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Research Article

**THE PREVALENCE OF BLOOD LIPID DISORDER AND
HYPERTENSION IN DIABETES PATIENTS VISITING
IMAM-ALI HOSPITAL IN ZAHEDAN****Halime Aali¹, Farahnaz Mir¹, Mahmood Anbari^{2*}**¹Department of Internal Medicine, Amir Al-Momenin Hospital, Zabol University of Medical Sciences, Zabol, Iran.²Zabol University of Medical Sciences, Zabol, Iran.**Abstract:**

Diabetes is a chronic disease. Type 2 diabetes is the most common type of diabetes and it accounts for 90% of the cases. Due to the increased incidence of this disease and its complications, the rate of bleeding caused by blood disorders and hypertension in type II diabetic patients visiting Imam Ali hospital in Zahedan was investigated in the present study. The present cross-sectional study was conducted on 200 type 2 diabetes patients visiting Imam Ali hospital of Zahedan in 2016. Clinical and demographic information of eligible subjects was collected using a researcher-made questionnaire. Systolic blood pressure equal to or more than 13 mmHg and diastolic equal to or above 80mmHg was considered to be categorized as high blood pressure; collected data was analyzed through SPSS version 18 and T-test statistical tests and $P < 0.05$ was considered as significance level. Of the 200 patients we studied, 121 patients were female and 79 patients were male. The mean age of examine patients turned out to be 47 ± 8.54 . Hypertension was observed in 37 of patients, including 41% of men and 34% of women. Hypercholesterolemia was observed in 59% of patients, hypertriglyceridemia in 64%, high LDL in 70%, and low HDL in 65% of patients. The results of the present study indicate high incidence of hypertension and lipids in newly diagnosed type 2 diabetic patients; thus, diagnostic and therapeutic measures must be taken to control these two risk factors in order to prevent long-term and cardiovascular complications in these patients. It is recommended to pay closer attention to primary prevention plan, lifestyle modification through providing a proper pattern of food intake, and increase physical activity.

Key Words: Blood Lipid, Hypertension, Diabetes Patients, Zahedan.**Corresponding author:****Mahmood Anbari,**Zabol University of Medical Sciences,
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INTRODUCTION:

Diabetes mellitus is a multifactorial metabolic disorder characterized by increased blood glucose and complication in the metabolism of carbohydrate, fat, and protein [1]. Increased blood glucose results from impaired secretion of insulin and liver gluconeogenesis [2, 3]. Diabetes mellitus is a common disease throughout the world and the incidence and frequency of diabetes are increasing in most populations, especially in developing countries [4]. At present, the number of diabetic patients in Iran is estimated at 1.5 million, as estimated in the studies conducted in Iran and the prevalence of this disease in a population above 30 years is estimated at 10.6%. Two groups of diabetes mellitus have been named 1 and 2 [5]. Diabetes mellitus type 1A occurs as a result of self-immune destruction of beta cells, resulting in insulin deficiency [6]. People with type 1 diabetes mellitus have no immunologic markers indicative of the autoimmune degradation of beta cells. Type II diabetes mellitus is a heterogeneity of disorders usually characterized by varying degrees of resistance to insulin, insulin secretion and increased glucose production [7]. Studies conducted on controlling diabetes and its complications show that diabetes mellitus can be delayed or decreased with severe glycemic control [8]. One of the most important and major complications of type 2 diabetes is cardiovascular disease, which brings a lot of financial and psychological disadvantages. Various studies have shown that 65% of people with diabetes die due to cardiovascular disease [9]. In fact, cardiovascular disease is the leading cause of death from diabetes, and is more common in patients with type 2 diabetes than in the general population. An increased incidence of cardiovascular disease is associated with impaired lipoprotein metabolism, such as decreased HDL, increased LDL and increased TG levels. Additionally, various studies have shown an increase in the prevalence of hypertension in diabetic patients, as in some of these studies, the prevalence of hypertension in diabetic patients is doubled in comparison to the general population [10]. High blood pressure can accelerate the onset of other complications of diabetes mellitus, especially cardiovascular and nephropathic complications. Diabetes also doubles the risk of developing cardiovascular disease [11]. Other risk factors, such as high blood pressure, high blood

lipids, and obesity, and smoking contribute to cardiovascular disease [12]. Recent studies have shown that controlling the risk factors mentioned in diabetics may reduce the risk of developing cardiovascular disease in these individuals. Due to the fact that diabetes is one of the most common diseases in the world, and is one of the causes of death due to illness, and also due to the high prevalence of hypertension, cardiovascular diseases and dyslipidemia in these patients, the present study was conducted to investigate the prevalence of blood lipid disorder and hypertension in diabetes patients visiting Imam-Ali hospital in Zahedan.

MATERIALS AND METHODS:

The present cross-sectional study was conducted on 200 type 2 diabetes patients visiting Imam Ali hospital of Zahedan in 2016. Basic demographic information, such as name, age, the history of former diseases, and the time of the diagnosis of the disease, of the eligible subjects was collected through researcher-made questionnaire. High blood pressure was determined according to Seventh Report of the Joint National Standard, with systolic blood pressure equal to or more than 13 mmHg and diastolic equal to or above 80mmHg. 5cc of venous blood was taken from patients after 14 hours of fasting; collected data was analyzed through SPSS version 18 and T-test statistical tests and $P < 0.05$ was considered as significance level [13-15].

FINDING:

Of the 200 patients we studied, 121 patients were female and 79 patients were male. The mean age of examine patients turned out to be 47 ± 8.54 . Hypertension was observed in 37 of patients, including 41% of men and 34% of women. Hypercholesterolemia, with a maximum of 354 and minimum of 126 mg/dl, was observed in 59% of patients, hypertriglyceridemia, with maximum of 592 and minimum of 59, in 64% of patients, high LDL, with maximum of 199 and minimum of 59 mg/dl, in 70% of patients, and low LDL, with maximum of 65 and minimum of 27, was observed in 65% of patients (Table 1). Hypertriglyceridemia and high LDL levels were not significantly different between two sexes ($P > 0.05$); however, there were significant differences between male and female subjects regarding HDL, with this rate being 56% in men and 72% in women ($P < 0.05$).

Table 1: Mean of Blood Lipid Disorder and Hypertension in Diabetes Patients

Variable	Mean	SD	Minimum	Maximum
Ttriglyceride (mg/dl)	205.84	105.44	59	592
Cholesterol (mg/dl)	219.12	40.25	129	354
LDL (mg/dl)	121.12	32.48	59	199
HDL (mg/dl)	45.14	9.36	27	65
Systolic blood pressure (mm/Hg)	117.54	17.42	89	210
Diastolic blood pressure (mm/Hg)	72.41	13.68	53	125

DISCUSSION:

With 90% of incidence rate, type 2 diabetes is the most common type of diabetes and this rate is constantly increasing [16, 17]. Also, the incidence of type 2 diabetes in children is roughly tenfold and, almost, 50% of children and adults are already diagnosed with type 2 diabetes; 125 million people were diagnosed with diabetes in 1997 and, according to WHO estimates, the number of patients is supposed to rise to 300 million subjects in 2025 [18]. Type 2 diabetes mellitus is accompanied with three pathophysiological abnormalities of disorders of insulin secretion, insulin resistance and excess glucose production by the liver. Considering the importance of type 2 diabetes mellitus, the present study was conducted to investigate the prevalence of blood lipid disorder and hypertension in diabetes patients visiting Imam Ali hospital in Zahedan. The prevalence of hypertension in newly diagnosed type 2 diabetic patients turned out to be 36%, mean systolic blood pressure was $117 \pm 16/48$ mmHg, and mean diastolic pressure was 71.18 ± 13.98 . Based on Teimuri et al study (2004), which was conducted in Isfahan, the incidence of hypertension was 32.9% in the general population and mean systolic and diastolic blood pressure turned out to be 117.54 ± 17.42 and 117.24 ± 16.12 mmHg in order [19]. Compared to the mentioned study, the prevalence of hypertension and the mean blood pressure was higher in the present study, which is quite expected considering a higher incidence of hypertension in diabetic patients. Different studies have been done in different parts of the world on newly diagnosed type 2 diabetic patients and the incidence of hypertension and mean blood pressure in these patients has been reported differently. According to Ukpds et al study (1993), out of 39% of newly diagnosed type 2 diabetes patients, 35% of male and 46% of female patients had hypertension; mean systolic and diastolic blood pressure turned out to be 134 ± 18 and 82 ± 10 mmHg and 140 ± 20 and 84 ± 10 mmHg in women [20]. Based on the findings of Weerasuriya et al study (1998), the prevalence of hypertension in newly diagnosed diabetics turned out to be 23%. Differences in

global statistics can be partly due to racial differences [21]. The prevalence of hypercholesterolemia was 59%, the average triglyceride was 205.84%, the mean total cholesterol was 219.12, the mean LDL was 121.12 and the mean HDL was 54.14 in the present study; however, hypertriglyceridemia was 14% and low HDL was 12% in newly diagnosed type 2 diabetes patients in other studies. Compared to numerous studies, the prevalence of lipid disorders and the mean of plasma lipids is higher among newly diagnosed diabetic patients of the present study, which may be related to the type of diet, the degree of mobility, and the genetic factors; on the other hand, it is not unlikely the inadequate health care delayed follow-up of patients, and late diagnosis of diabetes might, also, cause a higher incidence of dyslipidemia in these patients; however, however, in order to prove this claim, more extensive studies are needed to clarify the role of these factors in existing differences. It should be noted that since the majority of studied subjects used to be under medical treatment due to hypertension or dyslipidemia, the average calculated for blood pressure in the blood and plasma cannot be a real outbreak, which is one of the limitations of the present study.

CONCLUSION:

The results of the present study indicate high incidence of hypertension and lipids in newly diagnosed type 2 diabetic patients; thus, diagnostic and therapeutic measures must be taken to control these two risk factors in order to prevent long-term and cardiovascular complications in these patients. It is recommended to pay closer attention to primary prevention plan, lifestyle modification through providing a proper pattern of food intake, and increase physical activity.

REFERENCES:

- Vaziri PB, Vahedi M, Abdollahzadeh SH, Abdolsamadi HR, Hajilooi M, Kasraee SH. Evaluation of salivary albumin in diabetic patients. *Iran J Public Health* 2009; 38(3): 54-9.

2. Conget I. Diagnosis, classification and pathogenesis of diabetes mellitus. *Rev Esp Cardiol* 2002 May; 55(5): 528-35.
3. Alberti S, Spadella CT, Francischone TR, Assis GF, Cestari TM, Taveira LA. Exfoliative cytology of the oral mucosa in type II diabetic patients: morphology and cytomorphometry. *J Oral Pathol Med* 2003 Oct; 32(9): 538-43.
4. Dokken BB. The pathophysiology of cardiovascular disease and diabetes: beyond blood pressure and lipids. *Diabetes Spectrum*. 2008; 21(3):160-65.
5. Magnussen EB, Vatten LJ, Smith GD, Romundstad PR. Hypertensive disorders in pregnancy and subsequently measured cardiovascular risk factors. *Obstetrics & Gynecology*. 2009; 114(5):961-70.
6. Osborn DP, Wright CA, Levy G, King MB, Deo R, Nazareth I. Relative risk of diabetes, dyslipidaemia, hypertension and the metabolic syndrome in people with severe mental illnesses: systematic review and meta-analysis. *BMC psychiatry*. 2008;8(1):84.
7. Pinheiro JS, Schiavon CA, Pereira PB, Correa JL, Noujaim P, Cohen R. Long-long limb Roux-en-Y gastric bypass is more efficacious in treatment of type 2 diabetes and lipid disorders in super-obese patients. *Surgery for Obesity and Related Diseases*. 2008;4(4):521-5.
8. Collaboration ERF. Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. *The Lancet*. 2010; 375(9733):2215-22.
9. Bonora E, Capaldo B, Perin PC, Del Prato S, De Mattia G, Frittitta L, et al. Hyperinsulinemia and insulin resistance are independently associated with plasma lipids, uric acid and blood pressure in non-diabetic subjects. *The GISIR database. Nutrition, Metabolism and Cardiovascular Diseases*. 2008;18(9):624-31.
10. Lye H-S, Kuan C-Y, Ewe J-A, Fung W-Y, Liong M-T. The improvement of hypertension by probiotics: effects on cholesterol, diabetes, renin, and phytoestrogens. *International journal of molecular sciences*. 2009;10(9):3755-75.
11. Mahmoodi Z, Havasian MR, Afshari J, Salarzai M. Comparison of the Time Interval between the Onset of Clinical Symptoms and Receiving Streptokinase in Patients with Acute Myocardial Infarction (AMI) at Amir Hospital in Zabol, Iran, 2013. *Int J Adv Res Biol Sci*. 2017; 4(5):95-100.
12. Salarzai M, Saravani S, Heydari M, Aali H, Malekzadegan A, Soofi D. PREVALENCE OF URINARY TRACT INFECTION IN CHILDREN WITH NEPHROTIC SYNDROME. *International Journal of Pharmaceutical Sciences and Research*. 2017; 8(7):1346-50.
13. Havasian MR, Panahi J, Pakzad I, Davoudian A, Jalilian A, Zamanian Azodi M. Study of Inhibitory effect of alcoholic and aqueous extract of *Scrophularia striata* (tashne dari) on candida albicans in vitro. *J of Pejouhesh* 2013; 36(5): 19-23.
14. Mohamadi J, Motaghi M, panahi J, Havasian MR, Delpisheh A, Azizian M, Pakzad I. Anti-fungal resistance in candida isolated from oral and diaper rash candidiasis in neonates. *Bioinformation* 2014; 10(11): 667-70.
15. Havasian MR, Amouzadeh S, Mohamadi J. The Study of Inhibitory Effect of Different Extracts of *Scrophularia striata* on Common pathogens, A Systematic Review. *Int. J. Adv. Res. Biol. Sci*. 2017; 4(6):87-92.
16. Boyle JP, Honeycutt AA, Narayan KM, Hoerger TJ, Geiss LS, Chen H, Thompson TJ. Projection of diabetes burden through 2050: impact of changing demography and disease prevalence in the US. *Diabetes Care* 2001; 24(11): 1936-40.
17. Geiss LS. *Diabetes Surveillance, 1999*. Centers for Disease Control and Prevention. Washington, DC: U.S. Department of Health and Human Services, 1999.
18. Afkhami-Ardakani M, Rashidi M. Risk Factors for Diabetes Type 2. *J of Rafsanjan Med Uni Sci*. 2006; 4(4):348-65.
19. Teimoury A, Behrouz Z, Amini M. THE PREVALENCE OF HYPERTENSION AND DYSLIPIDEMIA IN NEWLY DIAGNOSED PATIENTS WITH TYPE 2 DIABETES MELLITUS. *ijdd*. 2004; 4(1):99-103.
20. Chowdhury T, Lasker S. Complications and cardiovascular risk factors in South Asians and Europeans with early-onset type 2 diabetes. *Qjm*. 2002; 95(4):241-6.
21. Weerasuriya N, Siribaddana S, Dissanayake A, Subasinghe Z, Wariyapola D, Fernando D. Long-term complications in newly diagnosed Sri Lankan patients with type 2 diabetes mellitus. *QJM: monthly journal of the Association of Physicians*. 1998; 91(6):439-43.