A study of diabetic patients' awareness about diabetic foot care to prevent complications.

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Abstract

Introduction

Diabetic patient's knowledge of how to take care of their feet plays an important role in preventing these complications with a reduced social, medical and economic burden of its consequences including foot ulcers and amputation. This study aims to assess the knowledge, attitude and practices that affects the diabetic foot ulcers.

Aim

To assess the knowledge, attitude, and practices regarding diabetic foot care among diabetic patients.

Methods

It is a cross-sectional study conducted from January 25, 2022 to March 15, 2022 at Diabetic clinic, Damascus Hospital. Non-randomized, non-probability convenience sampling technique was used to collect data from 249 patients by using a validated and confidential questionnaire.

Results

The mean age of patients was 54.19 years with 54% male and 46% female patients. Majority of patients had diabetes for more than 10 years. and most of them had Type 2 Diabetes, also more than half of the patients stopped their education in middle school. An important percentage of having a family history of Diabetes was found. In addition, many of the patients take oral hypoglycemic medications with regulatory drugs for Diabetes. More than half of these patients had peripheral neuropathy. The mean scores for knowledge, attitude, and practice were 8.74, 2.97, and 7.95, respectively, all statistically significant.

Conclusion

Our study population has sufficient knowledge about diabetes and its foot complication, and they had a positive attitude towards its management. However, they were lagging in the practices required for diabetic foot management.

Introduction

Definition of diabetes:
Diabetes mellitus is a metabolic disorder manifested by chronic high blood sugar, and is associated with a disorder in the metabolism of sugars, fats and proteins. (1)

The origin and causes of the development of diabetes may vary greatly, but it is always associated with a defect in the level of insulin secretion or response to it (resistance to the hormone) or both at a stage of the disease. (1)

Diabetes is classified into:

Type one diabetes mellitus (insulin dependent or idiopathic) and Type two diabetes mellitus (non-insulin dependent). (1)

The second type is the most common form and presents with high blood sugar, insulin resistance and relative insulin deficiency. (1)

The second pattern results from the overlap of a group of factors related to heredity, environment, lifestyle, and genetic risk in addition to environmental and behavioral factors. (1)

Types of diabetes:

Currently, the old terms related to insulin-dependent and non-insulin-dependent, which were approved by the World Health Organization in 1980 and 1985, have been dispensed with and replaced by the modern classification that supports the disease-causing theory, where diabetes is classified: (1)

1. Diabetes mellitus type one
2. Diabetes mellitus type two
3. Gestational diabetes

Type 1 diabetes:

It is defined as a long-term hormonal deficiency, as insulin secretion is lost, and this leads to high concentrations of glucose in the plasma and other metabolic and blood disorders, which have acute and chronic side effects, and this type requires treatment with insulin directly. (1)

Type 1 diabetes is characterized by selective autoimmune destruction of insulin-secreting beta cells in the pancreas. (1)

This pattern affects people of different age groups, but it develops in children and adults, due to the lack of insulin secretion in these patients, so they need external insulin injections on a daily basis to control the level of blood sugar, which constitutes 5–15% of all cases of diabetes. (1)

Diabetes is a first type that has important effects on public health in society and on the economic side, as these patients visit health care centers more often due to the chronic vascular complications caused by
this disease, which include cardiovascular complications, recurrent infections, neuropathies, and the risk of developing diabetic foot. (1)

Type 2 diabetes:

It is a metabolic disorder characterized by elevated blood sugar levels in the context of relative insulin deficiency and resistance to it. (2)

Type 2 diabetes accounts for 80–90% of all diabetes cases. (1)

Most patients with type 2 suffer from central obesity, which is closely related to the development of insulin resistance, and often these patients have high arterial tension and dyslipidemia, in addition to high levels of triglycerides and low levels of high-density cholesterol (HDL). (2)

Diabetic foot:

Diabetes reaches high epidemic rates and carries with it an increased risk of complications. Diabetic foot disease is one of the most feared complications of diabetes. (2)

The term “diabetic foot” is a combination of diseases including diabetic neuropathy, peripheral vascular disease, Charcot joint neuropathy, foot ulcers, and osteomyelitis, with the preventable endpoint being amputation. (2)

- It was noted that the lifetime risk of a diabetic patient with foot ulcers is 25%. (2)

It is estimated that more than 1 million people with diabetes need to have a limb amputated each year, which means that around the world one amputation is performed every 30 seconds. (3)

Amputation is highly associated with morbidity and mortality, with enormous social, psychological and financial consequences. (4.5)

Since the majority of limb amputations in patients with diabetes are preceded by ulcers in the foot, it is essential that strategies are directed towards preventing this. (2)

People with diabetic foot problems are also likely to develop other diabetes-related complications such as nephropathy, retinopathy, ischemic heart disease, and cerebrovascular disease, and thus, these subjects are likely to benefit from a multidisciplinary approach to address these challenging complications. (6)

Epidemiology:

Diabetic foot complications are more common in males and individuals over 60 years of age. (2)

There are no reliable data on accurately estimating the incidence and prevalence of diabetic foot problems. (2)
Based on recent studies, the annual incidence of diabetic foot ulcers is 1–4%, with a prevalence of 4–10%. (2)

In the Diabetic Podiatry Study in the North West of England, a large group of people with diabetes (n = 9710) were followed in a community healthcare setting to determine the incidence of new diabetic foot ulcers, the study indicated an annual incidence rate of 2.2% for new diabetic foot ulcers. (7)

Interestingly, this study also reported a lower risk of developing foot ulcers. This racial difference was accounted for by lower levels of peripheral arterial disease, neuropathy, insulin use, and foot deformities. (8)

Amputation is one of the most feared and costly complications for diabetic foot patients, but it occurs 10–30 times more frequently in diabetic patients than in the general population. (9,10)

Diabetes accounts for up to 80% of amputations, 85% of which are preceded by a foot ulcer. (10)

Amputation carries with it a significantly high mortality rate at follow-up, ranging from 13%-40% at 1 year and reaching 39–80% at 5 years. (2)

Stages of disease development:

Diabetic foot problems are caused by a number of factors such as neuropathy, peripheral vascular disease, trauma, and infection. (1)

Predisposing factors for the development of diabetic foot: (1)

Neuropathy

Peripheral vascular disease

Shock

Infection

Poor control of blood sugar

Fitting shoes

Aging, smoking, low socioeconomic status and psychological factors

The development or occurrence of diabetic foot is usually the result of the interaction of these various causative factors, of which neuropathy is the most important. (11)

Somewhat diabetic neuropathy occurs in more than 50% of patients older than 60 years and increases the risk of foot ulcers by 7-fold. (11,12)
Diabetic neuropathy can affect sensory and motor functions to varying degrees. (13)

Motor neuropathy leads to muscle atrophy, deformity of the foot, altered vitality of the foot, as well as redistribution of foot pressures that ultimately leads to foot ulcers. (13)

Sensory neuropathy renders the foot "deaf and blind" to stimuli, which would normally cause pain or a sensation of discomfort. This predisposes the foot to repeated trauma, which may go unnoticed until blistering occurs. (13)

Autonomic neuropathy results in loss of sweating, which leads to cracked, dry skin. (14)

Charcot's neuropathy is a non-infectious complication of the well-perfused, insensitive foot. It is characterized by bone and joint destruction, fragmentation and remodeling and diabetes is currently the most common cause. (14)

Charcot's foot was observed in approximately 16% of patients, and bilateral involvement was observed in 30% of patients. (15.16)

The exact mechanism underlying Charcot neuropathy is not clear but the loss of pain and proprioceptors along with repetitive mechanical trauma to the foot, which is not perceived by the patient who continues to bear weight. (17.18)

Repeated trauma to the insensitive foot leads to the spread of microfractures, with the healing period of these fractures being prolonged due to continued weight-bearing. (1)

Motor neuropathy by causing intrinsic muscular imbalance, ligament stretching and spontaneous dislocation may contribute to overloading of the foot and excessive plantar pressure that promotes the development of microfractures and progressive destruction of bone and thus this deformed, insensitive foot is at increased risk for ulceration. (1)

Diabetes is associated with a 2-3-fold increased risk of developing atherosclerosis

People with peripheral vascular disease are prone to poor wound healing, which underscores the importance of identifying and optimally controlling vascular risk factors such as high blood pressure, dyslipidemia, and cigarette smoking. (19.20)

Moreover, poor glycemic control also impairs polymorphic leukocyte function and leads to onychomycosis and toe infections, all of which can lead to skin disorder. (21.22)

Diabetic foot ulcers do not occur spontaneously, but usually follow some form of trauma, which may go unnoticed by the patient. This trauma may occur due to improper shoes, walking barefoot, foreign objects, or burns from water. (22)

Methods
**study design:**

A cross-sectional study was conducted targeting diabetic patients attending Damascus Hospital. We collected data for 249 patients using convenience sampling with a self-administered paper questionnaire. Unacceptable Statement must state how it is being filled out by the patient or by the investigator during the period January 25 to March 15, 2022.

A pilot study was performed on 50 participants to ensure the validity and reliability of the questionnaire, which showed a Cronbach's alpha of 0.87 that was considered acceptable.

**Participants:**

The inclusion criteria for the study included:

Diabetic patients attending Damascus Hospital.

Adult diabetics over 18 years of age.

Diabetic patients of both sexes.

Diabetics of both types 1 and 2.

**Exclusion Criteria For The Study Included:**

All participants who did not meet the previous requirements.

Patients who could not understand or provide the required information such as elderly patients or patients with cognitive impairment.

**Data Collection Tool:**

Data related to this study were collected using electronic questionnaire forms. These forms were designed by the student responsible for the research under the supervision of the professor responsible for the thesis. The information necessary to fill out these forms was collected by publishing the questionnaire link within the students' groups on social networking sites.

**Ethical approval:**

The official approval was obtained from the Deanship of the Faculty of Human Medicine at the Syrian Private University to carry out the research, and the informed consent was taken from the students to participate in this thesis.
statistical analysis:

This data from the paper questionnaires was entered into a SPSS file version 25 to be analyzed and the results of this study found. Where the descriptive analysis (frequencies and percentages) was found for all variables in the study, and the inferential analysis included the study of the existence of relationships and correlations between many of the studied variables using the Chi-square test.

Results

Descriptive analysis:

Patient demographic characteristics:

The sample in our study consisted of 249 patients, 3 patients, 1% of whom reported a history of diabetic foot, while the remaining 246 patients did not mention a history of diabetic foot, with a rate of 99%. 228 patients were among the clinic visitors with a rate of 92%, and 18 patients were among the patients from outside the hospital at a rate of 7%, and finally there were 3 patients who were admitted to the hospital at a rate of 1%.

135 patients were males, with a rate of 54%, while the remaining 114 patients were females, with a rate of 46%.

The average age of the patients was 54.19 years with a standard deviation of 11.97 years, where the youngest age among the patients was 18 years, while the oldest age among the patients was 81 years.

The largest number of patients residing in the city of Damascus, where their number reached 124 patients, or 50%, came in the second place, patients residing in the Damascus countryside, where their number reached 76 patients, or 31%, and the rest of the patients were distributed among the various remaining Syrian governorates. Of these patients, 130 patients were from urban areas with a rate of 52%, while the population from rural areas was 119 patients with a rate of 48%.

When asked about the social status of the patients, the largest number of them were married, with a total of 221 patients (89%), 16 patients were single (6%), and 12 patients were widows (5%).

47 patients were cigarette smokers with a rate of 19%, while 8 patients were hookah smokers with a rate of 3%, and there were 14 patients who had stopped smoking for a period of time, while the remaining 182 patients were not smokers with a rate of 73%.

The sample is distributed according to the educational level:

When asked about the educational level of the patients, 35 patients were uneducated at a rate of 14%. As for the patients who reached the primary, intermediate and secondary levels, their number reached 61, 65, and 41 patients, at a rate of 24%, 26%, and 16%, respectively. As for the patients who reached the
university level, their number 37 patients, with a rate of 15%, and 4 patients reached the master's level, with a rate of only 2%.

The sample is distributed according to the economic level:

Patients were classified according to their economic level into three groups: good, medium, and low.

The economic level of 69 patients was low, with a rate of 28%, while the largest number of patients, 172 patients, had an average economic level of 69%, while the rest of the patients had a good economic level of only 3%.

General questions about diabetes:

23 patients had type 1 diabetes, with a rate of 9%, while 159 patients had type 2 diabetes, with a rate of 64%, and 67 patients did not know what type of diabetes they had, with a rate of 27%.

The average incidence of these patients with diabetes was 11.53 years, with a standard deviation of 8.64 years, as the least duration of diabetes was only one year ago, while the longest period that patients suffered from diabetes was 40 years.

When asked about doing the calibration of hemoglobin on a regular basis, that is, at a rate of once every 3 months, only 64 patients answered yes, at a rate of 26%, while the remaining 185 patients did not do so, at a rate of 74%.

Also, there were only 52 patients who monitored their daily blood sugar levels by 21%, while the rest of the 197 patients did not do so by 79%. In the same context, the patients were asked about the presence of a home device to measure their blood sugar, and 77 patients answered yes, with a percentage of 31. %, while the other percentage of patients, which constituted 69%, did not have this device.

When asked about the existence of a family history of diabetes, 149 patients answered yes, with a rate of 60%, while the rest of the patients did not have a family history of this disease, at a rate of 40%. Of these patients, 56 patients were found to have a family history of death due to diabetes, with a rate of 22%.

Complications of diabetes:

Patients were asked if they had complications following diabetes, and the answer was classified as yes, no, I don't know. High triglycerides were found in 108 patients with a rate of 43%, and atherosclerosis was found in 31 patients with a rate of 12%, and there were 15 patients who had suffered Of convulsions or suffered from neurological damage due to diabetes by 6%, and depression and mental disorders were found as a complication of diabetes in 27 patients by 11%.

As for the ocular complications of diabetes, such as cataracts, glaucoma, optic nerve diseases, retinal diseases, and vascular eye diseases, 39, 10, 6, 51, and 14 of these complications suffered from them, with a rate of 16%, 4%, 2%, 20%, and 6% respectively. respectively. As for complications in the
musculoskeletal system, 68 patients suffered from muscular weakness and difficulty walking as a complication of diabetes at a rate of 27%, while 31 patients suffered from ulcers of the feet as a complication of this disease at a rate of 12%.

**Comorbidities and medications:**

It was found that most of the 164 patients (66%) did not have any other additional disease. With a percentage of (76%), the patients indicated “yes” for taking diabetes-regulating drugs, and similarly, with a percentage of (55%) for oral diabetes-lowering drugs, while most patients (63%) answered “no” to the question of their use of insulin.

**Knowledge Section about Diabetic Foot:**

Most of the patients agreed to answer “yes” to several items within the section, the most important of which are: (79%) for diabetic foot ulcers, (84%) for the importance of examining the feet and taking care of wounds and infections. Similar to the previous percentage, it was answered that taking medications regularly reduces the complications of diabetes, with a percentage of (84%) that gangrene in the foot is one of the complications of the diabetic foot, and also with a similar percentage that exercise will help prevent diabetic foot.

**Department of Behavior towards Diabetic Foot:**

Most of the participants indicated “yes” to several items indicating their commitment to several behaviors related to the prevention of diabetic foot. A percentage of (63%) constituted an important percentage for three items. Especially, and thirdly, to wear special shoes inside the house. As for the question about the possibility of living a normal life while taking the appropriate measures for diabetes, the response rate was close, with a yes (51%) and a no (49%).

**Department of health practices towards the diabetic foot:**

It was found that most of the patients had good health practices towards the diabetic foot. The percentage of patients who examine the feet on a daily basis was (64%). Also, there were 219 patients who answered “no” when asked to walk barefoot outside the house, so their percentage reached (88%). It was found that (33%) of the patients do not wear cotton socks for diabetics.

**Studying the relationship between knowledge and demographic variables:**

The relationship between knowledge about diabetic foot and demographic variables was studied. It was found that there are values of significant statistical significance with several variables, the most important of which is the level of education. Standard of knowledge 9.27 (± 2.65). Also, there was a significant statistical significance for the variable (daily follow-up blood glucose measurement) 0.0089 P < value, with an average knowledge standard of 9.61 (± 2.62) for patients who answered yes. While we
did not find any significant value in the study of this relationship with the variable of sex, place of residence, economic level, and several other variables

**Studying the relationship between behavior and demographic variables:**

The relationship between behavior towards diabetic foot and demographic variables was calculated. It was found that there is a significant relationship between the place of residence and the behavior of patients towards the diabetic foot, and it resulted in a statistically significant value, where the value was P value < 0.0001, where the average standard of behavior for patients residing in rural areas was 3.42 (± 1.52), which is higher than it is for residents of the city. It was also found that P value < 0.0036 in the educational level variable, where the highest average of the behavior standard among patients with primary education was 3.62 (± 1.46), who constituted (24%). Also, the ratio of 3.65 (± 1.40) indicated the average behavior standard for patients who answered “yes” to the regular calibration of hemoglobin, and the P value was also statistically significant. Likewise, the average standard of behavior was high for patients who answered “yes” to the question variable about having a family member with diabetes, so the average value was 3.26 (± 1.53), and the P value was also statistically significant. Also, there was a statistically significant percentage for the variable of the question about the existence of a family death story due to diabetes, and it represented the average behavior standard for patients who answered yes, with a rate of 3.82 (± 1.28). Also, there were significant statistical values in several other variables, and at the same time there were variables that did not have any statistical significance.

**Studying the relationship between practice and demographic variables:**

In a similar way, the relationship between the practice of diabetic foot and the patients' demographic variables was calculated. Several significant and statistically significant relationships were also found, including in the question variable about the type of diabetes, P value < 0.0001, so the average practice standard for patients who answered that they had type 1 diabetes was 9.13 (± 3.40). In a similar way, there was also a significant statistical value for the variable of doing follow-up daily blood sugar measurement and the average form of the practice standard for patients who answered yes, 10.61 (± 3.83). And the variable of owning a home device to measure glucose had a significant statistical value, as P value < 0.0001.

**Discussion**

The current study aimed to assess the level of knowledge of diabetic patients regarding diabetic foot and care for it, as well, to identify their attitude towards diabetic foot care and their daily life practices in relation to diabetic foot care, as it is one of the main complications of diabetes, which is diagnosed among nearly half of diabetic patients. It causes about 80% of lower limb amputations. Diabetic foot includes some types of neuropathy and vasculopathy that mainly affects the foot and ends with tissue damage, infection and ulceration. Poor control of diabetes, prolonged uncontrolled diabetes, peripheral vasculopathy, aging, and poor awareness regarding diabetes in general and foot care in particular are some of the most well-known risk factors for foot sugar. (23)
The results of our study showed that 54% of the patients were male. Similar to the finding of male sex predominance in diabetic patients where the effect of sex on foot ulcers has been controversial, it has been shown that gender may pose a significant risk factor for ulcer development. Females have become the subject of controversy because they may have a lower risk than males of developing diabetic foot ulcers due to less severe neuropathy, increased joint mobility, and less pressure on the bottom of the foot. However, once neuropathy or other risk factors for a foot ulcer are present, females have an equal risk as males for developing diabetic foot ulcers and its complications. (24)

Participants in our study were mainly patients with type 2 diabetes, with a rate of 64% which is in contrast to the study conducted in Saudi Arabia, where the majority of patients suffer from type 1 diabetes, with a rate of 71%. (24)

The statistics of our study showed that the majority of patients were taking diabetes-regulating drugs 76% with oral diabetes-lowering drugs 55%, and this contradicts a study conducted in Saudi Arabia, where the percentage of patients who took insulin was 63%. (24)

The disease duration also differed in our study compared to the previous study. The majority in our study had diabetes for more than or equal to ten years. With an arithmetic mean of 11.53, this contradicts the results of a study conducted in Malaysia, which indicated that the majority of patients had diabetes for a period of less than or equal to 10 years, 53.3%. (25)

Our study also coincides with a study conducted in Saudi Arabia in Asir, where both studies indicated that there is a family history of diabetes, so the percentage of family history in our study was 60%. As for the results of the Saudi study, the percentage was estimated at 65%. (23)

In our study, most of the participants with a percentage of 74% were not committed to the calibration of hemoglobin and this is consistent with two studies, the first was conducted in Saudi Arabia and the other was conducted in Jordan with a rate of 70%. (26)

Different rates of diabetes complications were observed. Most patients in our study suffered from peripheral neuropathy with a rate of 36%. This is in contrast to a study conducted in Jordan, where most patients suffered from diabetic retinopathy with a rate of 43%. (26)

It was found that the level of awareness regarding foot care in diabetes is high, as 79% of patients agreed that it is likely that diabetics will develop foot ulcers, and this is consistent with a Jordanian study. (26)

Also, most of the participants were well aware of the importance of examining the feet, as wounds and infections did not heal quickly by 84%, and that taking medications regularly would reduce diabetes complications by 85%. This contradicts a Saudi study conducted in Riyadh, as the patients had poor knowledge about The aforementioned items (27)

Also, most patients indicated that they know that diabetics are likely to suffer from a decrease in blood flow in their feet, 65%, and that diabetics are likely to develop poor sensation in their feet, 77%, and this is
consistent with a Jordanian study. (26)

The results of patients knowing that gangrene in the foot is one of the complications of diabetic foot was high by 84%, and this is consistent with a Saudi study. (27)

As for the patients' behavior, the current study showed that most of the patients, with a percentage of 63%, agreed on the possibility of changing their lifestyle and following a diet in order to prevent complications from diabetes, and this agrees with the Jordanian study with a percentage of 67%. Saudi Arabia. (23, 26)

Also, most patients indicated that they could comply with doctors' instructions regarding wearing special shoes by 62%, and this is consistent with the study conducted in Malaysia, and patients' adherence can reduce the complications of diabetes. (25)

With regard to their practices, the current study showed that the vast majority of study patients, 64%, check their feet on a daily basis. This is consistent with the Jordanian study, 72%, and the Saudi study, 66%. (23, 26)

Also, a good percentage of the participants who wore comfortable shoes was 59%.

When examining the relationship between knowledge of diabetic foot care and demographic variables, our results revealed that patients with intermediate education increased knowledge of diabetic foot care compared to patients with primary education. This is consistent with the Saudi study. (23)

One of the important findings of this study is that the level of education is not associated with the level of knowledge of foot care in patients with diabetes. Although the majority of patients with poor knowledge and practice had education only up to the secondary level, several studies that investigated the knowledge and practice of diabetic foot care found that there was a significant correlation between the level of education and the level of knowledge of diabetic foot care. This difference could be explained by the lack of sufficient promotion of diabetes awareness among our population. Both the educated and the less educated patients received insufficient information regarding diabetic foot care. (23, 26)

So were the patients he owned, There is a special glucose meter at home, and those who monitor blood sugar levels on a regular basis are aware of the diabetic foot care to prevent complications. This reinforces the importance of follow-up and commitment in measuring blood sugar levels to raise awareness about the complications of diabetes.

As for the study of the relationship between behavior and demographic variables, our results indicated that most of the rural population and those with primary education were able to adhere to and follow different behaviors for diabetic foot care, we could not link this result with scientific literature or other studies.
There were also clear relationships between all patients who monitor blood sugar and who had a family history of diabetes mellitus or death due to it.

There was also a relationship between health practices and several demographic variables, the most important of which is the follow-up of the sugar level and those who have a family history of diabetes mellitus or death due to it, as well as with type 1 diabetes.

It is essential to encourage and motivate patients to improve their foot care practice. Numerous studies reveal the impact of patient education regarding diabetic foot leading to improved practices, changes in patient behavior and motivation, as well as a reduction in the burden of diabetic foot ulcers. Education is also critical to help families of people with diabetes cope with lifestyle modifications and to provide psychological and nutritional support. (23)

This paper will serve as a good tool to raise the level of understanding of primary care physicians to improve the management of diabetic foot patients. In summary, this study shows sufficient knowledge and appropriate behavior about diabetic foot by the patients themselves. However, there is a need to increase the level of practice, which can be achieved by providing refresher courses for primary care physicians.

Conclusion

In conclusion, the results of the current study showed that diabetic patients were well aware of diabetic foot and caring for it. And they had a positive attitude towards his management. However, they were behind in some of the practices required to manage the diabetic foot.

Declarations

Ethics approval and consent to participate:

This study was approved by the Institutional Review Board (IRB) at Syrian Private University. Written consent was obtained from all participants. Participation in the study was voluntary and participants were assured that there would be no victimization of anyone who did not want to participate or who decided to withdraw after giving consent.

Consent for publication:

Not applicable.

Availability of data and materials:

All data related to this paper’s conclusion are available and stored by the authors. All data are available from the corresponding author on reasonable request.
Competing interests:

None of the authors have any competing interests. The authors alone are responsible for the content and writing of the article. No conflict of interest is declared.

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References