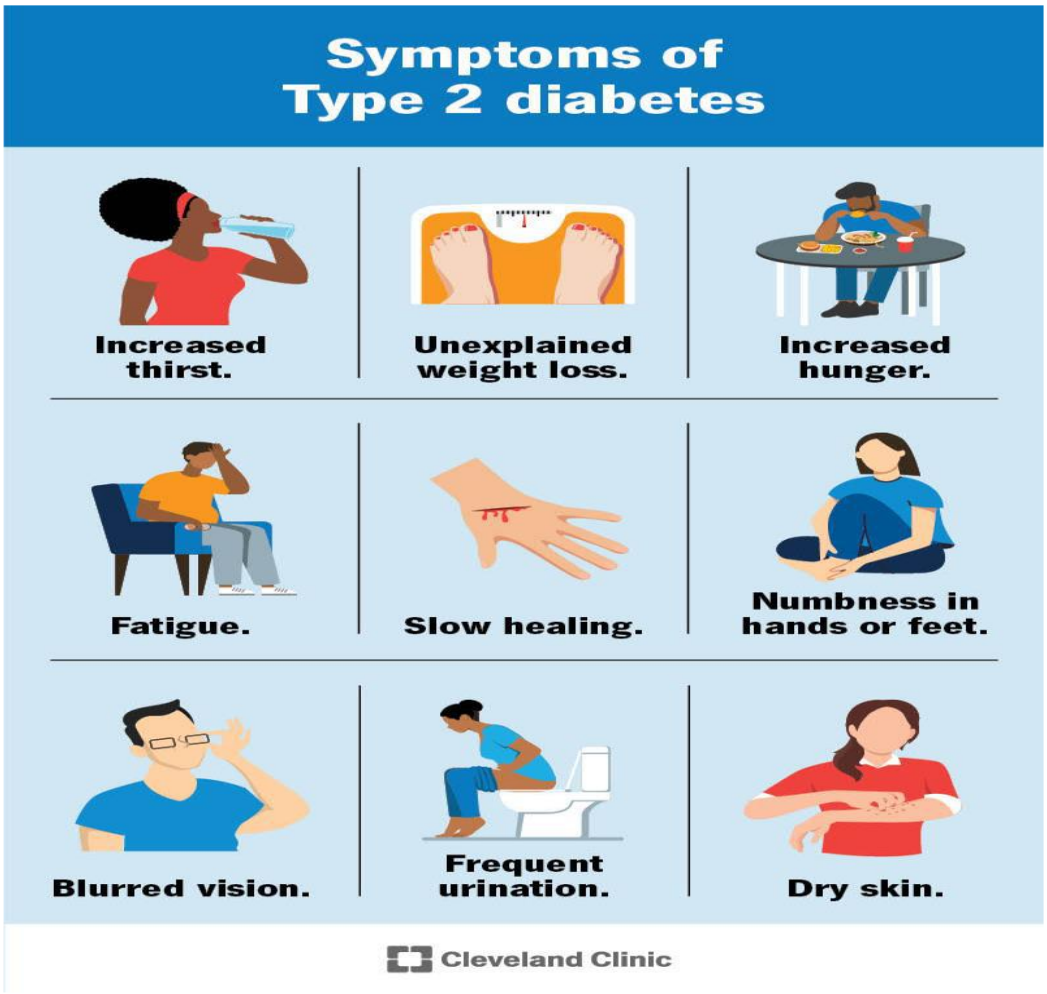
Image (1): symptoms of type 2 diabetes



1.4 Type 2 Diabetes Complications

Over time, type 2 diabetes causes significant damage to almost all organs in the body. Therefore, the greatest concern for people with diabetes is the long-term problems associated with the disease. Some of the most prominent of these problems include: (Vijan S. In the clinic. 2010;152(5) [12] □ Major Complications of Type 2 Diabetes Mellitus (T2DM):

1. Cardiovascular diseases: Almost all medical conditions associated with type 2 diabetes are linked to cardiovascular diseases, including:

- Coronary heart disease
- Congestive heart failure
- Arterial hypertension (Vijan S. In the clinic. Type 2 diabetes. 2010;152(5) [13].

2. Diabetic Nephropathy (Kidney Disease): Diabetic nephropathy (DN), the main cause of end-stage renal disease (ESRD), is one of the most hazardous long-term microvascular effects of diabetes. 20 Research should focus on creating novel treatments for this terrible

illness since DKD is a significant social and economic burden and a global issue. (Manpreet K. Sagoo, Luigi Gnudi 3-7, 2019) [14]

3. Diabetic Neuropathy (Nerve Damage): About 50% of diabetics suffer from the crippling condition known as diabetic neuropathy. In type 1 diabetes, it manifests late, whereas in type 2, it may manifest early. Autonomic and sensory-motor neuropathy are the two primary forms of diabetic neuropathy. (Ann M Aring, David E Jones, James 2005) [15]

4. Diabetic Foot Problems: Nearly half of all hospital bed days due to diabetes are caused by diabetic foot issues. At some point in their lives, 10–15% of diabetic individuals developed foot ulcers, and 15% of all amputations are performed on diabetic patients. (Jamal Ahmad Diabetes & Metabolic Syndrome:48–60, 2016) [16]

5. Stroke Increased risk due to uncontrolled blood sugar and hypertension. •Prevalence: 6-12% 21 Impact on Patients and Healthcare Systems: Financial Strain: The cost of treating diabetes and its complications is immense, affecting both individuals and healthcare budgets. Quality of Life: Vision loss, chronic pain, and reduced mobility lead to a lower quality of life and increased dependency. Mortality Risk: Studies indicate that mortality from all causes in diabetic patients ranges between 14-40%. (FarrahM. The impact of peer 2012; 26:179–210.) [17] 22.

1.5 Diagnosis

A patient's capacity to consume and store glucose is assessed using the glucose tolerance test (GTT). Reactive hypoglycemia, diabetes mellitus, insulin resistance, reduced pancreatic beta cell activity, acromegaly, and other illnesses related to carbohydrate metabolism are commonly detected by this test. (Cathi J SwiftStatPearls [Internet], 2023; Emily Eyth, Hajira Basit) [18]. It appears that you may be referring to disorders associated with glucose metabolism and diagnostic procedures such as the oral glucose tolerance test (OGTT). Blood sugar regulation may be impacted by acromegaly and reactive hypoglycemia. Hypoglycemia that reacts: This occurs when blood sugar drops too low after eating, often due to excessive insulin release. Acromegaly: A hormonal disorder caused by excess growth hormone, which can lead to insulin resistance and altered glucose metabolism. The OGTT is commonly used to diagnose diabetes, gestational diabetes, and other disorders of glucose metabolism. In cases of acromegaly, an OGTT can also be used to assess growth hormone suppression, since in healthy individuals, glucose intake should lower growth hormone levels. (Institute for Quality and Efficiency in Retrieved 22 June 2013) [19] 23

1.6 Studies on type 2 diabetes in Iraq Type 2 diabetes

In both industrialized and developing nations, type 2 diabetes (T2D) has been more prevalent in younger age groups in recent decades. This has greatly increased the prevalence and rates of obesity in this age range. The goal is to find out how common

type 2 diabetes is among patients in northern Iraq who are under 40. Between January 2009 and January 2015, 9,331 patients were examined at two locations in northern Iraq. Results: Of the entire study sample, 8,704 individuals (93.3%) had type 2 diabetes. 2,134 (24.52%) of these patients were under the age of 39. In conclusion, type 2 diabetes seems to be more common in younger age groups in northern Iraq, which is consistent with increased prevalence of obesity, especially in children and adolescents. (Dhaher J Alhabbo, Ismail D Saeed, Younis A Khalaf Iraqi 16 (1),2018) [20]24.

Part two: Materials and methods

2.1. Materials and methods

Samples for the current study were collected from the first health center/ nippur city. These samples included 20 people The form included the following information (age, gender, residential address) and weight and HbA1c

Table (1) :shows tools and equipment used in this experiment:

Biorx device	**Italian made**
Syringe	**Tube rack**
Alcohol	**Pipette**
EDTA	**Centrifuge**
Gel tube	**I chroma ii**

2.2 Results and Discussion

Table (1): Patients with type 2 diabetes

	Age	Weight	RBS	HbA1c
Patient 1	61	95	205mg/dL	8.2
Patient 2	39	85	362mg/dL	10.3
Patient 3	37	84	155mg/dL	7.8
Patient 4	46	89	191mg/dL	8.7
Patient 5	49	92	183mg/dL	6.8
Patient 6	54	92	177mg/dL	8.1
Patient 7	45	93	122mg/dL	6.3
Patient 8	68	97	187mg/dL	7.4
Patient 9	57	89	169mg/dL	6.9
Patient 10	48	91	177mg/dL	7.2
Patient 11	62	86	162mg/dL	8.1
Patient 12	82	88	181mg/dL	8.4

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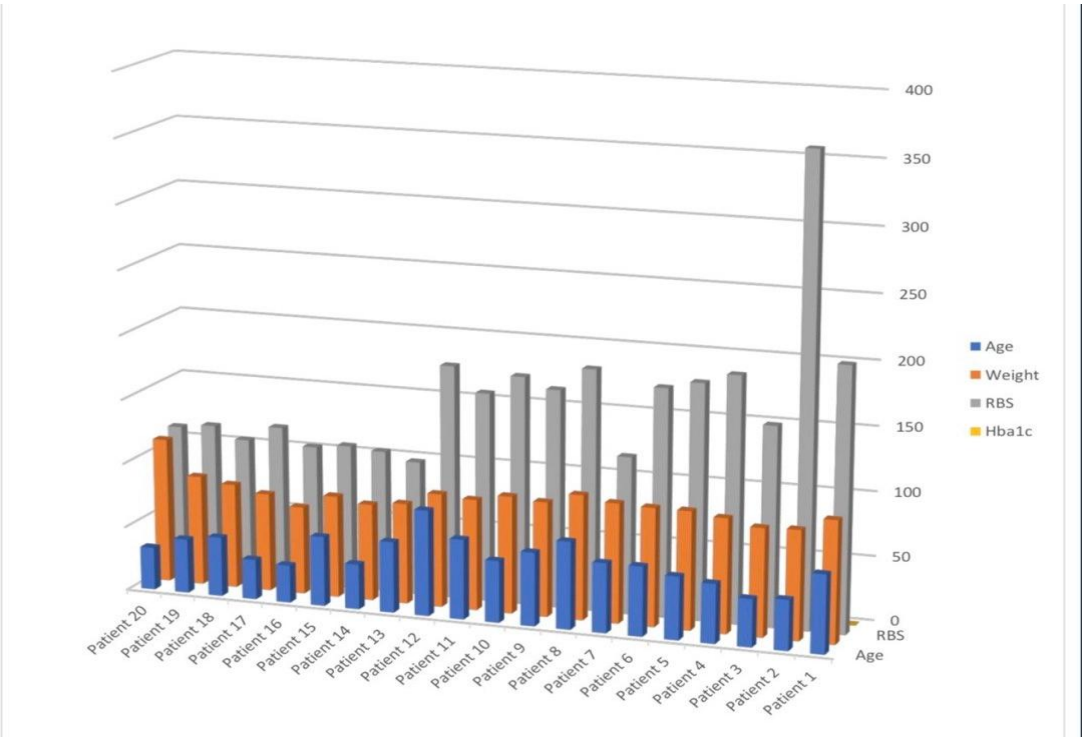
Table (2): Patients without type 2 diabetes

	Age	Weight	RBS	HbA1c
Patient 1	55	78	104mg/dL	5.0
Patient 2	35	75	110mg/dL	4.6
Patient 3	33	112	116mg/dL	4.5
Patient 4	54	79	112mg/dL	5.1
Patient 5	29	68	109mg/dL	4.4
Patient 6	31	76	122mg/dL	4.9
Patient 7	46	81	110mg/dL	5.4
Patient 8	42	85	119mg/dL	5.2



Statistical analysis of patient samples

2.3 The results

When we performed this test on 20 people, we found that the number of people with type 2 diabetes was 60% and the number of uninfected people was 40%, and it was found that people whose weight ranged from 84 to 97 While most people aged 45 and over had type 2 diabetes. There were people who had complications associated with type 2 diabetes, including kidney failure, vision problems, and others Some of the non-infected people practiced sports and others adhered to a diet by not eating a lot of sugars. they have a high blood sugar level because sugar is linked to the Sunnah, and most of those affected were

tricked into taking nutritional protection and taking medications or actually taking insulin in very high cases to lower the sugar level. By comparing this result with the studies we mentioned previously, in which the percentage of infected people was (93.3%), we find that there is a similarity between them in terms of weight and age, as most of the infected people were suffering from obesity and advanced age.

2.4 Conclusions and Recommendations

2.4.1 Conclusions

Type 2 diabetes is an example of a condition in which genetic, disease occurrence and severity are influenced by behavioural and personal factors. But since the main objective is long-term adherence, it is always better to follow a diet and calorie restriction plan that patients are certain they can stick to for the rest of their lives.

2.4.2 Recommendations

People with diabetes follow a healthy lifestyle that includes eating healthy foods, exercising, losing weight, and more. In addition, all infected people need continuous medical care and frequent education and education In a way that supports their skills and abilities to care for themselves and live with the lifestyle of treating type 2 diabetes thus, diabetes complications can be prevented in individuals. Improving nutritional knowledge, attitudes, and dietary practices as a result of increased awareness of diabetes complications improves disease management.