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Twelve-Years Follow-up of Type II Diabetes Mellitus Structured Care Key Performance Indicators, Dubai, 2017

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Abstract

Poor access to health care, ineffective management of chronic disease and Diabetes mellitus accounts for a large burden of morbidity and mortality. Clinical audits as a process of improving quality of patient care and outcomes by reviewing care against specific criteria and then reviewing the change can help in optimizing care. The paper will evaluate the quality of diabetes care in primary health centers in Dubai through a medical audit. It will assess also the extent to which clinical practice complied with pre-determined explicit criteria of long-term management. A retrospective record review based audit was carried out among patients registered for diabetes care in primary health care centers, Dubai Health Authority for the period from 2004-2016. Adult type II Diabetes Mellitus patient's medical records were selected randomly at 10 primary health care centers in Dubai Health Authority where family medicine services provided. An Audit records form contained socio demographic data including age, sex etc…, clinical assessments data including ophthalmological assessment, laboratory findings related parameter including (HBA1C) were all obtained, raw data tabulated, analyzed. Results: The study revealed that as for HBA1C results for diabetic patients attending primary health care centers in Dubai for the period 2004-2016, the mean result of the test for all patients were 8.6 during 2004 which reflect bad outcomes of DM control status of the patients as above 7.5 means non controlled patients. Strict and comprehensive DM control measures kept applied. The study showed that in 2012, the mean HBA1C of all registered diabetic patients was significantly improved to reach to 7.5 which is upper than normal cut of point. As the measures maintained and strengthened further, the results showed significant improvement where the mean HBA1c was 7.2 in 2016 which reflect good control level. Although the audit revealed significant improvement in quality of diabetes care, yet there are still significant gaps needs to be closed like consistency in care provision between primary care teams. Clinical guidelines and continuing education about acceptable diabetes care should be well maintained and strengthened. Physician education and adhering to standard guidelines for management helps in better health care delivery to diabetes patients. Improvement in process of diabetes care can be achieved even in resource-limited settings. Continuous auditing of care quality, adhering to standards and guidelines and protocols and continuous training are key components in effective management of diabetes mellitus.

Keywords

Diabetes Mellitus Type II, Audit, Gaps, Primary Health Care, Dubai

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1. Introduction

Poor access to health care, ineffective management of chronic disease and poor referral patterns were identified as major challenges to optimum diabetes health care. [1-3] There are 180 million people affected with the disease

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worldwide [4] and their number is expected to double by 2030. [5] 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 requires multidisciplinary care. 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. [6] Many studies have been carried out to improve the management of diabetes in primary care. [7] The care outcomes, based on the St. Vincent Declaration, [4] 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 [8] 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. [6, 9]

The formulation of clinical guidelines alone is insufficient to ensure optimum diabetes care. Clinical audits as a process of improving quality of patient care and outcomes by reviewing care against specific criteria and then reviewing the change can help in optimizing care. [10] Different studies from other countries have shown that conducting audits is one of the methods of improving efficiency, accountability and the quality of care in diabetics. [11-13] In developed countries like the United Kingdom, government sponsored annual National Diabetes Audit is conducted to measure the effectiveness of diabetes healthcare which is useful in bringing about changes and improving the quality of services and health outcomes for people with diabetes. [14]

2. Objectives

The paper will evaluate the quality of diabetes care in primary health centers in Dubai through a medical audit. It will assess also the extent to which clinical practice complied with pre-determined explicit criteria of long-term management.

3. Methodology

A retrospective record review based audit was carried out among patients registered for diabetes care in primary health care centers, Dubai Health Authority for the period from 2004-2016. Adult type II Diabetes Mellitus patients' medical records were selected randomly at 10 primary health care centers in Dubai Health Authority where family medicine services provided. An Audit records form contained socio demographic data including age, sex etc…, clinical assessments data including ophthalmological assessment, laboratory findings related parameter including (HBA1C) were all obtained, raw data tabulated, analyzed.

4. Results

The study revealed that as for HBA1C results for diabetic patients attending primary health care centers in Dubai for the period 2004-2016, the mean result of the test for all patients were 8.6 during 2004 which reflect bad outcomes of DM control status of the patients as above 7.5 means non controlled patients. Strict and comprehensive DM control measures kept applied. The study showed that in 2012, the mean HBA1C of all registered diabetic patients was significantly improved to reach to 7.5 which is upper than normal cut of point. As the measures maintained and strengthened further, the results showed significant improvement where the mean HBA1c was 7.2 in 2016 which reflect good control level. (Figure 1)

Figure 1. Mean trend of HBA1c of diabetic patients in PHC, Dubai, 2004-2016.

The study results reflected that about 27.6% of the DM patients were used to have HBA1c mean below 7 in 2004 the percentages keep increasing due to improvement of quality of care until reached up to 56.2% during the year 2016 which reflecting the closer of gaps in quality of care as shown in the figure 2.

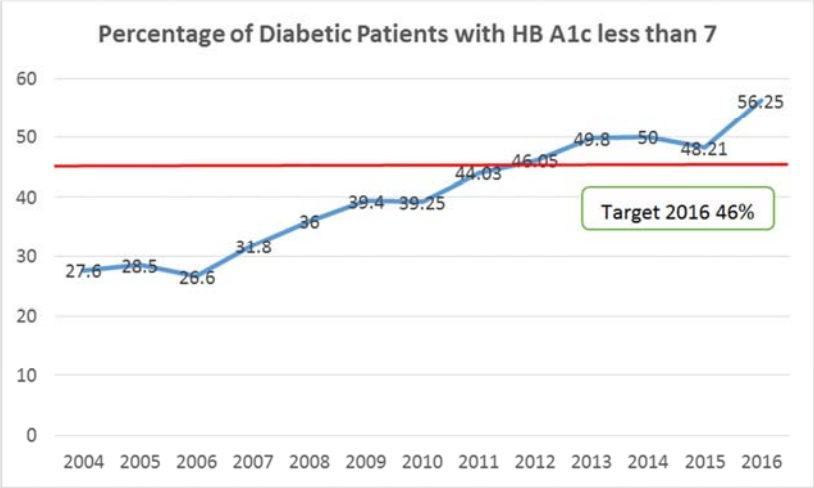

Figure 2. Percentages of diabetic patient with HBA1c less than 7, PHC, Dubai, 2004-2016.

It was noticed in the study results that the percentage of registered diabetic patients who carried out two HBA1c test per year during the last 4 years was sharply declined during 2013-2015 but staring to rise once again during 2016. (Figure 3)

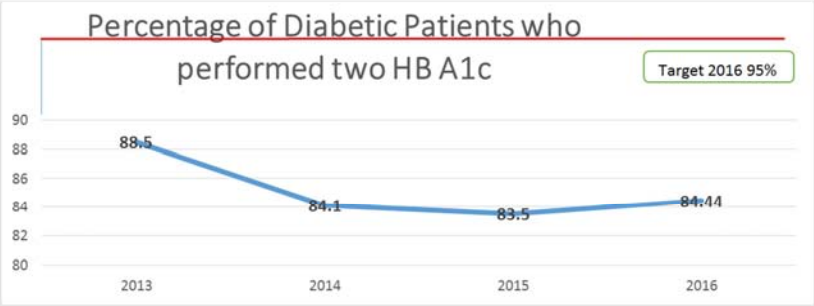

Figure 3. Frequency distribution of Diabetic patients who performed two HBA1c test per year during the last 4 years.

The study revealed as well that about 30% of diabetic patients were screened for retinopathy which was improved significantly to reach up to 46.1% during 2016 and it was exceeding the target level. (Figure 4)

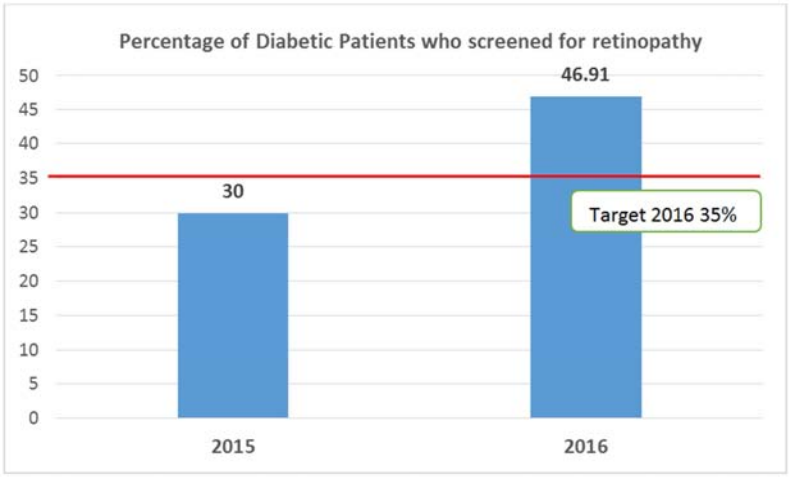

Figure 4. Frequency distribution of registered diabetic patients who were screened for retinopathy.

5. Discussion

As for HBA1c, the mean result of the test for all patients were 8.6 during 2004. It showed significant improvement where the HBA1c was showing 7.2. About 27.6% of the DM patients used to have HBA1c mean below 7 in 2004. This reached 56.2% during the year 2016. These results is almost similar to another study conducted in Saudi Arabia [15] which showed that Almost half of diabetics at Aohud clinic (48.3%) had uncontrolled diabetes with an HbA1c above 8%.

Similar results (54%) have been reported by Al-Hussein in a study looking at diabetics in primary care setting while using 8.4% for defining uncontrolled diabetes. [16] The rate of controlled diabetes (HbA1c<7%) in our study was 26.7%. This compares well to other local studies, which have reported rates between 10-20%. [16, 17] On the other hand, rate of uncontrolled diabetics seems much higher than international figures. For example, Harris et al., reported a rate of only 17% for uncontrolled diabetes in Canadian primary care setting. [18] However, a higher threshold (HbA1c>8.4%) was used to define "inadequate control" in their report. Several factors serve as barriers to achieving optimal glycaemic control. These include: non-compliance to diet and exercise advice, lack of interest and knowledge, non-compliance with medication regimen, as well as cultural barriers. [18]

Current study showed that about 88% of diabetic patients did their HBA1c twice. This result showed much higher than another study [19] which showed that more than half (60.2%) reported daily self-monitoring of foot ulcers and HbA1c testing at least twice over the past year (52.3%).

This study showed that screening for retinopathy was about 46% of diabetic patients in 2016 which is much less than Egyptian study that showed about 88%. [20]

6. Conclusion

Although the audit revealed significant improvement in quality of diabetes care, yet there are still significant gaps needs to be closed like consistency in care provision between primary care teams. Clinical guidelines and continuing education about acceptable diabetes care should be well maintained and strengthened. Physician education and adhering to standard guidelines for management helps in better health care delivery to diabetes patients. Improvement in process of diabetes care can be achieved even in resource-limited settings. Continuous auditing of care quality, adhering to standards and guidelines and protocols and continuous training are key components in effectctive management of diabetes mellitus

Conflict of Interest

The authors declare that they do not have any conflict of interest.

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