
By

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In

Family Medicine

Department Of Community Health and

Faculty of Medicine

Gezira University

August, 2013

By

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<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Osman Hamid Abdulhamid</td>
<td>Supervisor</td>
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<td>Co-supervisor</td>
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By

Wahiba Elagab Elneema Elbsheer
ACKNOWLEDGEMENT

Great full thanks to my supervisor, to family medicine and community department in Gezira university.

More thanks to health center team and to all participate me to conducted active study.

Special thanks to my parent for activation.
Diabetes mellitus is a chronic disease present in 2%-5% of adult population. There are 180 million people affected with the disease worldwide \(^{(1)}\) and their number is expected to double by 2030. The aim to assess process of care for diabetics in Om-Shang health center according to American guidelines. Audit study analysis of all diabetic patients in study area who were recorded including type 1 and 2 at center, using data collected by check list filled from electronic medical record containing 19 questions on, (page 24) from March 2012 to April 2013. Revealed of 61 diabetic patient, 64% are female & 36% male. 36% with primary education. Also it showed poor care for diabetic patient in General, except measurement of blood pressure was good. There is gap in performance in area of examination, metabolic control & monitoring of complication, to retching that requires multidisciplinary care, by training all staff to improve the awareness about diabetes, work with collage to have local guide lines in health center also provide important tools to fill the gap.
عملية الرعاية لمرضى السكري في مركز صحي أم شائق، ولاية الجزيرة، السودان: دراسة تدقيق سريري (2012 – 2013)

إعداد وهيبة العجب النعمة

لنيل درجة الماجستير في طب الأسرة، 21.5.2013
كلية الطب, جامعة الجزيرة

ملخص الدراسة

داء السكري هو مرض مزمن موجود في 2% -5% من السكان البالغين. هناك 180 مليون شخص تضرروا مع المرض في جميع أنحاء العالم (1)، ويتوقع أن يتضاعف بحلول عام 2030 عدهم.

الهدف من الدراسة تقييم عملية الرعاية لمرضى السكري في المركز الصحي بأم شائق وفقاً لخطوط دليل الأمريكي. تحليل الدراسة مراجعة حسابات جميع مرضى السكري في منطقة الدراسة الذين تم تسجيلهم بما في ذلك نوع 1 و 2 في المركز، وذلك باستخدام البيانات التي تم معها طريق قائمة الاختيار من قبل السجلات الطبية الإلكترونية التي تحتوي على 19 سؤالاً على الصفحة 24 من مارس 2012 إلى أبريل من 2013. الدراسة اخذت 6 مريض سكري. أعطت الدراسة 64% من الإناث و 36% من الذكور. 36% مع التعليم الابتدائي. كما أنها أظهرت سوء الرعاية الصحية لمريض السكري عموماً، معاً قياس ضغط الدم كان جيد، هناك فجوة في الأداء في مجال الفحص والسيطرة الأيضية ورصد المضاعفات، و لمل هذه الفجوة يتطلب تعاون كل جهات الرعاية متعددة التخصصات، عن طريق تدريب جميع الموظفين لتحسين الوعي حول مرض السكري، والعمل مع الزملاء بالمراكز الصحية الأخرى لوضع دليل محلي في المركز الصحي أيضاً توفر الوسائل اليدوية لملء هذه الفجوة.
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Chapter one

. Introduction

Diabetes mellitus is a chronic disease present in 2%-5% of adult population. There are 180 million people affected with the disease worldwide (1) and their number is expected to double by 2030 (2). Diabetes mellitus accounts for a large burden of morbidity and mortality, because of complications leading to kidney disease, visual loss, lower limb amputation, and coronary heart disease. This chronic disease is present in all age groups and both sexes, affects all aspects of life, and. Thus, the management of the disease at primary care level has a large clinical impact. It has been shown that primary care management of the disease can be as good as or better than hospital outpatient care (3). Many studies have been carried out to improve the management of diabetes in primary care (4). The care outcomes, based on the St. Vincent Declaration (1), are reduction of blindness, renal failure, amputation of limbs, and coronary heart disease. However, the interval between a therapeutic intervention and long-term outcome can be long; therefore, intermediate outcome measures should be used in quality assessments. Such measures are control of systolic blood pressure, glycosylated hemoglobin, and low-density lipoprotein-cholesterol (LDL). These can prevent or slow down progression of vascular changes closely linked to morbidity and mortality (5). Measures of process of care are also used, such as control of body mass index (BMI) and examination of feet, ocular fundus, and renal function, which detect complications at early stages and help in averting undesired outcomes. Both types of quality of
care measures have been used to compare and improve diabetes care in different countries (3,6). Self monitoring of blood glucose concentration is associated with improved glycaemic control in patients with type 1 diabetes. (8). also diet and physical activity are corner stone’s in treatment targeting control of type 2 diabetes symptoms and in preventing progress and medical complications of the disease (18).

**Background**

In London Up to 24,000 people with diabetes are dying each year from causes that could be avoided through better management of their condition and The risk of death increases nine-fold among women with type 1 diabetes to one in 360, and six-fold among women with type 2 diabetes to one in 520. (7) in B H The first ever report into mortality from the National Diabetes Audit also found death rates among women aged 15 to 34 with diabetes are up to nine times higher than the average for this age group, 63.2% of diabetic patients were women and (55.6%) were in the 61-75 age group (10). It is obvious that diabetes mellitus and related cardiovascular complications are gaining more importance in sub-Saharan Africa. (9) Despite a milder glycemic disturbance, women with type 2 DM had no better prenatal outcomes than those with type 1, indicating that type 2 DM in pregnancy is a serious condition. (10) In India study disclosed the reason for loss of follow-up?” Focusing on the answers, the following reasons are given: (a) patients think that the blood glucose is already in control (from the data in previous laboratory report) (110 cases, 55%), (b) loss of appointment card.
(40 cases, 20%), (c) busy on the appointment date (20 cases, 10%), (d) the appointment date is the holiday vacation period (10 cases, 5%), (e) they try to have other alternative treatment(s) (10 cases, 5%), and (f) fear of side effects of prolonged usage of antidiabetic drugs (10 cases, 5%).

Other studies on diabetes in populations of some Arab countries particularly Sudan and other low Arabic countries indicate that diabetes is considerably more prevalent than in the general population of Europe and North America. Another important finding reported in a majority of these studies under detected rate of type 2 diabetes. The percentage of under-diagnosed diabetes was estimated to be in the range of 40% to over 60% (15). NaDIA(national diabetes inpatient audit) is the largest bedside audit in the world. In 2010, 93% of eligible trusts participated, demonstrating their belief that NaDIA will repay their investment of effort by improving patient care in the long term (17)

Audit study investigated the attitudes of physicians specializing in the treatment of patients with type 2 diabetes mellitus towards the management of dyslipidaemia and other cardiovascular risk factors in this patients.(8). In British Physicians reported that they treated patients without CVD less intensively than patients with CVD, suggesting that type 2 diabetes was not widely considered a coronary heart disease risk equivalent also estimated that 62% of type 2 diabetic patients have dyslipidaemia.8.
other studies check to renal profile give 84% in Sweden (12) and 71.4% in England (13). HBA1C done by 75% of patients in Israel (11).

No audit study was done in Gezira. Prevalence rate of diabetes case and complication in population of study area are high and increasing, that noticed by experience.
Chapter two

General Objectives

Aim of this study to improve health service of diabetic patient in health center, compare it with standard according to American guide line to achieve doctor and patient satisfaction.

Specific objective:

To assess the history, clinical examination and investigation according to international standard.

Criteria & standard

These according to American guide line to diabetic management.

All diabetic patients must be asked about history of following

And to be documented:

Dietary history

How long is diabetes

History of exercise

Asked about smoking

Asked about alcohol intake

Health education

Asked about DKA.
Asked about hypoglycemic episode

History of hypertension

History of chronic heart disease.

History of hyperlipidemia.

All diabetic patients must be examined for

Height

weight

Blood pressure

ALL diabetic patients checked annually for

HBA1C

Lipid profile

Renal profile must be requested

standard

Must be asked about dietary intake by 90%

MUST be asked about how long is diabetic 90%

MUST be asked about exercise 90%

Must be asked about smoking and alcohol intake by 90%

Must be educated by 80%

Must be asked about hypoglycemic episodes by 90%
Must be asked about DKA 90%.

Asked about hypertension 90%

Asked about chronic heart disease 90%

Asked about hyperlipidemia 90%

Must be examined for

HT  80%

WT 80%

BP 90%

Must be investigated by

HBA1C 90%

lipid profile  90%

Renal profile by 90%
Chapter three

Methodology

STUDY AREA:

Study was carried out in Omshanig saad in East of Gezira locality in Sudan.

Center was established to provide health service for group of village around health center total number of population in catchment area about 3000

STUDY Subject

ALL Diabetic patients who attend to health center.

Exclusion criteria gestational diabetic.

STUDY DESIGN

A retrospective Audit study was conducted for medical records of diabetic patients in Omshanig health center from march2012 to April_2013

SAMPLE SIZE

All diabetic patients in study area, recorded in electronic clinic.

Data collection method:

Data collected by check list. Study used Microsoft excel statistical methods to summarize and analyze the data.

Data source:

Electronic medical record
Chapter Four

RESULTS

Table (1) Demographic characteristics

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>20 – 40</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>40 – 60</td>
<td>23</td>
<td>37.7</td>
</tr>
<tr>
<td>60 – 80</td>
<td>27</td>
<td>44.2</td>
</tr>
<tr>
<td>&gt; 80</td>
<td>8</td>
<td>13.1</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure (1)
Fig. (2) EDUCATION LEVEL

![Bar chart showing education level]

<table>
<thead>
<tr>
<th>Table (2) Participant’s Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Housewife</td>
</tr>
<tr>
<td>Farmer</td>
</tr>
<tr>
<td>Free Worker</td>
</tr>
<tr>
<td>Pension</td>
</tr>
<tr>
<td>Employee</td>
</tr>
<tr>
<td>Student</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table (3) percentage of achievement of process of care for diabetic patient

<table>
<thead>
<tr>
<th>History</th>
<th>Result</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary history</td>
<td>9.8%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Health Education</td>
<td>6.5%</td>
<td>90.0%</td>
</tr>
<tr>
<td>DKA + Hypoglycemic episode</td>
<td>1.6%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Duration</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Exercise</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>History of Alcohol intake</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>History of Smoking</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>History of Hypertension</td>
<td>32.7%</td>
<td>90.0%</td>
</tr>
<tr>
<td>History of chronic heart disease</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>History of Hyperlipidemia</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Investigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBA1C</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Lipid profile</td>
<td>0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Renal profile</td>
<td>1.6%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0%</td>
<td>80.0%</td>
</tr>
<tr>
<td>Height</td>
<td>0%</td>
<td>80.0%</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>83.6%</td>
<td>90.0%</td>
</tr>
</tbody>
</table>
Chapter Five

Discussion

The audit disclosed UN acceptable Diabetic care. Our analysis included the records of 61 patients with diabetes mellitus, give very good performance in personal data compare to other study in BH refe10.that because most of diabetic patients are under health insurance and all this information in insurance card, also easy recorded.

Also revealed poor performance in history of dietary intake, health education ,DKA ,hypoglycemic episodes and history of hypertension compare with standard , that due to most diabetics just come to center seek for drugs only, also discontinuity of electricity.

Also there is very bad performance in history documentation of duration of illness, exercise, habits, CHD, hyperlipidemia that due to patient angry from documentation during visit, also questions about habits is irrigative to pt and some time there is problem in computer.

Bad evaluation about investigation had done annually compare with standard and other study done in Bosining and Herzegovina in lipid profile ref10, HBA1C in Israel ref11 and renal profile in swedan ref12 and in England ref13. Those because investigation not available in health center, there is no machine and no well trained lab technician also investigation are very expensive in private lab.
Study also revealed very bad performance of WT and HT compared to standard, that due to:

- No tape available
- Missed to check WT, HT

But B.P very good measurement compares to standard that due to instruments are available and the patient have awareness to blood pressure measurement.
Conclusion

Study revealed poor diabetes care. There is gap in performance in area of examination, metabolic control & monitoring of complication, in health center. To reaching that requires multidisciplinary care, by training all staff to improve the awareness about diabetes in health center and provide important tools to fill the gap.
Chapter Six

Recommendations

1- Update the local guidelines of diabetic patient management, work with other college in other health center to have local guideline.

2- Established special clinic to diabetic pt.

3- Provide important investigation include HA1C, LIIPID and RENAL PROFILE, to monitor control.

4- Write note in poster about diabetes in the wall

5- Training of all staff about diabetic care specially nurse, doctors and lab technician.
Clinical audit action plan
Project title:
Audit study about process of care for diabetic patient in Omshanig health center in east of Gezira locality in Sudan march 2012 to April 2013

<table>
<thead>
<tr>
<th>Action plan lead</th>
<th>Name: Wahiba Alagab</th>
<th>Title: registered of F.M</th>
<th>Contact 0123827041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendations</td>
<td>Action required</td>
<td>Action by date</td>
<td>person responsible</td>
</tr>
<tr>
<td>1_ 05-08 the medical director up date the local guide lines of diabetic patient management to include standard for how to deal with diabetic patient in clinic.</td>
<td>1_ ask ministry of health to up date the local guide lines of diabetic patient management to include standard for how to deal with diabetic patient in clinic, work with collage in other health center to have local guide line</td>
<td>_ by first of august 2013-`</td>
<td>Dr\Wahiba Elagab</td>
</tr>
<tr>
<td>2_ by first of august 2013-05-08, Medical director make special clinic for diabetic pt once per week.</td>
<td>2_ ask peoples committee and health services in locality to make special clinic for diabetic pt once per week</td>
<td>_ by first of august 2013-`</td>
<td>Dr\Wahiba Elagab</td>
</tr>
<tr>
<td>3_ by first of august 2013-05-08 Medical director, Provide important investigation include HA1C, LIPID and RENAL PROFILEe, To monitor</td>
<td>3 contact health services in locality to Provide important investigation include HA1C, LIPID and RENAL PROFILE to monitor control.</td>
<td>_ by first of august 2013-`</td>
<td>Dr\Wahiba Elagab</td>
</tr>
</tbody>
</table>
1- __ by first of august 2013-05-08 the medical director .write note in poster about diabetes in the wall

| 5-by first of  august 2013-05-08 the medical director organized lecture programe in health center | Contact with medical director to.training of all staff about diabetic care specially nurse,doctors and lab technician. | Dr\Wahiba Elagab |
# Appendix

## Check list for diabetic patient evaluation

<table>
<thead>
<tr>
<th>Sex</th>
<th>age</th>
<th>job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education</td>
<td></td>
<td>marital status</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE</th>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**JOB**

- any documentation-dietary intake
- any documentation for HEALTH EDUCATION
- any documentation about Diabetic ketoacidosis and hypoglycemia

**Documentation for how long is DIABETIC:**

- Documentation about history of alcohol intake:
- Documentation about history smoking:

**DOCUMENTATION HISTRY OF HYPERTENION:**

- Documentation about history of congestive heart disease:
- Documentation about hyperlipidemia

**ANY Documentation about investigation:**

- HBA1C
- LipID profile
- Renal profile

**DOCUMENTATION about PHYSICAL EXAMINATION:**

- Weight
- Height
- Blood pressure
- Height
References


- Kerr EA, Gerzoff RB, Krein SL, Selby JV, Piette JD, Curb JD, et al. Diabetes care quality in the Veterans Affairs Health

- Healthcare Quality Improvement Partnership Ltd.
  Holland House, 4 Bury Street, London EC3A 5AW T: 020 7469 2500 F: 020 7469 2501

- E: communications@hqip.org.uk

- 14 December 2011

- British Journal of Diabetes & Vascular Disease January 2006 vol. 6 no. 1 31-40

- Diabetes in sub-Saharan Africa and in Africans Oxford Textbook of Endocrinology and Diabetes. 2011;2:med-9780199235292-chapter,

- The Journal of Clinical Endocrinology & Metabolism November 1, 2009 vol. 94 no. 11 4284-4291


- Khunti K, Ganguli S, Baker R, Lowy A. Features of primary care associated with variations in process and outcome of


- WHO Programme 2011


- National Diabetes Inpatient Aduit (NaDIA November 2011 )