SUBSTANCE USE AMONG DIABETIC PATIENTS IN DESSIE REFERRAL HOSPITAL, NORTHEAST ETHIOPIA

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ABSTRACT:

Background: Diabetes Mellitus is chronic disease, affecting a number of individuals worldwide. Adherence to diabetes self-care behaviors is key to the successful management of the disease. Different studies suggested that substance use in diabetic patients is associated with poor adherence to treatment and outcomes, resulting in mortality and morbidity. In Ethiopia, the prevalence of substance use in diabetic patients is not known. Thus, there is lack of data regarding substance use in diabetic patients in Ethiopia, particularly in the Dessie Referral Hospital (DRH).

Objective: To assess substance use among diabetic patients in DRH from January 16 to February 8/2012, Northeast Ethiopia

Methods and materials: Cross-sectional study was conducted from January 16 to February 8, 2012, in the outpatient diabetic clinic of DRH. All patients who visited the clinic during data collection period were included in the study. Data was collected using pre-tested structured questionnaire. The collected data was edited, coded, tallied and finally cleaned. Descriptive statistics was computed to meet the objective.

Results: About 385 patients, who visited the diabetes clinic during study period, were included in the study. The Prevalence of substance use was 124 (32.21%). Among these 83 (66.94%) reported chewing chat, 25 (20.16%) reported drinking alcohol, and 16 (12.9%) reported smoking cigarette.

Conclusion: Substance use among diabetic patients in Dessie referral hospital is prevalent. Health professionals who directly and indirectly involved in caring diabetic patients should work towards awareness creation among diabetic patients.

Key terms: substance, diabetic patients, prevalence, alcohol, cigarette, khat

Introduction

Diabetes mellitus (DM) is group of common metabolic disorders that share the phenotype of hyperglycemia which are caused by a complex interaction of genetics and environmental factors. In the United States, DM is the leading cause of end-stage renal disease (ESRD), no traumatic lower extremity amputations, and adult blindness. It also predisposes to cardiovascular diseases. With an increasing incidence worldwide, DM will be a leading cause of morbidity and mortality for the foreseeable future. The treatment goal for DM is to prevent mortality and complications by normalizing blood glucose level. But blood glucose level might be increased despite of appropriate therapy in patients who are using one or more of substance leading to diabetic complications, such as disturbances in fat metabolism, nerve damage, and eye disease ¹, ², ³, ⁴, ⁵

Substance use in diabetic patients is common. Impact of substance use on diabetic patients is also common, though the effect is different for different substances. Poor appetite due to substance use and food
deprivation will often lead the patient to take less insulin, erroneously leading to poor treatment outcome. Alcohol use, chat chewing and cigarette smoking are known to cause diabetic dyslipidaemia in diabetic patients. Substance can affect glycemic control due to non-adherence to medication, meal planning, and exercise. Despite its effect on the glycemic control, substance abuse and addiction have an enormous impact on the economy, and as a result of this economic problem diabetic patients may not adhere on prescribed medications and diet therapy as well. Alcohol and tobacco use might cause psychosocial, behavioral or biochemical impact apart from their contribution for poor glycemic control in diabetic patients.

About 50.8% of adults with diabetes were consuming alcohol, and alcohol was known to cause poor adherence to diabetes self-care behaviors of patients and drug interactions in addition to its direct effect leading to diabetic complications. In chronic use alcohol can lead to hyperglycemia in the fed state but alcohol consumption in the fasting state can induce a profound reduction in blood glucose levels (hypoglycemia). Other alcohol-related problems, such as injuries and foot ulceration can complicate diabetes due to wound effect.

On the other hand about 17.8% of the diabetic patients visiting primary care had used at least 1 cigarette during the 30 days (1-30 cigarettes per day). Cigarette smoking may worsen genetically determined insulin resistance and may lead to development of diabetes in non diabetics and lead to diabetic complications. Regarding chat chewing only there are very few studies on the effect of chat chewing on diabetes mediates, though it is believed that the overall effect of chat on diabetic patients is deleterious due to the user is less likely to follow dietary advice, and the consumption of sweetened beverages with khat aggravates hyperglycaemia.

Generally, substance use is very common in diabetic patients and can be resulted in poor glycemic control and diabetic complications. But there is no data regarding substance use in diabetic patients in Ethiopian health institutions, particularly of DRH. Thus, the aim of the present study is to determine prevalence of substance use among diabetic patients in DRH, and to provide the baseline information.

Methods and materials

Study area and period
Cross-sectional study was conducted from January 16 to February 8, 2012, in diabetic clinic of Dessie referral hospital (DRH) located in Dessie town, 401 km from Addis Ababa. The DRH is the only referral hospital in Northeast Ethiopia with about 200 beds and 165 health professionals. Diabetes clinic is one of the clinics in the hospital.

Study participants
All diabetic patients who visited the Diabetic clinic during the study period were included in the study.

Data collection process
Data was collected by trained data collectors (3 graduating class pharmacy students) using pre-tested structured data collection questionnaire prepared in English, and translated to local language Amharic. Data from each patient was collected once only, and thus patients who were visiting the diabetic clinic again were not included twice in the study i.e. only the first visit was taken. Those patients who were diagnosed as having diabetes who may/may not receive treatment were included in the study. The accuracy of the diagnosis made by the treating physician not evaluated. Finally data was edited, coded, tallied and cleaned. Descriptive statistics was computed to meet the objective.
Ethical consideration
Prior to data collection the management of hospital was requested by formal written letter from school of pharmacy of Wollo University. The health professionals in the diabetic clinic were also informed by formal written letter. During data collection all the information obtained from the patient was kept confidential by principal investigators only for the sake of research purpose. To ensure confidentiality the names of patients was replaced with the code. Ethical issues were considered during data collection in order not to disclose patient and professional information to persons outside the research.

Operational definition and definition of terms
Substance: in this study shall mean: Alcohol, cigarette & chat.

Problem drinker: in this study shall mean those who drink ≥3-6 drink beer per occasion and experienced some alcohol related problem

Non-problem drinker: in this study shall mean those who drink ≤2 beer for men, ≤1beer for women and those who drink occasionally during ceremony or other time

Result
Patient characteristics
Three hundred eighty five (385) diabetic patients were included in the study. Majority of the patients 192 (49.87%) were >40 years old and were females 231 (60%). Regarding religion, ethnicity, residence and educational status, occupation and income they were Muslims 198 (51.42%), Amhara 319 (82.85%), urban 252 (65.45%), illiterate 184 (47.79%), farmers 90 (23.37) and monthly income was only 53 (13.36%) respectively (Table 1).

Table 1: Socio demographic characteristics of diabetic patient in Dessie referral Hospital February, 2012

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>40 (10.39)</td>
</tr>
<tr>
<td>20-25</td>
<td>36 (9.53)</td>
</tr>
<tr>
<td>26-30</td>
<td>21 (5.45)</td>
</tr>
<tr>
<td>31-35</td>
<td>38 (9.87)</td>
</tr>
<tr>
<td>36-40</td>
<td>58 (15.06)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>192 (49.87)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>154 (40)</td>
</tr>
<tr>
<td>Female</td>
<td>231 (60)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>198 (51.42)</td>
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<tr>
<td>Orthodox</td>
<td>178 (43.63)</td>
</tr>
<tr>
<td>Protestant</td>
<td>4 (1.03)</td>
</tr>
<tr>
<td>Catholic</td>
<td>15 (8.39)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Amhara</td>
<td>319 (82.85)</td>
</tr>
<tr>
<td>Oromo</td>
<td>36 (9.35)</td>
</tr>
<tr>
<td>Tigray</td>
<td>20 (5.19)</td>
</tr>
<tr>
<td>Other**</td>
<td>10 (2.59)</td>
</tr>
</tbody>
</table>
## Place of residence

| Place of residence | Rural   | 133 (34.54) | Urban | 252 (65.45) |

## Marital status

| Marital status                  | Married | 219 (56.88) | Single, never married | 106 (27.53) | Divorced | 60 (15.57) |

## Educational Status

| Educational Status                  | Cannot read & write | 105 (27.27) | Can read & write | 79 (20.52) | 1-4 | 24 (6.23) | 5-8 | 43 (11.15) | 9-10 | 24 (6.23) | 11-12 | 20 (5.19) | >12 | 90 (23.37) |

## Occupation

| Occupation                  | Merchant | 98 (25.45) | Government Employee | 72 (18.70) | House wife | 46 (11.95) | Farmer | 41 (10.6) | Other* | 128 (33.35) |

## Monthly income

| Monthly income                  | Have no income(live with family) | 23 (5.97) | <200 | 88 (22.86) | 200-2000 | 229 (57.40) | >2000 | 53 (13.36) |

**Others*: driver, Student, mechanic, private workers, NGO, barberry

**Others**: Agaw, Afar, Guragie, Somali

Regarding the time when the patients were diagnosed as having diabetes majority 110 (28.57%) reported that it was < 1 year where as 71 (18.44%) reported 1-2 year, 58 (15.06%) 3-5 years, 50 (12.99%) 6-10 years and ≥11years 96 (24.94%).

### Substance use pattern

The overall Prevalence of substance use was 124 (32.21%). Among these 83 (66.94%) reported chewing chat, 25 (20.16%) reported drinking alcohol and 16 (12.9%) reported smoking cigarette. The prevalence of alcohol use in this study was 25 (6.49%) of which 14 (56%) patients were non-problem drinkers where as about 11 (44%) of patients were problem drinkers.

On the other hand, prevalence of cigarette smoking was 16 (4.16%) from which about 8 (50%) of patients reported smoking 1 cigarette per day, 6 (37.5%) reported smoking 1-5 cigarettes a day, and 2 (12.5%) patients reported smoking about 6-15 cigarettes per day. The prevalence of khat chewing was 83 (21.56%) of which 11 (13.25%) were chewing daily, 16 (19.28%) reported chewing on the weekends and others 56 (67.47 %) were chewing occasionally.

About 235 (61.06%) of diabetic patients reported that they have information about complication of substance use but about 150 (38.96%) reported lack of understanding of complications. About 14 (56%) drinkers reported an increase in blood glucose and complications of diabetes due to alcohol use some problems occur. Some diabetic patients reported taking other medication for the treatment hypertension, gastritis concurrently with chat, alcohol and tobacco. Other patients reported using soft drink, wheat
products like bread and sugar and they said that there was increase blood glucose level upon using the products.

Discussion

In this study the overall prevalence of substance use was 124 (32.21%) but prevalence of alcohol and cigarette use were 25 (6.49%) and 16 (4.16%) respectively. Alcohol consumptions was different from studies in Los Angeles (6) and in USA (12) which showed that Alcohol consumption among diabetic patients 71 (18%), and 50.8% respectively. Similarly cigarette smoking in this study was to low compared with studies Los Angeles (6) 69 (17%) and in European (17) 38 (12.4%). The difference might be due to the life style of the society, cultural difference and the level of understanding and health education given by the health professions. In general population prevalence of alcohol use (18, 23) and cigarette smoking (19, 23,) ranges from 36.4%-49.8% and 21.3%-31.7 % respectively. This showed that though not satisfactory prevalence of alcohol and cigarette use was relatively low in this study probably due to health education and counseling for diabetic patients.

The prevalence of khat chewing in this study was 83 (21.56%). When compared with other studies in general populations in different countries including Ethiopia 26.7 %- 34% it was relatively low (16, 19, 20, 22). This difference might be due health education and awareness of diabetic patients about life style changes including khat chewing than general population.

As limitation this study didn’t include all diabetic patients the hospital is serving since it includes those patients who visited the hospital during the study period conveniently. It didn’t assess the outcomes of the substance use and all other substances the patient is taking including drugs of abuse. Another limitation is that association was not made between substance use and the variables. Thus, being the first study on substance use in diabetic patients in the country this study aimed only at prevalence of the three substances in these patient groups.

In conclusion, substance use among diabetic patients in Dessie referral hospital is prevalent. Chat was commonly used substance followed by alcohol and cigarette. Health workers should educate diabetic patient to create awareness about the consequences of substance use on the control of blood glucose. Further comprehensive study is also recommended.

Reference


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