



DIABETIC CONTROL SITUATION; A STUDY OF DIABETIC PATIENTS IN MINISTRY OF HEALTH PRIMARY HEALTH CENTERS OF MAKKAH AL MUKKARAHMA SAUDI ARABIA.

Prof. Dr. Muhammad Saeed Siddiqui¹, Dr. Muhammad Aziz², Dr. Makki Ahmad Ali³

1. SSCMS, Karachi (EX-MOH Makka-al-Mukarrhama Saudi Arabia).
2. Manchester University UK.
3. Public Health Department MOH, Saudi Arabia

Correspondence Address:
Prof. Dr. M. Saeed Siddiqui
SSCMS, Karachi
drsaeedsiddiqui@gmail.com

Article received on:

17/04/2014

Accepted for publication:

05/07/2014

Received after proof reading:

16/10/2014

INTRODUCTION

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. It's vascular complications causes significant morbidity and mortality, thus making it a major public health threat and causing a heavy economic burden on health care system.

Saudi Arab is one of the gulf region country which is putting rigorous efforts at Primary Health Care level but not showing downward trend in controlling diabetes and is spreading like an epidemic¹. In the year 2011, 20 % people of 20-79 years of age were suffering from diabetes which is expected to rise 20.6% in 2030 making Saudi Arab the sixth top most suffering country in the world². It seems that Saudi population inherited traits for type 2 diabetes, especially with increased incidence of obesity, consanguinity

ABSTRACT... Objectives: To determine the prevalence of controlled diabetes in registered diabetic patients with Hemoglobin A1c (HbA1c) ≤ 7 or Fasting blood Sugar ≤ 130 mg/dl in three primary Health Care Centers of Al- Ameer Ahmad Sector of Makkah. **Methods:** This study was a descriptive study (cross sectional) started from 20 June 2012 to 30 September 2012. The Primary Health Care Centers randomly selected were AL-Zahir, Al-Hindavia and Kudai Al- Hijra. The sample size calculated was 320 patients with confidence level of 95% and confidence interval of 5. The cut of values adjusted for all diabetes mellitus patients was, haemoglobin A1c (HBA1c) ≤ 7 or fasting blood sugar (FBS) ≤ 130 mg/dl. Hypertension values were set as 140 /90 mm of Hg. **Results:** Overall the age range was 25 – 87 (62) years and a mean of +/- SD of 58.66 +/- 11.97. Out of 320 diabetic patients selected (152 only diabetes + 168 patients of diabetes with hypertension) 21.25 % have disease under control. Most effected age range of uncontrolled diabetes was 45-74 years. HbA1c test for study year was not done in 83.43 % cases. The age and Gender difference in two groups were not significant, however the results of controlled and non-controlled diabetic patients in three Primary Health Care Centers was significant (P <0.05). **Conclusions:** Diabetes Control programme at the level of Primary Health Centers showed a very low level of success in study groups. There is a need to reconsider the control strategy.

Key words: Controlled and non- controlled diabetic patients, programme, Primary Health Care Centers

Article Citation: Siddiqui MS, Aziz M, Ali MA. Diabetic control situation; a study of diabetic patients in ministry of health primary health centers of Makkah al Mukkarahma Saudi Arabia. Professional Med J 2014;21(5):936-940.

marriages, and insulin resistance susceptibility. In addition, the sedentary life style changes adopted during the last four decades associated with the oil bonanza, accentuated the situation³.

To control the situation Ministry of Health Kingdom of Saudi Arabia is providing anti diabetic drugs free of cost with all laboratory facilities by registering the patients at respective Primary Health Centers. Moreover since 2011 an exclusive Diabetes Prevention and Control Program has been launched with 20 diabetes centers all over the kingdom to provide educational, medical and support services to all diabetic individuals⁴.

The aim /objective of the study was to determine the prevalence of controlled diabetes in registered diabetic patients with Hemoglobin A1c (HbA1c) ≤ 7 or Fasting blood Sugar ≤ 130 mg/dl in three primary Health Care Centers of Al- Ameer Ahmad

Sector of Makkah.

PATIENTS AND METHOD

This was a cross sectional descriptive study conducted from 20 June 2012 to 30 September 2012. Three Primary Health Care Centers of Ministry of Health in Al –Ameer Ahmad sector of holy capital Makkah al Mukkarahma were selected. The study subjects were the registered patients (at primary health care centers) of diabetes mellitus/diabetes mellitus with hypertension living in different areas of the Al – Zahir, Al- Hindavia and Kudai Al- Hijra regions .The study population was comprised of Saudi national of both genders living permanently at Makkah.

Cluster probability sampling method was adopted. Cluster of north, south, west and east sectors of Makkah region were made by dividing the area geographically. Two PHCs from each sector were marked out of 28 primary health care located in Makkah city. In the initial process three centers from Al – Ameer Ahmad sector were chosen randomly to start the study. These Primary Health Care Centers were AL-Zahir, Al-Hindavia and Kudai Al- Hijra. Total registered diabetic patients at these centers were 686, 296 and 930 respectively . Thus the total population was 1912 .The sample size calculated was 320 patients with confidence level of 95% and confidence interval of 5. We distributed the sample size of 320 into following arrangement according to load of patients in PHCs, 144 (45%) patients for Al – Hindavia , 112(35 %) patients for Al Zahir , and 64 (20%) for Kudai al-Hijra PHC (Table -I). In these respective PHCs, patients files were selected by doing a random sampling. The cut of values adjusted for all diabetes mellitus patients was , haemoglobin A1c (HBA1c) \leq 7 or fasting blood sugar (FBS) \leq 130mg/dl in the study year. Hypertension values were set according to WHO standard as 140 /90 mm of Hg.

Selection Criteria

Inclusion Criteria

All patients irrespective of gender and age difference must have registration in the respective primary health care centers and should be permanent resident of the holy capital Makkah al

Mukkarahma.

Exclusion Criteria

All Saudi patients having no registration at the particular primary health care centers, all eligible diabetic patients having any entry of random blood sugar in three readings and all non Saudi patients of diabetes mellitus type-2 reporting sick at these particular PHC.

Formal written permission from Director public Health programme Directorate of Makkah ministry of health was obtained. The data was processed using manual and computer software IBM SPSS 20.

RESULTS

Overall the age range was 25 – 87 (62) years and a mean of \pm SD of 58.66 \pm 11.97. Maximum population of diabetic patients were of the age group of 55 – 64 (23.45 %) years, followed by 45 – 54 (20.31%) years and 65 -74 (18.12 %) years respectively. Male patients were 129 (40.3 %) while female were 191 (59.7%)(Figure– 1). The patients of diabetes were categorized into two groups of , diabetes only and diabetes with hypertension. Accord-ing to sample size we found 152 (47.5 %) patients of only diabetes and 168 (52.5 %) patients of diabetes with hypertension(Figure – 2). The main result of the study is shown in Figure – 3 and Table-II. The age differ-ence of controlled and non controlled groups was not significant ($P > 0.05$). Gender difference in controlled and non controlled groups was also not significant ($P > 0.05$) , however the results of controlled and non controlled diabetic patients in three Primary Health Care Centers was significant ($P < 0.05$). The result of carrying out of HbA1c test (gold standard) for confirmation of diabetes are shown in Figure-4.

DISCUSSIONS

The global prevalence of diabetes in age group 20 -79 years in 2011 was estimated 8.3% which is expected to rise to 9.9 % by 2030². Kingdom of Saudi Arabia is among the top seven countries of world having the highest prevalence of diabetes. The overall prevalence of Diabetes Mellitus in

Name of PHC	Number of pts. With diabetes and hypertension	Number of pts. with diabetes	Total patients	Distribution of sample size (n=320)
Al-Zahir	161	525	686	112 (35%)
Kudai Al-Hijra	273	657	930	64 (20%)
Al-Hindavia	102	194	296	144 (45%)
		Total	1912	320

Table-I. Selected Primary Health Care Centers with registered diabetic patients and Size of samples.

Outcome of study	Existing diabetes position	Sex		Total
		Male	Female	
Controlled (68)	Only diabetes	11	15	26
	Diabetes with hypertension	13	29	42
	Total	24	44	68
Non controlled (252)	Only diabetes	59	67	126
	Diabetes with hypertension	46	80	126
	Total	105	147	252
	Only diabetes	70	82	152
	Diabetes with hypertension	59	109	168
	Overall Total	129	191	320

Table-II. Complete Result of the study of all three PHCs (n=320)

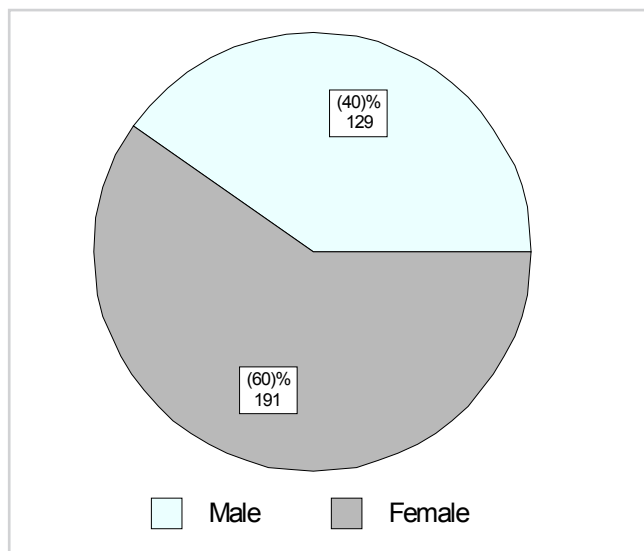


Fig-1. Gender of patients

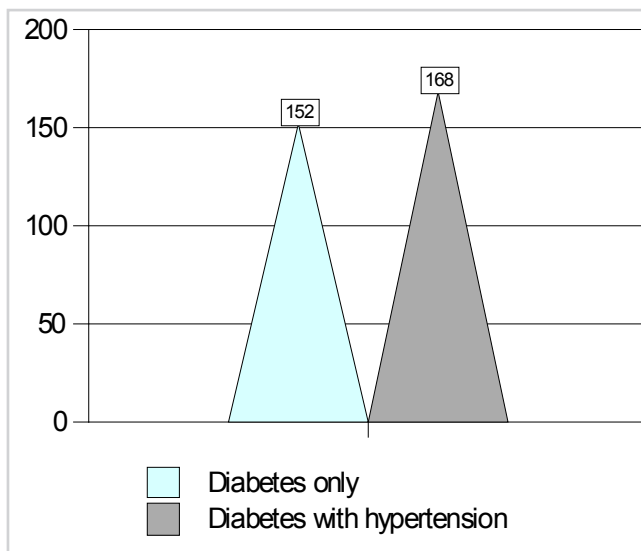


Fig-2. Diabetic patients in study sample (n=320)

age group 30 – 70 years obtained from Al-Nozha study⁵ (1995 – 2000) was 23.7% in Kingdom of Saudi Arabia. Recent studies in Saudi Arabia put the figure for diabetic prevalence at 29%, considerably higher than WHO/IDF estimation. It is increasing by 0.8 % annually. One of the studies showed that almost 50 % of individuals more than

30 years of age are either diabetic or prone to be diabetic⁶.

Our study was basically focused on detection of controlled diabetes in a sample of three primary health care centers .It was found that only 21.25 % diabetic patients have their diabetes under

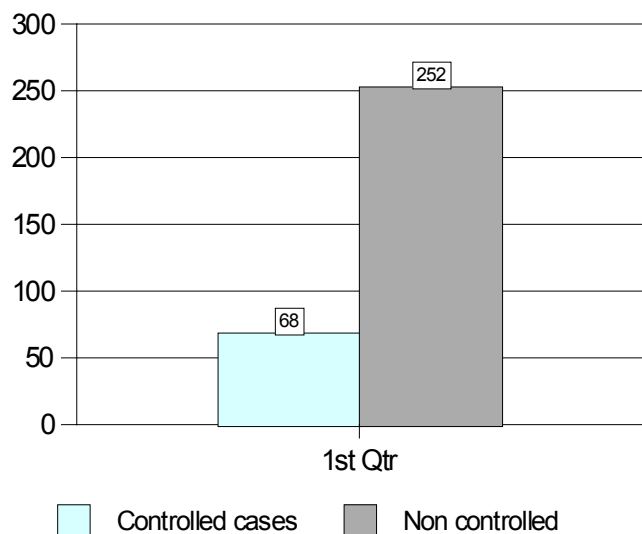


Fig-3. Classification of diabetic patients according to blood sugar results (n=320)

control. These include only 24 males and 44 females in total 320 sample population. These were among 26 patients of only diabetes and 42 patients of diabetes with hypertension. The age bracket chosen by International Diabetic federation was 20-79 years. Our study sample have starting age of 25. The prevalence of diabetes mellitus showed a normal distribution, however the highest prevalence of non controlled diabetes we observed in sample population was from 45 – 74 (61.87% on non controlled) years of age. This can be attributed to socio-economic changes, westernization, and ageing of the population, changes in nutrition, a decrease in physical activity, and the resulting tendency towards obesity.

The American Diabetic Association recommends testing for HbA1c 2-4 times per year. According to new national reference of clinical guidelines for care of diabetic patients in primary health care in Saudi Arabia⁴ HbA1c is to be carried out every three months. In our study it was found that in 267 (83.43 %) patients (n=320) HbA1c was not performed in the study year. This can be attributed to doctors lethargic attitude and poor patient compliance. In a study⁷ done in an affluent country Bahrain the Hemoglobin A1c (HbA1c) was done twice a year in 20.5 percent of patients

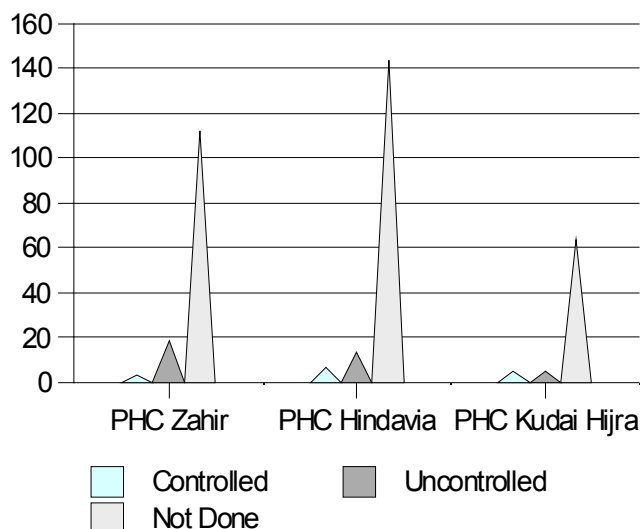


Fig-4. HbA1c test carried out for diabetic patients in the year 1433H

.Similarly an Ethiopian study⁸ found that none of study diabetic patients had haemoglobin A1c (HbA1c) determination. The cost of this test is not expensive and can easily be done without fasting.

Due to dearth of studies on the subject in Saudi Arabia no comparison was available.

CONCLUSIONS

Kingdom of Saudi Arabia is one of the country where a well established health infrastructure for diabetic care is available. Despite of free treatment at primary health care centers and consultation services at tertiary care hospitals the diabetic care is not of the standard. 21.25% prevalence of controlled diabetes is indicative of very low level of care. This can be improved by health education, commitment of PHC staff and strict supervision of superior health authorities.

Copyright© 05 July, 2014.

REFERENCES

- Standard of Medical Care in Diabetes-2012. American Diabetes Association National office 1701 N.BeaugardSt.Alexandria VA USA 22311 Diabetes care@ di-abetes.org.
- IDF Diabetes Atlas fifth edition. International Diabetes Federation www.idf.org/diabetesatlas/5e/the-globalburden

3. **Diabetes in the Middle East Corporate Information Series-4 2008 Corporate Offices EpinexDiagnostics, Inc** 2815Mc GawAvenue Irvine , CA 92614 USA http://epinex.com/pdf/Epinex_Diabetes_MidEast.pdf 1603-1610
4. **National Reference of Clinical Guidelines For Care of Diabetic Patients in Primary Health Care Ass. Deputy Ministry for Preventive Medicine General Directorate of Noncommunicable Diseases.** Ministry of Health Kingdom of Saudi Arabia.
5. **Diabetes mellitus in Saudi Arabia** .Mansour M. Al-Nozha, , Mohammed A. Al-Maatouq,Yaqoub Y. Al-Mazrou,Saad S. Al-Harhi, Mohammed R. Arafah, Mohamed Z. Khalil,et al. Saudi Med J 2004; Vol. 25 (11):
6. **Diabetes time-bomb in Saudi Arabia** <http://www.middleeasthealthmag.com/wordpress/archives/129>
7. **Evaluation of Diabetes Service Provision in a Government Health Centre in Bahrain,** Rabha Salman, MD, FAM.MED* Bahrain Medical Bulletin, Vol. 27, No. 1, March 2005
8. YeweyenharegFeleke, Fikre Enquesselassie, **An assessment of the health care system for diabetes in addis Ababa, Ethiopia** Ethiop. J.Health Dev. 2005;19(3).



Pain is inevitable.
Suffering is optional.

Haruki Murakami

