Association between HbA1c and Serum Lipid Profile among a sample of Iraqi Patients with Type2 Diabetes Mellitus

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Abstract:

Background: Diabetes mellitus is considered a public health concern. Around 1.4 million of Iraqis have diabetes. Reported T2DM prevalence in Iraq ranges from 8.5% (IDF—age-adjusted) to 13.9%. A local study including more than 5400 people in the city of Basrah, Southern Iraq, reported a 19.7% age-adjusted prevalence of diabetes in subjects aged 19 to 94 years. Diabetes is a serious risk factor for atherosclerotic cardiovascular disease (ASCVD) and an important cause of mortality. ASCVD is the commonest cause of death in the western world. Diabetes was identified as a high risk condition for ASCVD. In adults with diabetes with ASCVD or multiple ASCVD risk factors it is important to prescribe high intensity statin to reduce LDL at least by 50%.

Objective: To investigate the association between dyslipidemia and HbA1c and to detect the benefit of using statins to decrease the risk of CVD.

Cases and methods: A prospective, single-dose, non-randomized study was carried out on 1st November 2020 until 31th July 2021 at a private clinic in Wasit governorate-Iraq; and included patients with type 2 diabetes. Clinical and biochemical laboratory assessment and re-assessment were carried out before and after 3 months of receiving Rosuvastatin 20 mg/ day. A paper questionnaire form was used, including sociodemographic and clinical features (age, gender, weight, height, waist circumference and biochemical markers [total cholesterol, HDL, LDL, TG and HbA1c]).

Results: A total of 256 type 2 DM patients were included in the study; receiving 20 mg of rosuvastatin as a single dose for 3 consecutive months. Of the study group 83 (32.4%) were males and 173 (67.6%) were females. The mean age of males was (52.1±10.49) years and that of females was (53.1±10.41) years. The mean values of (BMI, Waist circumference WC, HbA1c, LDL, TG, and cholesterol) for the studied sample after treatment were significantly lower than mean values before treatment, except that for HDL where it was significantly higher after treatment, P <0.001. Levels of HbA1c and total cholesterol were reduced significantly after 3 months treatment of rosuvastatin single dose among all patients, P<0.05; in spite of that gender and age groups shows no significant differences between each other, P>0.05. In patients with total cholesterol level 200 or more; a significant reduction was observed after treatment in means of (BMI, WC, LDL, TG, and HbA1c) with a significant elevation in mean of HDL; P<0.01

Conclusions: All age groups and both gender have benefited from rosuvastatin treatment in the reduction of lipid cholesterol as well as HbA1c. Rosuvastatin can be used by type 2 diabetics regardless of age and gender. HbA1c can be used as a predictor of dyslipidemia in type 2 diabetes.

Keywords: cardiovascular diseases, diabetes mellitus, dyslipidemia, HbA1c, HDL, rosuvastatin

Introduction

Diabetes mellitus (DM) is considered as a public health concern. Diabetes is a serious risk factor for Atherosclerotic cardiovascular disease (ASCVD) and an important cause of mortality. Risk factors for developing type 2 diabetes (T2DM) are: Older age, high plasma glucose, metabolic syndrome, high body mass index (BMI), and high glycated hemoglobin (HbA1c > 6%). [1-5,] Around 1.4 million of Iraqis have diabetes. Reported T2DM prevalence in Iraq ranges from 8.5% (IDF—age-adjusted) to 13.9%. A local study including more than 5400 people in the city of Basrah, Southern Iraq, reported a 19.7% age-adjusted prevalence of diabetes in subjects aged 19 to 94 years. [6, 7] Diabetic patients are 2 to 4 times more likely to die due to ASCVD than non-diabetics. It

may lead to microvascular diseases (retinopathy, neuropathy, nephropathy) and/or macrovascular diseases (ASCVD) that manifest with coronary artery disease (CAD), stroke and peripheral arterial disease)[8-9]. It may also lead to the impairment of the cardiac diastolic performance and muscle contractility. [10] About two thirds of adults with diabetes over the age 65 die as a result of (CAD) and the risk is increased with the addition of other risk factors.[11, 12] HbA1c predicts the risk of developing diabetic complications in patients with DM.[13] ASCVD is the commonest cause of death in the western world. [14] Diabetics usually suffer from dyslipidemia which is characterized by hypertriglyceridemia (TG) with reduced levels of high-density lipoprotein (HDL) cholesterol. [15, 12] Diabetes had been identified as a high-risk condition for ASCVD. In adults with diabetes with ASCVD or multiple ASCVD risk factors it is important to

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prescribe high intensity statin to reduce LDL at least by 50%. [16]. Dyslipidemia is a common problem in the Iraqi population. A study conducted on diabetic patients in the Kurdistan region of Iraq reported that hyperlipidemia was more dominant among diabetic patients with retinopathy [17].

Cases & Methods:
A prospective non randomized single dose study was carried out at a private clinic in Wasit governorate, Iraq; and included patients with type 2 diabetes. The study started on 1st November 2020 until 31th July 2021.

Inclusion criteria: All type 2 diabetic patients who were managed in the private clinic during the study period.

Exclusion criteria: Patients with Type 1 DM, thyroid dysfunction, any lipid-lowering or anti-obesity agents and history of Rosuvastatin intake.

A convenience sampling was carried out at a private clinic, 4 hrs./ day, 6 days/week for 3 consecutive months and biochemical lab assessment and re-assessment was carried out before and after three months of receiving Rosuvastatin 20 mg/ day.

A paper questionnaire form was used and included the following data: Demographic and clinical features (Age, gender, measuring weight, height, waist circumference and biochemical markers including [total cholesterol (TC), HDL, LDL, TG and HbA1c levels] were analyzed twice (before and after three months of taking Rosuvastatin 20 mg/ day).

Statistical analysis: Descriptive analyses of the variables were expressed as frequencies and percentages for categorical data. The mean and standard deviation was used for quantitative data. A paired two sample t test was used to assess the differences between variables before and after management. We used $P \leq 0.05$ to determine statistical significance.

Ethical Approval: This study was approved by MOH, Wasit Health Directorate. The researcher paid for the biochemical lab tests for patients before and after the treatment, after taken verbal consent from them.

Results:
A total of 256 patients with type 2 DM were included in this study; receiving 20 mg of rosuvastatin as a single daily dose for 3 consecutive months. Of the study group. 83 (32.4%) were males and 173 (67.6%) were females, with no significant difference between the mean ages of males (52.1±10.49) and females (53.1±10.41), table 1.

Table 1: Mean age of males and females participating in the study

| Gender	N	%	Mean age	± SD	P-Value
Male	83	32.4	52.1	10.49	0.47
Female	173	67.6	53.1	10.41	
Total	256	100	52.8	10.43	

Paired samples t-test in table 2 displays that the mean values of (BMI, WC, HbA1c, LDL, TG, and cholesterol) among studied samples after treatment were significantly lower than mean difference before treatment, except that for HDL; where it was significantly higher after treatment, P <0.001. The mean values of VLDL shows no significant difference according to the treatment, (P=0.27), table 2.

**Table 2: Differences in the means of variables before and after treatment**

Variables		Mean	SD	P value
BMI kg/m^2	Before treatment	30.8	5.57	<0.001
	After treatment	28.4	4.16	
WC cm	Before treatment	107.2	9.35	<0.001
	After treatment	101.7	11.48	
HbA1c mg/dl	Before treatment	9.4	2.09	<0.001
	After treatment	7.9	1.32	
HDL mg/dl	Before treatment	42.4	15.96	<0.001
	After treatment	53.1	14.59	
LDL mg/dl	Before treatment	114.9	38.10	<0.001
	After treatment	68.6	38.68	
TG mg/dl	Before treatment	187.4	118.57	<0.001
	After treatment	110.1	78.26	
Total Cholesterol mg/dl	Before treatment	185.9	44.68	<0.001
	After treatment	164.8	29.98	
VLDL mg/dl	Before treatment	46.0	42.12	0.27
	After treatment	42.4	23.05	

According to the age group and gender, mean values of HbA1c were reduced significantly after treatment among age groups (<40 years and ≥ 40 years) P=0.046, P<0.001 respectively and among gender, P<0.05. Figure 1.
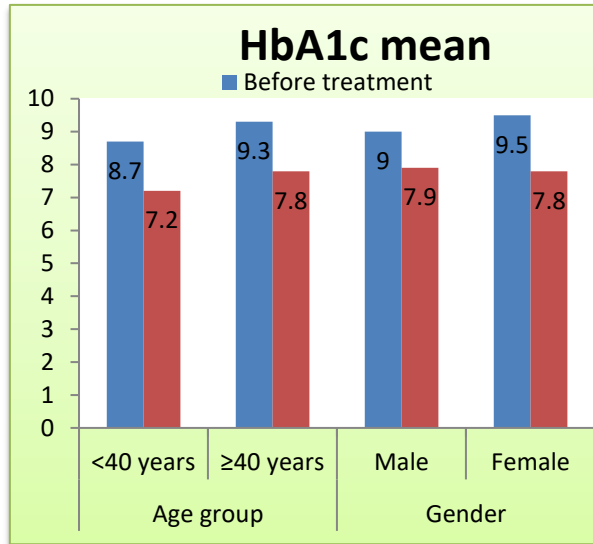
Figure 1: Differences in the means of HbA1c according to the age groups and gender of study population before and after treatment

Similarly, according to the age group and gender, mean values of total cholesterol were reduced significantly after treatment among age groups (<40 years and ≥ 40 years, P=0.049 and P<0.001 respectively and among both gender, P<0.01, Figure 2.
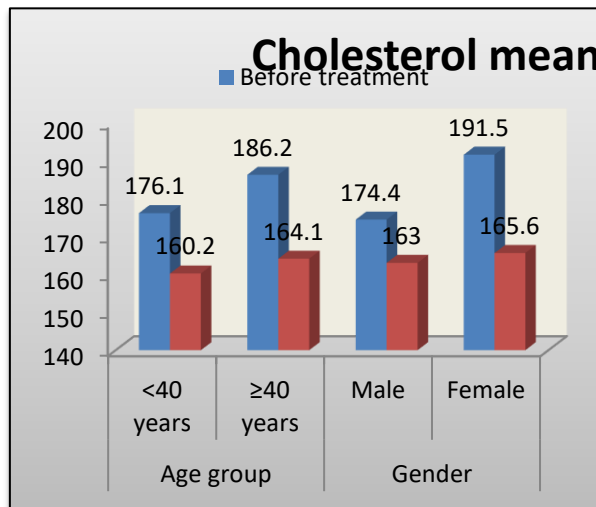
Figure 2: Differences in the means of cholesterol according to the age groups and gender of study population before and after treatment

When the patients were grouped according to their HbA1c level (<7 and ≥7), significant reductions were observed after treatment in mean of (BMI, WC, LDL, and TG) with significant elevation in mean of HDL (P<0.05) for the first group and significant reductions were observed after treatment in mean of (BMI, WC, LDL, TG, and cholesterol) with significant elevation in mean of HDL (P<0.05) for the second group. There was no significant difference in mean VDLD after treatment in both groups (P>0.05), table 4.

Table 3: Differences in the means of variables before and after treatment according to the HbA1c of studied sample

Variables	HbA1c	Before treatment		After treatment		P value
		Mean	SD	Mean	SD	
BMI kg/m²	<7	31	4.57	29	4.1	0.014
	≥7	30.8	5.55	28.4	4.19	<0.001
WC cm	<7	106.4	7.48	98.2	11.15	0.004
	≥7	107.3	9.45	101.9	11.48	<0.001
HDL mg/dl	<7	38.6	15.69	55	14.1	<0.001
	≥7	42.7	38.08	52.9	14.66	<0.001
LDL mg/dl	<7	116.3	37.49	63.5	36.38	<0.001
	≥7	114.8	38.28	69	38.9	<0.001
TG mg/dl	<7	186.8	72.03	103	67.6	<0.001
	≥7	187.4	121.45	110.6	79.1	<0.001
Cholesterol mg/dl	<7	182.8	43.05	165.2	26.1	0.13
	≥7	186.2	44.11	164.7	30.26	<0.001
VLDL mg/dl	<7	50	45.1	34.71	22.1	0.25
	≥7	46	42	43	23.1	0.416

In patients with total cholesterol level less than 200, a significant reduction was observed after treatment in means of (BMI, WC, LDL, TG, and HbA1c) with a significant elevation in mean of HDL, P<0.01. In patients with total cholesterol level 200 or more, a significant reduction was observed after treatment in means of (BMI, WC, LDL, TG, and HbA1c) with a significant elevation in mean of HDL; P<0.01. No significant difference was found in the mean of VDLD after treatment whatever the level of total cholesterol, P>0.05, table 4.

Table 4: Differences in the means of variables before and after treatment according to the total cholesterol of studied sample

Variables	Cholesterol	Before treatment		After treatment		P value
		Mean	SD	Mean	SD	
BMI kg/m²	<200	30.8	5.36	28.5	4.00	<0.001
	≥200	30.8	5.88	28.3	4.40	<0.001
WC cm	<200	107.6	9.16	101.8	11.50	<0.001
	≥200	106.4	9.66	101.4	11.50	<0.001
HDL mg/dl	<200	41.4	16.69	52.2	16.40	<0.001
	≥200	44.3	14.16	54.7	13.80	<0.001
LDL mg/dl	<200	97.4	26.55	55	16.40	<0.001
	≥200	148.4	34.27	94.7	53.10	<0.001
TG mg/dl	<200	160.1	82.01	95.3	56.40	<0.001

	≥200	239.4	155.19	138.3	103.10	<0.001
HbA1c mg/dl	<200	9.3	2.11	7.8	1.30	<0.001
	≥200	9.5	2.02	7.9	1.40	<0.001
VLDL mg/dl	<200	43	42.6	42.4	23.10	0.88
	≥200	51.7	40.76	42.3	23.00	0.08

Discussion:

Diabetes mellitus is more prevalence among Middle East and North Africa region with 10.9%. Moreover; it was considered to affect the largest number of adults diagnosed with DM among Western Pacific region. [18] Approximately, million and half million Iraqi have diabetes, its prevalence in Iraq ranges from 8.5% to 13.9%. According to the age-adjusted prevalence of diabetes among patients aged 19 to 94 years, a local study in Basrah, Southern Iraq, reported a prevalence up to 19.7%.[6, 7]The prevalence of dyslipidemia is high among patients with T2DM which may lead to an increased risk of CAD. When patients use statin therapy, it reduces LDL, TG, decreases the rate of VLDL synthesis, and increases HDL levels. [19] In the this study, the dose of rosuvastatin was seen to be significantly more effective in decreasing obesity and HbA1c level and improving all lipid parameters (except VLDL) after a three-month course of daily rosuvastatin 20 mg. This result is consistent with a case control study in Chinese Patients with Type 2 Diabetes Mellitus , 2019 which reported rosuvastatin to have the best effect in decreasing LDL level than other statin trials. The expected risk reduction was seen in JUPITER study.[5, 20] It was observed from the present study that the levels of HbA1c and total cholesterol means were reduced after receiving rosuvastatin to the control levels among both genders and among all age groups. This is consistent with Morieri ML , et al 2021study in North-Italy which concluded that statin treatment reduces LDL in patients with and without T2DM in different age groups. [21] In a study comparing between different statins; the reduction in TG was more marked with rosuvastatin than others and that rosuvastatin had the best effect on HDL. This effect was noticed by the VOYAGER study; 2010, a meta-analysis of 37 Randomized Controlled Trials (RCTs) which used different statin therapies.[22] Baker et al; 2010 found that rosuvastatin also decreased insulin sensitivity but statistical significance was not reached [23] while other studies reported that rosuvastatin was not associated with any change in insulin sensitivity [24, 25]. Studies done on Asian and Western populations by Nakamura H et al, 2006 reported that patients using low dose statin can decrease their risk of CVD in the same magnitude as those using high doses [26]. In addition, several RCTs reported that CVD risk was reduced more among T2DM patients who use statins than in non-diabetic patients.[27-29] Patients with type 2 diabetes can have many lipid abnormalities, elevated levels of low-density lipoprotein cholesterol and

triglycerides; and low levels of high-density lipoprotein cholesterol. Lipid abnormalities may be the result of the unbalanced metabolic state of diabetes (i.e. hyperglycaemia and insulin resistance) and improved control of hyperglycaemia does moderate diabetes-associated dyslipidaemia.[30] As a result, HbA1c may be used to predict dyslipidemia in diabetics which is similar to a study done by Hammed (2012) in Iraq which reported that early diagnosis can be reached through this inexpensive blood test. [31]

Conclusion:

The study concluded that HbA1c value is associated with the level of lipid profile in diabetic patients except that for VLDL. All age groups and both genders have had benefit of rosuvastatin treatment in the reduction of lipid cholesterol as well as HbA1c, with no significant differences between groups. These results suggest that rosuvastatin can be used by type 2 diabetic patients regardless of age and gender. HbA1c can be used as a predictor of dyslipidemia in type 2 diabetes.

References:

1. Centers for Disease Control and Prevention: National diabetes fact sheet, 2011. Available from http://www.cdc.gov/diabetes/pubs/pdf/ ndfs_2011.pdf. Accessed 27 May 2013
2. National Institute of Diabetes and Digestive and Kidney Diseases: National diabetes statistics, United State 2011. Available from http://diabetes. niddk.nih.gov/dm/pubs/statistics. Accessed 31 December 2012
3. Wang S, Ji X, Zhang Z, Xue F. Relationship between Lipid Profiles and Glycemic Control Among Patients with Type 2 Diabetes in Qingdao, China. Int. J. Environ. Res. Public Health 2020, 17, 5317
4. Ridker PM, Pradhan A, MacFadyen JG, Libby P, Glynn RJ. Cardiovascular benefits and diabetes risks of statin therapy in primary prevention: an analysis from the JUPITER trial. Lancet. 2012; 380(9841):565-71.
5. Zhao H, Shu L, Huang W, Wang W, Song G. Difference Analysis of Related Factors in Macrovascular and Microvascular Complications in Chinese Patients with Type 2 Diabetes Mellitus: A Case-Control Study Protocol. Diabetes Metab Syndr Obes. 2019;12:2193-2200
6. World Health Organization. Diabetes. Geneva, Switzerland: World Health Organization; 2018. https://www.who.int/news-room/fact-sheets/detail/diabetes. Updated October 30, 2018. Accessed March, 2019. [Google Scholar]
7. Mansour AA, Al-Maliky AA, Kasem B, Jabar A, Mosbeh KA. Prevalence of diagnosed and undiagnosed diabetes mellitus in adults aged 19 years and older in Basrah, Iraq. Diabetes Metab Syndr Obes. 2014;7:139-144. [PMC free article] [PubMed] [Google Scholar]
8. Martín-Timón, I, Sevillano-Collantes, C, Segura-Galindo, A. Type 2 diabetes and cardiovascular

disease: Have all risk factors the same strength? World J Diabetes 2014; 5: 444–470.

9. Alwan F, Saleh A, AL-Najjar H. Echocardiographic assessment of the effect of type (2) Diabetes mellitus on cardiac performance. JFacMedBagdad [Internet]. 1Oct.2012 [cited 16Aug.2021];54(3):252-5.

10. Udell JA, Scirica BM, Braunwald E, Raz I, Steg PG, Davidson J, et al: Statin and aspirin therapy for the prevention of cardiovascular events in patients with type 2 diabetes mellitus. Clin Cardiol35:722–729, 2012

11. Ahmad M, Ijaz I, Rasheed N, Saeed M, Ghaznavi S, Mahmood M, et al. Correlation between Glycated Hemoglobin and Dyslipidemia in Type-2 Diabetes Mellitus. JIMDC; 2016:5(4):161-164

12. VinodMahato R, Gyawali P, Raut PP, Regmi P, Psd. Singh K, Pandeya DR, et al. Association between glycaemic control and serum lipid profile in type 2 diabetic patients: glycated haemoglobin as a dual biomarker. Biomed Res 2011; 22: 375–380.

13. Sattar N, Preiss D, Murray HM, Welsh P, Buckley BM, de Craen AJ, et al. Statins and risk of incident diabetes: a collaborative meta-analysis of randomized statin trials. Lancet. 2010; 375(9716):735-42.

14. Heron M. Deaths: Leading Causes for 2016. Natl Vital Stat Rep 2018; 67: 1-77 [PMID: [[30248017]

15. Sparks JD, Sparks CE, Adeli K. Selective hepatic insulin resistance, VLDL overproduction, and hypertriglyceridemia. Arterioscler Thromb Vasc Biol. 2012;32(9):2104–12.

16. Grundy SM, Stone NJ, Bailey AL, Beam C, Birtcher KK, Blumenthal RS, et al. AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/ APhA/ASPC/NLA/PCNA Guidelines on the Management of Blood Cholesterol. Circulation 2018.

17. Amin DL, Al-Zandi KMM. Diabetic retinopathy pattern among Kurdish diabetic patients in the Kurdistan region of Iraq. Revista Latinoamericana de Hipertensión, vol. 14, no. 6, pp. 669-674, 2019.

18. International Diabetes Federation. IDF Diabetes Atlas. 6th ed. Brussels, Belgium: International Diabetes Federation; 2013. [Google Scholar]

19. Hussain A, Ali I, Ijaz M, Rahim A. Correlation between hemoglobin A1c and serum lipid profile in Afghani patients with type 2 diabetes: hemoglobin A1c prognosticates dyslipidemia. Ther Adv Endocrinol Metab;2017, 8(4)51–57 DOI: 10.1177/2042018817692296

20. Ridker PM. The JUPITER Trial Results, Controversies, and Implications for Prevention. Circ Cardiovasc Qual Outcomes. 2009;2:279-285.

21. Morieri ML, Perrone V, Veronesi C, Esposti L D, Andretta M, Plebani M,et al. Improving statin treatment strategies to reduce LDL-cholesterol: factors associated with targets' attainment in subjects with and without type 2 diabetes. Cardiovasc Diabetol 20, 144 (2021). https://doi.org/10.1186/s12933-021-01338-y

22. Barter PJ, Brandrup-Wognsen G, Palmer MK, Nicholls SJ. Effect of statins on HDL-C: a complex process unrelated to changes in LDL-C: analysis of the VOYAGER Database. J Lipid Res. 2010;51:1546–53.

23. Baker WL, Talati R, White CM, Coleman CI. Differing effect of statins on insulin sensitivity in non-diabetics: a systematic review and meta-analysis. Diabetes Res Clin Pract. 2010;87:98–107.

24. Koh KK, Sakuma I, Quon MJ. Differential metabolic effects of distinct statins. Atherosclerosis. 2011;215:1–8.

25. Bellia A, Rizza S, Galli A, Fabiano R, Donadel G, Lombardo MF, Cardillo C, Sbraccia P, Tesauro M, Lauro D. Early vascular and metabolic effects of rosuvastatin compared with simvastatin in patients with type 2 diabetes. Atherosclerosis. 2010 May;210(1):199-201. doi: 10.1016/j.atherosclerosis.2009.11.021. Epub 2009 Nov 20. PMID: 20018286.

26. Nakamura H, Arakawa K, Itakura H, Kitabatake A, Goto Y, Toyota T, et al. Primary prevention of cardiovascular disease with pravastatin in Japan (MEGA Study): A prospective randomised controlled trial. Lancet 2006, 368, 1155–1163. [CrossRef]

27. Athyros VG, Tziomalos K, Karagiannis A, Mikhailidis DP. Lipid-lowering agents and new onset diabetes mellitus. Expert Opin Pharmacother 2010; 11: 196570.

28. Athyros VG, Tziomalos K, Karagiannis A, Mikhailidis DP. Preventing Type 2 Diabetes Mellitus: Room for Residual Risk Reduction after Lifestyle Changes? Curr Pharm Des 2010 Dec 3. [Epub ahead of print]

29. Begum A, Irfan SR, Hoque MR, Habib SH, Parvin S, Malek R, et al. Relationship between HbA1c and Lipid Profile Seen in Bangladeshi Type 2 Diabetes Mellitus Patients Attending BIRDEM Hospital: A Cross-Sectional Study. Mymensingh Med J. 2019 Jan;28(1):91-95. PMID: 30755556

30. Marcus AO. Lipid disorders in patients with type 2 diabetes; meeting the challenges of early, aggressive treatment. Postgrad Med 2001; 110 (1):111–123

31. Hammed I, Abed B, Rashid N. Glycated haemoglobin as a dual biomarker Association between HbA1c and dyslipidemia in type 2 diabetic patients. JFacMedBagdad [Internet]. 1Apr.2012 [cited 16Aug.2021];54(1):88-2. Available from: https://iqjmc.uobaghdad.edu.iq/index.php/19JFacM edBaghdad36/article/view/778.

الارتباط بين الهيموغلوبين السكري و مستويات الدهون بمصل الدم بين عينة من المرضى العراقيين المصابين بداء السكري النوع الثاني

علي مجيد حامي*

طبيب اختصاص باطنية في مستشفى الزهراء التعليمي/ دائرة صحة واسط

الخلاصة

الخلفية: يعتبر مرض السكري من المشاكل الصحية العامة. حوالي 1.4 مليون عراقي يعانون من مرض السكري. معدل انتشار مرض السكري النوع الثاني المبلغ عنه في العراق يتراوح من 8.5٪ (معدل حسب العمر) إلى 13.9٪. كما أفادت دراسة محلية شملت أكثر من 5400 شخص في مدينة البصرة ، جنوب العراق ، عن انتشار مرض السكري بنسبة 19.7٪ حسب العمر في الأشخاص الذين تتراوح أعمارهم بين 19 و 94 عامًا. يُعد مرض السكري أحد عوامل الخطورة لأمراض القلب والأوعية تصلب الشرايين القلبي الوعائي وسببًا مهمًا للوفاة. كما يعد مرض السكري النوع الثاني السبب الأكثر شيوعًا للوفاة في العالم الغربي, وقد تم اعتباره حالة عالية الخطورة في المرضى البالغين المصابين بداء السكري مع تصلب الشرايين ، لهذا من المهم وصف العقاقير المخفضة للكوليسترول عالية الكثافة لهم لتقليل البروتين الدهني منخفض الكثافة بنسبة 50 ٪ على الأقل.

الأهداف: التحقيق في الارتباط بين عسر شحميات الدم والهيموغلوبين السكري واكتشاف فائدة استخدام بعض العقاقير المخفضة للكوليسترول في تقليل خطر الإصابة بأمراض القلب والأوعية الدموية.

المنهجية: أجريت دراسة مستقبلية غير عشوائية للجرعة المفردة في عيادة خاصة في محافظة واسط – العراق بداية شهر تشرين الاول 2020 الى نهاية شهر تموز 2021. شملت مرضى السكري من النوع الثاني. تم إجراء تقييم وإعادة تقييم تحليل كيميائي حيوي سريري قبل وبعد 3 أشهر من تلقي روزوفاستاتين 20 ملغ / يوم. تم استخدام ورقة استبيان، متضمنة السمات الاجتماعية والديموغرافية والسريرية (العمر والجنس وقياس الوزن والطول ومحيط الخصر؛ الواسمات البيوكيميائية [الكوليسترول الكلي، البروتين الدهني العالي، البروتين الدهني المنخفض، الدهون الثلاثية والهيموغلوبين السكري]).

النتائج: تم تضمين ما مجموعه 256 مريض مصاب بالسكري نوع 2؛ تلقوا 20 مجم من روزوفاستاتين كجرعة واحدة يوميا لمدة 3 أشهر متتالية. 83 (32.4٪) منهم ذكور و 173 (67.6٪) إناث. متوسط عمر الذكور (52.1 ± 10.49) سنة والإناث (53.1 ± 10.41) سنة. كان متوسط فرق (مقياس كتلة الجسم، محيط الخصر، البروتين الدهني المنخفض، الدهون الثلاثية الهيموغلوبين السكري، والكوليسترول) بين جميع العينات المدروسة بعد العلاج أقل بكثير من متوسط الفرق الذي تم قياسه قبل العلاج، باستثناء البروتين الدهني العالي؛ حيث كان أعلى بشكل ملحوظ بعد العلاج، P 0.001>. انخفض متوسط فروق الهيموغلوبين السكري والكوليسترول الكلي بشكل ملحوظ بعد العلاج بين الذكور، والإناث، والذين تقل أعمارهم عن 40 عامًا، والعمر 40 عامًا فما فوق، 0.01> P؛ دون فروق ذات دلالة إحصائية بين المجموعات، 0.05 >P. في المرضى الذين يعانون من مستوى الكوليسترول الكلي 200 أو أكثر؛ لوحظ انخفاض كبير بعد العلاج بوسائل (كتلة الجسم، محيط الخصر، البروتين الدهني المنخفض، الدهون الثلاثية، الهيموغلوبين السكري) مع ارتفاع كبير في متوسط البروتين الدهني العالي؛ قيمة الدلالة الاحصائية 0.01>.

الاستنتاج: قيمة الهيموغلوبين السكري مرتبطة بمستوى الدهون لدى مرضى السكري. استفادت جميع الفئات العمرية وكلا الجنسين من علاج روزوفاستاتين في تقليل نسبة الكوليسترول الدهني والهيموغلوبين السكري. يمكن لمرضى السكر من النوع 2 استخدام روزوفاستاتين بغض النظر عن العمر والجنس. كما يمكن استخدام الهيموغلوبين السكري كمؤشر على اضطراب شحميات الدم في مرض السكري من النوع 2.

الكلمات المفتاحية: أمراض القلب والأوعية الدموية، داء السكري، عسر شحميات الدم، نسبة الهيموغلوبين السكري، البروتين الدهني عالي الكثافة، روزوفاستاتين.