Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Adequacy of glycaemic, lipid and blood pressure goals of diabetic patients at Secondary health care centre

Dr. Sarang R. Barbind[1], Dr. Rajesh Garje[2]

[1]DNB Medicine, Consultant Physician and Intensivist, Sanjeevani Hospital- critical care and trauma centre, Nanded, Maharashtra;

[2]M.D. Medicine, Consultant Physician and Intensivist, Sanjeevani Hospital- critical care and trauma centre, Nanded, Maharashtra

***ABSTRACT*:**

Background: The incidence of diabetes is alarming in both developed and developing countries. The present study was conducted to evaluate the adequacy of glycaemic, lipid and blood pressure (BP) goals of diabetic patients. **Materials & Methods:** The present study was conducted on 150 adult ambulatory type II diabetics of both genders arrived at Sanjeevani Hospital-Critical Care and Trauma Centre, Nanded, during period of January 2018-March 2019. Duration of diabetes, treatment history, hypertension, and complications were recorded. BMI was calculated as weight in kilogram divided by height in meter square. Patients were studied for various parameters like HbA1c, FBS, PPBS, LDL, HDL and TG. Complications such as diabetic neuropathy, diabetic retinopathy, diabetic foot complications, ischaemic heart disease and stroke were assessed. **Results:** There were 80 males and 70 females, 120 patients were >45 years and 30 below 45 years, BMI was <18 in 26, 18-24.9 in 36, 25-29.9 in 38 and >30 in 40 patients. Habit of cigarette smoking seen in 42, alcoholism in 50, positive family history in 38 and sedentary life style in 76 patients. BP goal was achieved in 76 males and 50 females, <45 years in 62 patients and >45 years in 48 patients, BMI <18 in 17, 18-24.9 in 26, 25- 29.9 in 27 and >30 in 22 patients, with complications in 36 and without complications in 78, with regular treatment in 70 and irregular treatment in 58 patients. Goal for HBA1C was achieved in 60, FBS in 85, PPBS in 72, HDL in 62, LDL in 85, TG in 105 and BP in 78 patients. **Conclusion:** Authors found that although a large percentage of diabetic patients were tested for HBA1C, LDL cholesterol, and systolic BP, a much smaller percentage had reached their respective goals. More aggressive glycemic, lipid, and BP management appears to be needed to improve care for these patients.

Key words: Cholesterol, Diabetes, Systolic BP.

Received: 02/05/2020 **Modified:** 20/06/2020 **Accepted:** 24/06/2020

Corresponding Author: Dr. Sarang R. Barbind, DNB Medicine, Consultant Physician and Intensivist, Sanjeevani Hospital- critical care and trauma centre, Nanded, Maharashtra, India

This article may be cited as: Barbind SR, Garje R. Adequacy of glycaemic, lipid and blood pressure goals of diabetic patients at Secondary health care centre. J Adv Med Dent Scie Res 2020;8(8):50-53.

INTRODUCTION

The incidence of diabetes is alarming in both developed and developing countries. In US, the incidence of diabetes in 2010 was 1.7 million new diagnoses per year; in 2012, it increased to 1.9 million.[1] This means that we are going to have increasing numbers of cardiovascular events, cerebral vascular events, peripheral vascular and a number of other cardiovascular illnesses.[2] For the most part, diabetes has become the leading risk predictor for cardiovascular disease in most clinical cardiology settings. Proper control of hyperglycemia is imperative and significant in preventing both microvascular, and macrovascular complications in diabetes, and reduced control means an even more alarming increase in the complication rates.[3]

Type 2 diabetes mellitus (T2DM) is the predominant form of diabetes worldwide, accounting for 90% of cases globally.[4] Sex, age, and ethnic background are important factors in determining the risk of developing T2DM. Age is also a critical factor. T2DM has been viewed in the past as a disorder of aging, and this remains true today. However, a disturbing trend has become apparent in which the prevalence of obesity and T2DM in children is raising dramatically.[5] Cardiovascular disease is the major cause of morbidity and mortality among diabetic patients, accounting for 75% of hospitalizations and 70- 80% of deaths. In fact, coronary heart disease (CHD) is the leading cause of death among diabetic patients, who have a two- to fourfold higher risk of CHD mortality and incidence of nonfatal CHD events compared with patients without diabetes.[6] The present study was conducted to evaluate the adequacy of glycaemic, lipid and blood pressure (BP) goals of diabetic patients.

MATERIALS & METHODS

The present study was conducted on 150 adult ambulatory type II diabetics of both genders arrived at Sanjeevani Hospital-Critical Care and Trauma Centre, Nanded, during period of January 2018-March 2019. Participants were informed about the study and informed consent was taken from each patient.

Sociodemographic parameters such as name, age, sex, education, family history and smoking history were recorded. Duration of diabetes, treatment history, hypertension, and complications were recorded. BMI was calculated as weight in kilogram divided by height in meter square. Patients were studied for various parameters like HbA1c, FBS, PPBS, LDL, HDL and TG.

Complications such as diabetic neuropathy, diabetic retinopathy, diabetic foot complications, ischaemic heart disease and stroke were assessed. Results were tabulated and subjected to statistics. P value less than 0.05 was considered significant.

RESULTS

Table I Baseline parameters

Parameters	Number	P value
Male	80	0.94
Female	70	
Age >45	120	0.01
<45	30	
BMI		
<18	26	
18-24.9	36	
25- 29.9	38	0.15
>30	40	
Cigarette smoking	42	0.12
Alcohol	50	
Family history	38	
Sedentary life style	76	

Table I shows that there were 80 males and 70 females, 120 patients were >45 years and 30 below 45 years, BMI was <18 in 26, 18-24.9 in 36, 25-29.9 in 38 and >30 in 40 patients. Habit of cigarette smoking seen in 42, alcoholism in 50, positive family history in 38 and sedentary life style in 76 patients. The difference was non-significant (P> 0.05).

Table II Adequacy of control in respect to various parameters

	HbA1C	FBS	PPBS	LDL	HDL	TG	BP goal
Male	68	45	40	50	70	65	76
Female	50	30	28	56	50	50	50
P value	0.91	0.24	0.14	0.95	0.90	0.81	0.84
<45	50	46	41	49	50	50	62
>45	40	32	29	46	37	40	48
P value	0.92	0.29	0.19	0.92	0.17	0.72	0.41
BMI							
<18	20	24	20	21	22	25	17
18-24.9	30	25	32	22	31	21	26

25- 29.9	28	22	21	26	25	23	22
>30	32	31	30	26	36	26	27
P value	0.91	0.45	0.52	0.93	0.16	0.76	0.46
With complications	23	25	26	30	42	31	36
No complications	67	70	72	65	68	74	78
P value	0.01	0.02	0.02	0.05	0.01	0.03	0.01
Regular treatment	78	80	85	72	64	56	70
Irregular treatment	56	45	57	51	53	54	58
P value	0.04	0.01	0.03	0.04	0.07	0.91	0.05

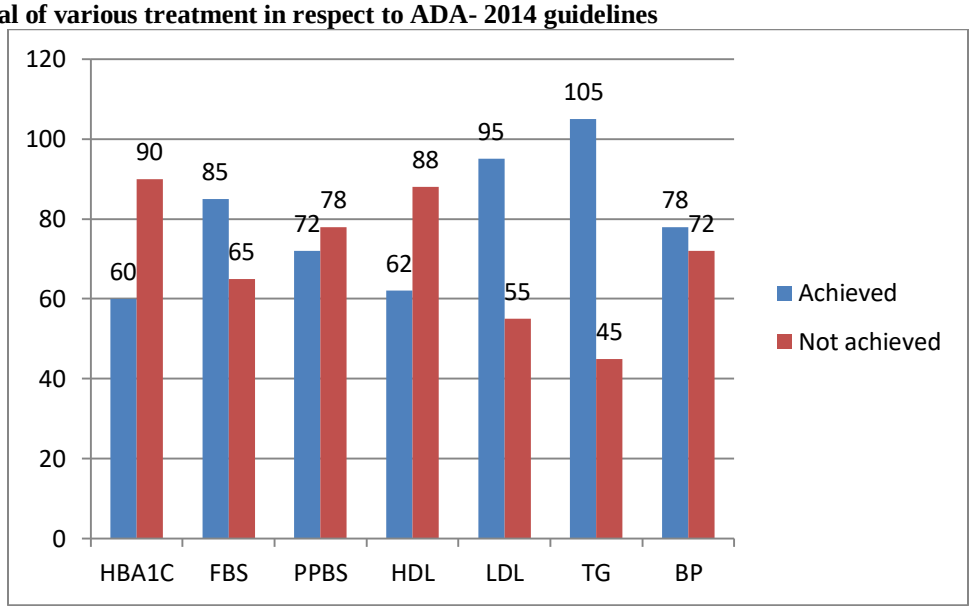
Table II shows that BP goal was achieved in 76 males and 50 females, <45 years in 62 patients and >45 years in 48 patients, BMI <18 in 17, 18-24.9 in 26, 25- 29.9 in 27 and >30 in 22 patients, with complications in 36 and without complications in 78, with regular treatment in 70 and irregular treatment in 58 patients.

Table III Goal of various treatment in respect to ADA- 2014 guidelines

Goals	ADA- 2014 guidelines	Achieved	Not achieved
HBA1C	<7%	60	90
FBS	70-130 mg/dl	85	65
PPBS	<180 mg/dl	72	78
HDL	40 mg/dl males, 50 mg/dl females	62	88
LDL	<100 mg/dl	95	55
TG	<150 mg/dl	105	45
BP	140/90 m Hg	78	72

Table III, graph I shows that goal for HBA1C was achieved in 60, FBS in 85, PPBS in 72, HDL in 62, LDL in 85, TG in 105 and BP in 78 patients.

Graph I Goal of various treatment in respect to ADA- 2014 guidelines



DISCUSSION

Diabetes and its complications are a major public health issue throughout the world. It is estimated that 387 million people had diabetes in 2013, and this number will rise to 592 million by 2035. In Japan, the prevalence of diabetes has markedly increased in the past few decades.[7] In 2013, there were 7.2 million cases of diabetes in Japan, foreboding future growth in premature mortality, morbidity, and economic burden, which are largely associated with its complications. The risk of diabetes complications can be reduced by intensive control of blood glucose, blood pressure (BP), and blood lipid profile.[8] The American Diabetes Association (ADA) recommends that most adults with diabetes achieve a glycated hemoglobin (HbA1c) < 7.0%, BP < 140/90 mmHg, and low-density lipoprotein cholesterol (LDL-C) < 100 mg/dL. Similarly, the Japan Diabetes Society (JDS) has established targets for the three risk factors for patients with diabetes: HbA1c < 7.0%, BP < 130/80 mmHg, and LDL-C < 120 mg/dL.[9] The present study was conducted to evaluate the adequacy of glycaemic, lipid and blood pressure (BP) goals of diabetic patients.

We found that there were 80 males and 70 females, 120 patients were >45 years and 30 below 45 years, BMI was <18 in 26, 18-24.9 in 36, 25-29.9 in 38 and >30 in 40 patients. Habit of cigarette smoking seen in 42, alcoholism in 50, positive family history in 38 and sedentary life style in 76 patients.

RM S et al[10] found that out of 250 patients, 55.6% were males, 44.4% were females. BP, FBS and PPBS were tested in all patients. HbA1C was tested in 72%. Lipid parameters like LDL, HDL, and TG were tested in 42%, 37.6% and 52.4% respectively. FBS, PPBS and HBA1C target goals were achieved in 43.89%, 63.89% and 11.67% respectively in patients with complications and 77%, 88.50% and 68.5% respectively in those without complications. LDL, HDL and TG target goals were achieved in 37.78%, 47.22% and 41.11% respectively in patients with complications and 67.1%, 67.20% and 71.4% respectively in those without complications. BP goal was achieved in 53.89% and 78.55% in patients with and without complications respectively.

We found that BP goal was achieved in 76 males and 50 females, <45 years in 62 patients and >45 years in 48 patients, BMI <18 in 17, 18-24.9 in 26, 25- 29.9 in 27 and >30 in 22 patients, with complications in 36 and without complications in 78, with regular treatment in 70 and irregular treatment in 58 patients. Beaton et al[11] found that testing rates for A1C, LDL cholesterol, and BP were 77, 54, and 95%, respectively. The percentage of patients tested who were at goal were 37% for A1C, 23% for LDL cholesterol, and 41% for systolic BP. Of the patients in our sample, 72% were treated for glycemic control, 64% were treated for BP control, and only 28% were treated for lipid control. Of the patients who received medication treatment, less than one-third were at goal for A1C (29%) and LDL cholesterol (32%), whereas 40% were at goal for systolic BP.

We found that goal for HBA1C was achieved in 60, FBS in 85, PPBS in 72, HDL in 62, LDL in 85, TG in 105 and BP in 78 patients. The probable reason for poor lipid control in this study is multifactorial. Various causes like, financial constraints, poor adherence to therapy, lack of knowledge, disease process and its complications. Poor glycaemic and lipid control leads to various complications that in turn lead to poor control.[12]

CONCLUSION

Authors found that although a large percentage of diabetic patients were tested for HBA1C, LDL cholesterol, and systolic BP, a much smaller percentage had reached their respective goals. More aggressive glycemic, lipid, and BP management appears to be needed to improve care for these patients.

REFERENCES

1. Iso H. Changes in coronary heart disease risk among Japanese. Circulation. 2008;118:2725–9.
2. American Diabetes Association Standards of medical care in diabetes–2015. Diabetes Care. 2015; 38 Suppl1:S1–94
3. Van Dieren S, Beulens JW, van der Schouw YT, Grobbee DE, Neal B. The global burden of diabetes and its complications: an emerging pandemic. Eur J Cardiovasc Prev Rehabil. 2010;17 Suppl 1:3–8.
4. Haffner SM, Lehto S, Ronnemaa T, et al. Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. N Engl J Med 1998; 339:229-34.
5. Wild S, Roglic G, Green A, et al. Global prevalence of diabetes. Estimates for the year 2000 and projections for 2030. Diabetes Care 2004; 27:1047-53.
6. Zimmer P, Alberti KG, Shaw J. Global and societal implications of the diabetes epidemic. Nature 2001; 414:782-7.
7. Shaw JE, Sicree RA, Zimmet PZ. Global estimates of the prevalence of diabetes for 2010 and 2030. Diabetes Res ClinPract 2010; 87:4-14.
8. American Diabetes Association. Type 2 diabetes in children and adolescents. Diabetes Care 2000; 23:381-9.
9. Goldberg RB, Capuzzi D. Lipid disorders in type 1 and type 2 diabetes. Clin Lab Med 2001; 21:147-72.
10. Rm S. Adequacy of Glycemic, Lipid and Blood Pressure Goals Among Ambulatory Type-2 Diabetes Mellitus. The Journal of the Association of Physicians of India. 2020 Feb 1;68(2):27-30.
11. Beaton SJ, Nag SS, Gunter MJ, Gleeson JM, Sajjan SS, Alexander CM. Adequacy of glycemic, lipid, and blood pressure management for patients with diabetes in a managed care setting. Diabetes care. 2004 Mar 1;27(3):694-8.
12. Wingard DL, Barrett-Connor E. Heart disease and diabetes. In: Diabetes in America. 2nd ed. Bethesda: National Diabetes Data Group, National Institutes of Health; 1995; 429-32.