Journal of American Science

Type II Diabetes Mellitus In Fayoum Governorate

Mohamed Mashahit[1], Ahmed AbdelKawi[1], Shahira Morsy[2], Mohammed Ahmed[1]

[1] Internal Medicine Department, Faculty of Medicine, Fayoum University, Egypt
[2] Clinical Pathology Department - Faculty of Medicine, Fayoum University, Egypt

Abstract: Diabetes Mellitus is a popular persistent disease and apply a massive load on community due to its widely spread, the persistent nature of disease and the altitude hazard of main complications applies. **Aim of the work:** These investigations were carried out to detect the wide spread e of type II DM, predominance of unknown type II diabetic patients, glycemic monitoring state and correlated risk factors and complications of type II DM between inhabitance of Fayoum governorate. **Patients and methods:** The study included 3500 subjects (1440 males&2060 females) inducted from Fayoum Governorate, and their ages range from 18 to 60 years old. The entire medical history involving the patient's age, gender, history of DM, medication employed in remediation of type II diabetes, duration of type II DM, family history of type II DM, history of hypertension, and history of smoking. All the individuals were assessed for the risk of having type II DM based on (weight, height, waist circumference, BMI, measurement of blood pressure, RBS).Also HbA1c, serum creatinine, lipid profile (cholesterol, TG, and LDL) were measured for type II diabetic patients. **Results:** showed that the mean age of the study population was (44.04 ±13.2) years old and the mean period of type II DM was (5.01±4.6) years. This study showed that 14.2% knew that they had DM, 12.6 % were pre-diabetic, 10.5% were undiagnosed DM. Also this study showed that 35.7% show controlled type II DM versus 64.3% were uncontrolled. It was also found that 15.7% knew that they had hypertension, 13.5% were pre-hypertensive, and 10.5% were undiagnosed. Also majority of study population was overweight (31.1%) and obese grade I represent (22.3%), grade II (17.6%), and grade III obesity (8.1%). **Conclusion:** This study concludes that type II DM is a growing public health problem in Egypt. Prevention, early recognition, and efficient medications are essential parts of II DM in Egypt. These strategies may decrease the economic load correlated with type II DM.
[Mohamed Mashahit, Ahmed Abdel Kawi, Shahira Morsy, Mohammed Ahmed. **Type II Diabetes Mellitus in Fayoum Governorate.** *Am Sci 2021;17(6):19-29]. ISSN 15451003 (print); ISSN 23757264 (online). http://www.jofamericanscience.org* 3. doi:10.7537/marsjas170621.03.

Keywords: Type II DM, RBS, HbA1c, Lipid profile, Serum creatinine.

1. Introduction

Diabetes is a popular disease demanding persistent medical auspices with multifactorial risk-depletion strategies far away glycemic management. Ongoing client self-administration, culture and support are critical to inhibiting severe complexities and decreasing the risk of long-term complexities [1].

Diabetes is a universal pandemic impacting more than 415 million adults over all the world. This number is prospected to rise to 642 million by 2040. According to the International Diabetes Federation (IDF), over 35 million individuals in MENA have diabetes. Saudi Arabia commands the MENA zone with the highest propagation of diabetes (23.9 %), and Egypt is the country with the major number of diabetic patients (7.5 million). The fast altitude is caused by a many factors, involving economic and demographic changes over the last few decades that have led to reduce in physical effectiveness and altitude in fatness. The MENA zone has through the highest fatness average in the world [2].

The dominant implicit peril agents for the metabolic syndrome appear to be abdominal obesity, hypertension, atherogenic dyslipidemia, and insulin resistance. Last correlating circumstances can be physical indolence, aging, and hormonal imbalance[3].

Certain groups of people are higher risk for type II diabetes mellitus. Therefore, asymptomatic individual with the following criteria should be screened for diabetes mellitus

♦ HbA1C > 5.7%, IGT, IFG on previous testing.
♦ First degree relative with diabetes.
♦women who were diagnosed with GDM or with PCO
♦History of CVD.
♦HTN (BP more than 140/90 mm Hg or on therapy for HTN).
♦ HDL cholesterol < 35 mg /dl and /or triglycerides > 250 mg /dl.
♦Physical inactivity, and severe obesity [4].

The complexities of diabetes mellitus are far less popular and less acute in person who has well-command blood sugar levels. Increasing health troubles enhanced the harmfully impacts of diabetes. These involving smoking, high cholesterol levels, fatness, rise blood pressure, and lack of regular physical practice [4].

Targets for diabetic monitoring was varied lately to be 130 mg and below for the fasting and

180 mg and below for the postprandial plasma glucose and about 7% and below for the HbA1c regarding to the ADA and IDF regulations [4].

Aim of the Work

The aim of this work is to study the world spread of type II diabetes mellitus, predominance of unknown type II diabetic patients, monitoring of glycemic levels and correlated injury agents and complexities of diabetes mellitus through inhabitance of Fayoum governorate.

2. Patients and Methods

This study included 3500 subjects (1440 males & 2060 females) recruited from Fayoum Governorate (outpatient clinics, National project of clinical screening of DM, and different areas in Fayoum) and their age between 18 to 60 years old. The complete medical history involving the individual`s age, sex, history of DM, drugs used in treatment of type II diabetes, duration of type II DM, family history of diabetes, history of hypertension, and history of smoking. All the individuals were assessed for diabetic risk factors based on (weight, height, waist circumference , BMI, measurement of blood pressure, RBS).Also HbA1c, serum creatinine, lipid profile (cholesterol, TG, and LDL) were measured for diabetic patients.

Statistical Analysis

Obtained results were summarized using computer and analyzed employing Statistical Package for Social Science (SPSS) version 16. Descriptive statistics were employed to explained variables; percent ratio for qualitative variables. Mean ± SD and range for Quantitative variables.

Student's t-test was employed to compare records of both separated groups of quantitative results.

Chi square test was employed to compare two of more than two qualitative groups. P values with significance of less than 5% were considered statistically significant. For all statistical tests, a P value less than 0.05 was employed to elucidate significance.

3. Results

This study included 3500 subjects (1440 males& 2060 females) obtained from Fayoum Governorate, and their age between 18 to 60 years old. The whole medical history involving the individual`s age, sex, history of DM, medicines employed in treatment of type II diabetes, duration of type II DM, family history of diabetes, history of hypertension, and history of smoking. All the individuals were assessed for the risk of having diabetes mellitus based on (weight, height, waist circumference , BMI, measurement of blood pressure, RBS).Also HbA1c, serum creatinine, lipid profile (cholesterol, TG, and LDL) were measured for type II diabetic patients. All data analyzed statistically and the results presented in tables and graphs to detect percent of undiagnosed type II diabetic patients, percent of controlled and uncontrolled type II diabetic patients, and percent of peripatetic patients.

Table 1 illustrates that the mean age of study group was (44.04 ±13.2) years, 41.1% of them were males and 58.9% were females .The majority of them was living in Fayoum city 39.1%, and 10.9% of them were smokers.

Table (1): Description of demographic characters among study population.

Variables	Number (n=3500)	
Age (years)		
Mean ± SD	46.9 ± 12.2	
Sex		
Female	2060	58.9%
Male	1440	41.1%
Residence		
Fayoum	1369	39.1%
Ibshway	598	17.1%
Etsa	454	13%
Tamiya	544	15.5%
Senoris	265	7.6%
Yousifsedik	270	7.7%
Smoking (cigarettes)		
No	3119	89.1%
Yes	381	10.9%

Table 2 illustrates that the mean height was (164.04±9.4) cm, mean weight was (79.9±17) kg; mean BMI was (30.4±6.8) kg/m2; mean waist circumference was (98.2±16.5) cm. The majority of study population was overweight (31.1%) and obese grade I represent (22.3%), grade II (17.6%), and grade III obesity (8.1%) versus 0.4% were underweight, and 20.5% were in normal weight.

Table (2): Description of anthropometric measures among study population

Variables (n=3500)	Mean ± SD	
Height (cm)	164.04± 9.4	
Weight (kg)	79.9± 17	
BMI (kg/m^2)	30.4 ± 6.8	
Waist circumference (cm)	98.2 ± 16.5	
BMI group (kg/m^2)	**No.**	**%**
Under weight	15	0.4%
Normal (18-24.9)	717	20.5%
Over weight (25-29.9)	1087	31.1%
Obesity grade I (30-34.9)	781	22.3%
Obesity grade II (35-39.9)	617	17.6%
Obesity grade III (>40)	283	8.1%
Waist circumference groups(cm)		
Normal (< 102 cm male - <88 cm female)	1443	41.2%
Increased (≥ 102 cm male- ≥ 88 cm female)	2057	58.8%

Table 3 illustrates among study population 14.2% knew that they had DM, 12.6 %were pre-diabetic, 10.5% were newly diagnosed DM (undiagnosed).

Table (3): Frequency and percentageof type II DM categories among study population.

DM categories	Number (n=3500)	
	No.	**%**
Newly diagnosed in the study (undiagnosed)	367	10.5%
Known DM	496	14.2%
Pre DM	441	12.6%
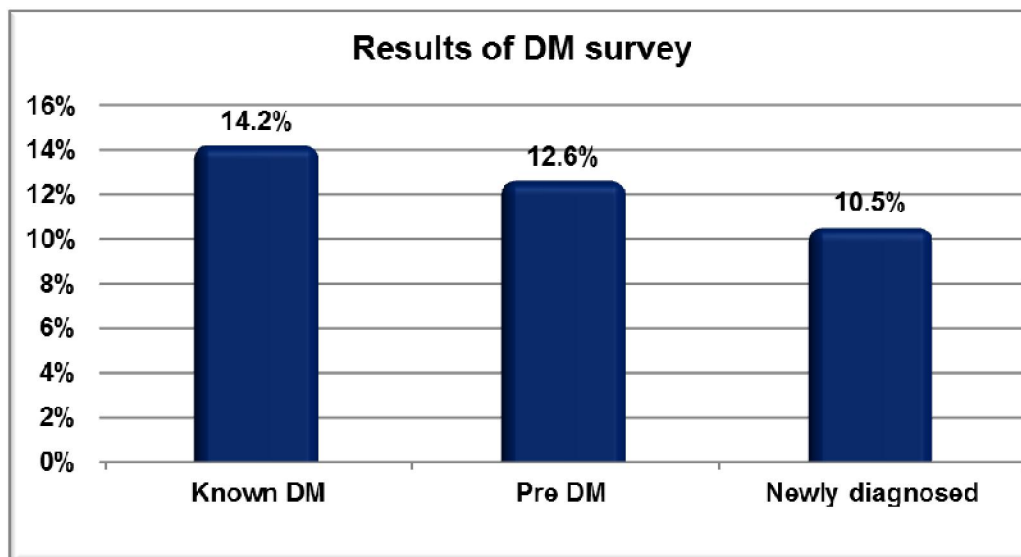
Figure (1): Results of DM survey

Table (4): Description of diabetes mellitus duration and treatment among study population.

Variables	(n=496)	
Duration of DM		
Mean±SD	5.01	4.6
Types of DM treatment		
Metformin	13	2.6%
SU	48	9.7%
Premixed insulin	187	37.7%
Combined treatment	248	50%

Types of Combined treatment(n=248)		
Metformin& SU	134	54%
Metformin & DPP41	20	8.1%
Metformin & TZDS	7	2.8%
SU& DPP41	21	8.5%
DPP41& TZDS	4	1.6%
SU &insulin analogue	1	0.4%
Mix of 3 drugs	59	23.8%
Mix of 4 drugs	2	0.8%

Table 4 illustrates that the mean duration of diabetes mellitus disease was (5.01±4.6) years among 496 patients who had DM, 37.7% will treated by premixed insulin, followed by 9.7% will treated by SU. And 50% of them received combined treatment; the most common combination among study group was Metformin with SU which represent 54%, followed by 23.8 % of patients received combination of 3 drugs.
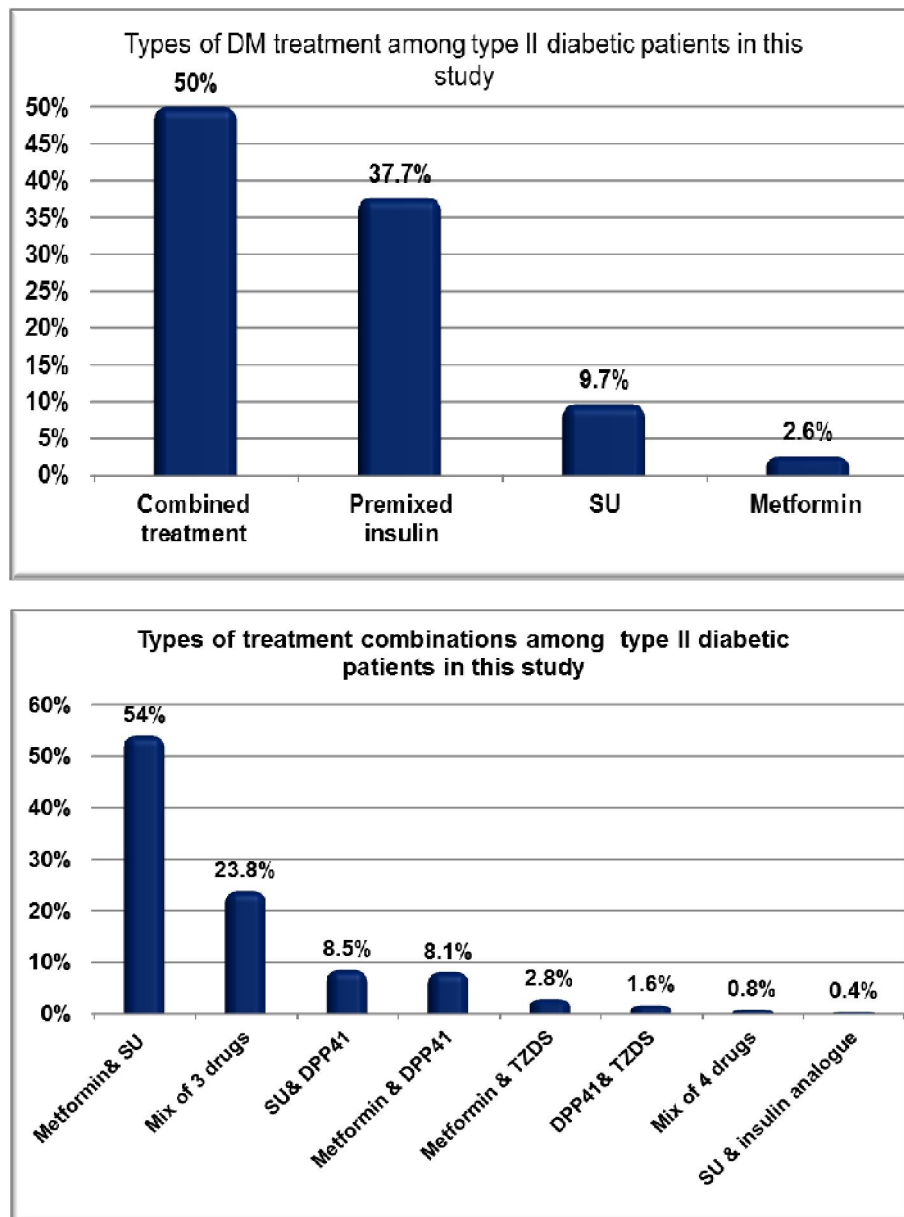

Figure (2): Types of DM treatment among type II diabetic patients in this study

Table (5): Description of glycemic status and complications among type II diabetic patients in this study

Variables	Frequency	
	No.	%
Control of DM(n=496)		
Controlled	177	35.7%
Uncontrolled	319	64.3%
Complication of DM(n=496)		
No	356	71.8%
Yes	140	28.2%
Types of DM complications(n=140)		
Peripheral neuritis	67	47.9%
Retinopathy	7	5%
Nephropathy	8	5.7%
IHD	20	14.3%
Mixed complication	38	26.7%
Types of mixed complication (N=38)		
PN & Retinopathy	8	21.1%
PN & IHD	22	57.9%
Retinopathy & ephropathy	1	2.6%
Retinopathy & IHD	4	10.5%
More than 2 applications	3	7.9%

Table 5 illustrates 35.7% showed controlled type II diabetes versus 64.3% were uncontrolled. Regarding complications of diabetes mellitus; 28.2 % were complicated, 47.9% of them were complicated with peripheral neuritis, 5% complicated with retinopathy, 5.7% complicated with nephropathy, 14.3% for IHD, and 26.7% show multiple complications. As regards mixed complications the highest percentage was for mix of PN and IHD, which represented 57.9% of mixed complications followed by 21.1% for PN with retinopathy.
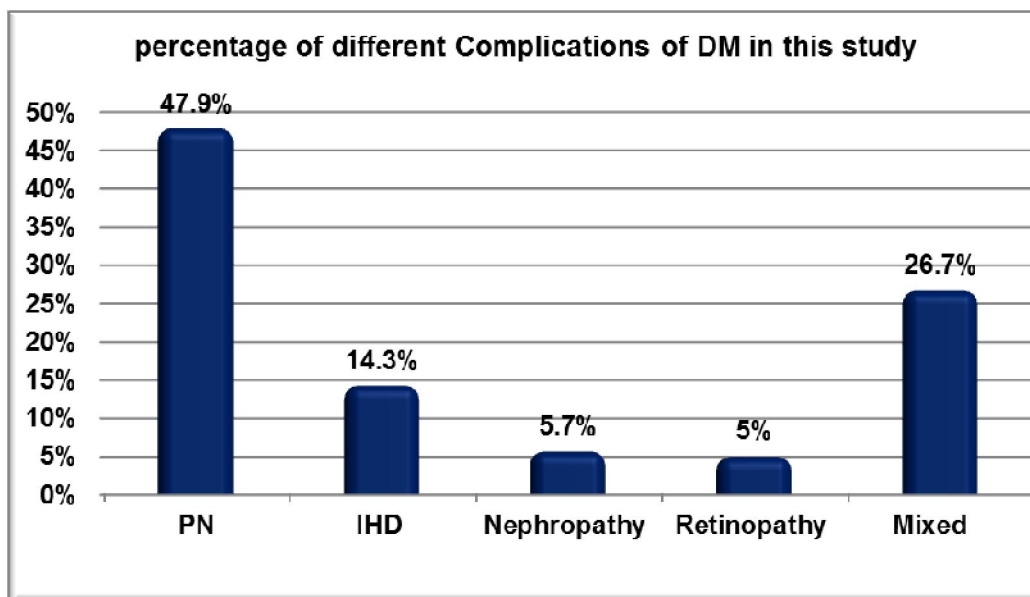
Figure (3): percentage of different complications of type II DM in this study

**Table (6): Frequency of HTN categories among study population.**

HTN categories	Frequency (n=3500)	
	No.	%
Newly diagnosed (first diagnosed in this study)	368	10.5%
Known HTN	549	15.7%
Pre HTN	472	13.5%

Table 6 illustrates among study population 15.7% knew that they had hypertension, 13.5% were pre-hypertension, 10.5% were newly diagnosed as hypertensive patients.

Table (7): Description of HTN duration and medication among study population.

Variables	Frequency(549)	
Duration of HTN		
Mean ±SD	4.6±4.5	
Types of HTN treatment		
Diuretics	14	2.6%
ACEI	62	11.3%
ARBs	13	2.4%
CCB	35	6.4%
BB	91	16.6%
Combined treatment	334	60.8%
Types of Combined treatment(n=334)		
Diuretics & ACEI	27	8%
Diuretics & ARBs	55	16.5%
Diuretics & CCB	1	0.3%
Diuretics & BB	65	19.5%
ACEI& ARBs	1	0.3%
ACEI& CCB	12	3.6%
ACEI& BB	9	2.7%
ARBs & CCB	73	21.8%
CCB & BB	44	13.2%
Mix of 3 drugs	45	13.5%
Mix of 4 drugs	2	0.6%

Table 7 illustrates that the mean duration of hypertension disease was (4.6±04.5) years; 16.6% will treated by beta blockers, followed by 11.3% will treated by ACEI, but 60.8% of them received combined treatment, the common combinations among study group was ARBs with CCB which represent 21.8% followed by Diuretics and BB which represent 19.5%.
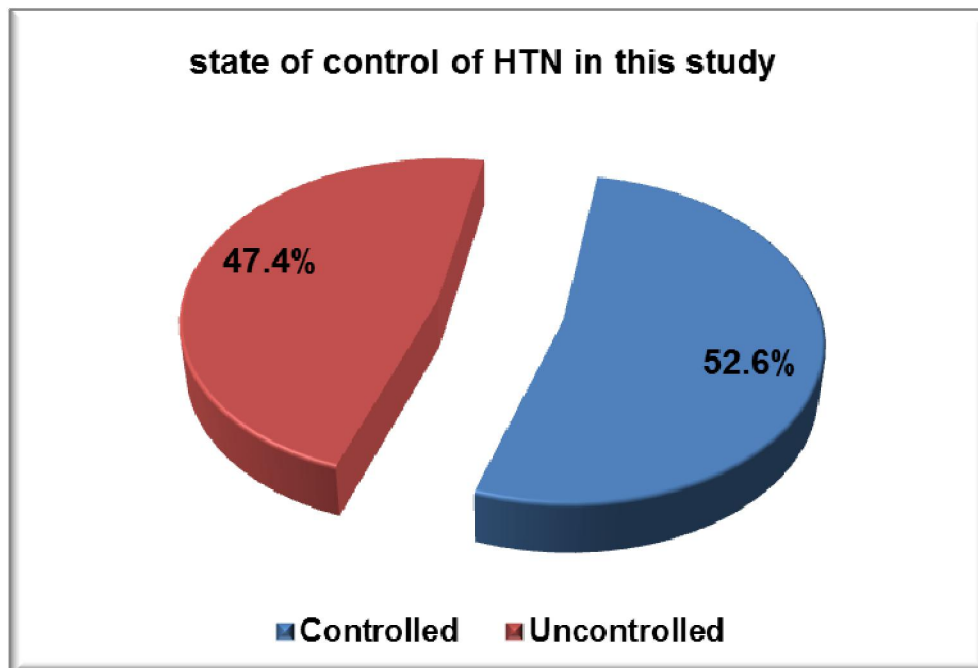
Figure (4): State of control of HTN in this study
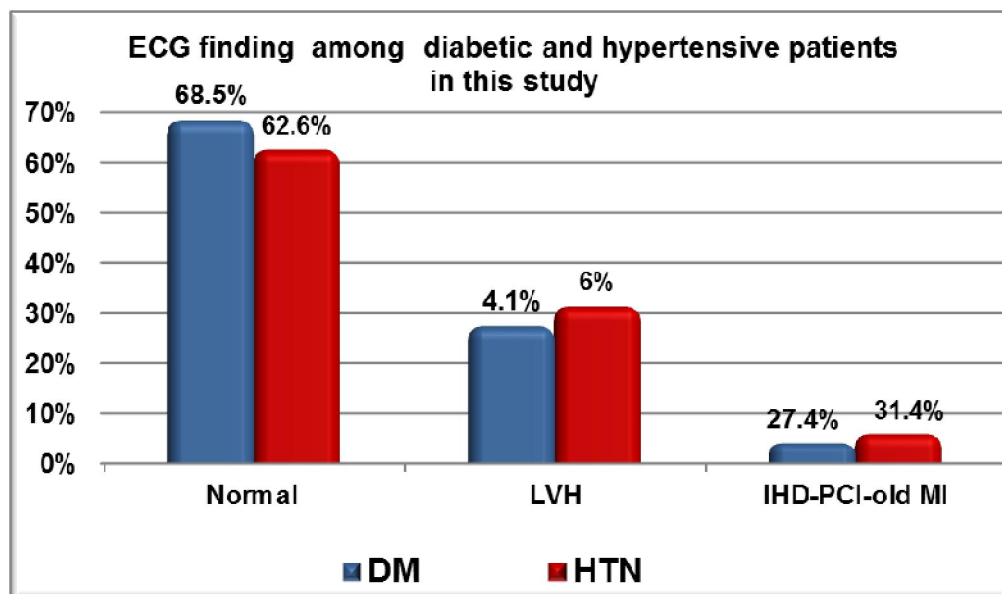
Figure (5): ECG finding among diabetic and hypertensive patients in the study

Table 8 illustrates that for diabetic assessment in fundus examination, 9.9% of diabetic patients showed non-proliferative, and 9.9% showed proliferative results, versus 80.2% were normal. For fundus examination of hypertensive 0.7% showed silver wiring, 3.7% had artery venous nipping, and 3% had hemorrhagic exudate, versus 92.6% showed normal fundus examination.

For ECG of hypertensive cases 6% had LVH, and 31.4 % showed (IHD or old MI) versus 62.6% had normal ECG. For ECG of diabetic cases 4.1% had LVH, and 27.4 % showed (IHD or old MI) versus 68.5% had normal ECG.

Table 9 illustrates that there was statistical significance difference with p-value <0.05 between controlling groups of diabetes as regards glucose profile, and lipid profile categories with high percentage of abnormal glucose profile and lipid profile were found among uncontrolled group.

Table (8): Results of fundus examination and ECG finding in type II diabetic and hypertensive patients.

Variables	Frequency	
	No.	%
Fundus examination in DM (N=303) this number of type II diabetic patients were done fundus from known diabetics (N= 496)		
Normal	243	80.2%
Non-proliferative	30	9.9%
Proliferative	30	9.9%
Fundus examination in HTN (N=271) this number of hypertensive patients were done fundus from known hypertensive patients (N= 549)		
Normal	251	92.6%
GI (Silver wiring)	2	0.7%
GII (Artery venous nipping)	10	3.7%
GIII (Hemorrhagic exudate)	8	3%
ECG finding for DM (N=219) this number of type II diabetic patients were done ECG from known diabetics (N= 496)		
Normal	150	68.5%
LVH	9	4.1%
IHD - old MI	60	27.4%
ECG finding for HTN (N=369) this number of hypertensive patients were done ECG from known hypertensive patients (N= 549)		
Normal	231	62.6%
LVH	22	6%
IHD- old MI	116	31.4%

Table (9): Results of some laboratory investigations among patients with controlled and uncontrolled type II DM.

Variables	Controlled		Uncontrolled		p-value	Sig.
	No	%	No	%		
Abnormal Glucose profile						
RBS	10	9.9%	91	90.1%	**<0.001**	**HS**
FBS	8	4.9%	156	95.1%	**<0.001**	**HS**
2hPP	11	6.1%	168	93.9%	**<0.001**	**HS**
HbA1c %	26	14.4%	154	85.6%	**<0.001**	**HS**
Abnormal Lipid profile						
Cholesterol	20	11.2%	150	88.8%	**<0.001**	**HS**
Triglyceride	11	6.1%	168	93.9%	**<0.001**	**HS**
LDL	8	4.9%	156	95.1%	**<0.001**	**HS**

4. Discussions

Diabetes Mellitus is a popular chronic disease and exerts apply a massive load on commuinty due to its enhancing world spread, the persistent nature of disease and the altitude risk of main complexities: blindness, kidney disease, foot sores and cardiovascular disease which is the main reason of death, considering in high inhabitance for 50% or more of all diabetes deaths and more inability [5]

Many investigations have obviously cleared the rising cost of diabetes universal with its negative effect on health care budgets and productivity. In the case of the US, the American Diabetes Association (ADA) presented that in 2012 person with diabetes endured $306 billion in direct medical costs, more than 1 of 5 dollars spent on medical care. It has also been presented that the annual medical disbursement of individual with recognized diabetes are roughly 2.3 times higher than those of individual without the disease [6]**&**[7].

Diabetes is a universal pandemic impacting more than 415 million adults over the entire world. This number is prospected to rise to 642 million by 2040. According to the International Diabetes Federation (IDF), over 35 million individuals in MENA have diabetes. Saudi Arabia commands the MENA zone with the highest propagation of diabetes (23.9 %), and Egypt is the country with the major number of diabetics (7.5 million). The fast altitude is caused by a many factors, involving economic and demographic changes over the last few decades that have led to reduce in physical effectiveness and altitude in fatness. The MENA zone has through the highest fatness average in the world [2].

The countries with the major number of patients impacted by diabetes are Egypt (7.5 million), Pakistan (7 million), and Iran (4.5 million).The International Diabetes Federation (IDF) evaluates that 7.5 million people in Egypt have diabetes and another 2.2 million have prediabetes. Moreover, records show that 43 % of people with diabetes and highest individual with prediabetes in Egypt are likely unknown   It is

determined that 42 % of people with type II diabetes in Egypt have retinopathy, 5 % are legally blind, and 22 % have peripheral neuropathy. Diabetes is also the main reason of end-phase kidney disease and leg cutoff in Egypt. It is particularly terrible that the spread of diabetes in Egypt has enhanced rapidly within a comparatively tiny duration of time from about 4.4 million in 2007 to 7.5 million in 2013. This number is subjected to increase to 13.1 million by 2035 [8] & [9].

Over the previous little decades, the predominance of diabetes has increased significantly in considerable countries in the International Diabetes Federation's (IDF) Middle-East and North Africa (MENA) zone. The countries of MENA zone now have amongst the maximum rates of diabetes in the world. This enhance has been driven by a range of factors that involve fast economic expansion and civilization; alters in manner of living that have led to decreased levels of physical effectiveness, enhanced intake of repeated carbohydrates, and altitude in fatness; and the ageing of their inhabitance. These factors have led to a rise in risk factors for type II diabetes and a fast enhance in its spread. Consequently, diabetes has become a main audience health trouble in the zone and imposes a significant strain on people, family members; as well as on health systems and economies in the MENA zone [10] & [11]

Diabetes mellitus is a rising popular health trouble in Egypt. Its wide spread attributes to rise as a result of enhanced spread of central obesity, sedentary life style , alter in eating practices, raised spread of hepatitis C, and possibly the raised employ of undisciplined pesticides. Smoking through men, health illiteracy, and poor obligation to treatment raised the recurrence of diabetes complexities. Egyptian authorities, during a limited health care budget, are striving to progress diabetes care, but major strategies and recommendations for standard of care are still necessary to increase this effort [9] & [12].

In 2012, four Gulf Cooperation Council (GCC) region (Kuwait, Saudi Arabia, Qatar, and Bahrain) Were through the 10 countries with the

maximum diabetes spread averages in the world .The trend in the GCC follows that of the whole Middle East and North Africa (MENA) zone where assessments, for 2013 propose about 34.6 million adults suffer from diabetes (9.2% of the people), and an additional 25 million population (6.7% of the people) are at altitude risk of improving diabetes from damaged glucose tolerance. Even in countries, such as Egypt and Lebanon, the spread of diabetes is 17% and 15% respectively, and in low-income Countries, such Sudan and Yemen, 8 to 10% [13]

Our study aimed to investigate the spread of type II diabetes mellitus, spread of recently diagnosed type II diabetic individuals, status of glycemic control and correlated risk factors and complexities of diabetes through people of Fayoum governorate.

This investigation included 3500 subjects (2060 males &1040 females) recruited from Fayoum Governorate (outpatient clinics, National project of clinical screening of DM ,and different areas in Fayoum) and their age ranged from 18 to 60 years old. The whole medical history involving the person`s age, sex, history of DM, medicine employ in treatment of type II diabetes, duration of type II DM, family history of diabetes, history of hypertension, and history of smoking.

The mean age of the study population was (44.04 ±13.2) years old and the mean period of diabetes was (5.01±4.6) years.

This study showed that10.5% were undiagnosed type II DM, 14.2% knew that they had DM, 12.6 % were pre-diabetic.

Concerning various types of remediation employ in commanding blood glucose level during the investigation group, it was found that 37.7% treated by premixed insulin, followed by 9.7% treated by SU, and 50% of them received combined treatment; the most common combinations among study group were Metformin with SU which represented 54%, followed by 23.8 % of patients received combination of 3 drugs.

Also this study showed that 35.7% of diabetic patients were controlled type II diabetes versus 64.3% were uncontrolled. Regarding complications of diabetes mellitus; 28.2 % were complicated, 47.9% of them were complicated with peripheral neuropathy, 5% complicated with retinopathy, 5.7% complicated with nephropathy, 14.3% for IHD, and 26.7% show multiple complications. As regards mixed complications, the highest percentage was for mixture of PN and IHD, which represented 57.9% of mixed complications followed by 21.1% for PN with retinopathy.

Khalil, et al., 2018 conducted a investigation that is based on a former household survey carried out on a representative sample of the people of Alexandria, Egypt. This investigation involved 506 consecutive subjects with type II diabetes; 323

persons with previously diagnosed type II DM and 183 individuals with recently known type II DM (diagnosed through the survey). For each contributor, a focused history was taken. Comprehensive clinical investigation was completed involving fundus investigation, foot investigation and estimate of ankle brachial index. Laboratory studies involving HbAlc, lipids profile, serum creatinine and urinary albumin creatinine ratio. This investigation cleared that Peripheral neuropathy was discovered in 20% of the tested individuals; 29.4% of known patients and 3.3% of recently diagnosed individuals (p<0.001). Diabetic renal disease was revealed in 33.2% of the tested patients; 46.1% of known patients and 10.4% of recently diagnosed patients (p<0.001). Diabetic retinopathy was revealed in 34.6% of the tested patients; 48.3% of recognized patients and 10.4% of recently recognized clients (p<0.001). Peripheral arterial disease was revealed in 32.6% of the tested patients; 45.5% of recognized patients and 9.8% of recently diagnosed clients (p<0.001) [14].

Diabetes-correlated blindness is individual and social load, costing the U.S. about $500 million per year. Total annual excess medical care disbursement were calculated at $633 for persons with low vision and $2,803 for those who are blind (2003-2009) results [15] & [16]

Researchers evaluated that decelerate the improvement of chronic kidney failure by 20% would save about $39 billion over 10 years, based on results from the U.S. kidney results System. Thirty-three percent of the approximately $116 billion in 2007 direct costs of remediation of diabetes and its complexities in the United States were related with the remediation of foot sores [17]& [18]

Cross-sectional trial estimated 242 type II diabetics who presented the National Guard essential health care clinics in Riyadh. Trained physicians obtained the estimate results and medical history and estimated painful diabetic peripheral neuropathy using screening instrument. After obtaining written informed consent, a questionnaire of the general characteristics, height and weight, smoking status, duration of diabetes, type of medication, and a history of co-morbid conditions was completed. Then, height, weight, and blood pressure were recorded, and BMI. Venous blood was collected from each participant to determine FBG and HbA1c level. The study showed overall prevalence of painful diabetic peripheral neuropathy (PDPN) among the study participants was 34.7%. The mean age of the PDPN patients was 56.9 ± 8.3 years, and 66.7% of the PDPN patients were female. Almost half of PDPN patients were either overweight or obese, and more than half had HbA1c >9%. Most of PDPN patients (79.7%) were treated with oral hypoglycemic agents, while 20.3% used insulin, either on its own

or in combination with other oral agents. The prevalence of PDPN was significantly associated with poor glycemic control, as we observed that a higher level of HbA1c and poor compliance with treatment was significantly associated with PDPN. The variations in prevalence rates within the country and in diverse countries may be due to the differing patient populations, study design, or diagnostic methods used to define PDPN[19]

Also it showed that there was statistical significance difference with p-value <0.05 between type II diabetic patients with controlled blood glucose and those with uncontrolled blood glucose. Also as regards different complications as (PN, nephropathy, retinopathy, IHD, and multiple complications), there were high percentages of these complications among uncontrolled patients. As regards for results of diabetic patients by fundus examination, we found that 9.9% of study group showed non-proliferative, and 9.9 % showed proliferative results, however 80.2% were normal.

Another investigation surveyed 5,445 individuals aged 19–94 years in Basrah, Iraq with glycated hemoglobin recorded in 88.3% of the inhabitance and FBS in 18.7%. BMI and other demographic parameters were also recorded. The data cleared that 5, 445 individuals surveyed , 8.7% had previously been recognized with diabetes and 11% were found by surveying to have undiscovered diabetes, giving an age-regulated spread of diabetes of 19.7%.In addition, 29.1% of the surveyed inhabitance had prediabetes, giving a spread of dysglycemia of 48.8%, with only 51.2% of the individual surveyed being normoglycemic. The spread of diabetes in both sexes peaked at age 46–60 years. Diabetes was slightly more predominant in females than in males, and about 70.3% of diabetic persons had a body mass index >25 kg/m² [20]

Al-Daghri, et al., 2011observed an association between diabetes and BMI, with 70.3% of Iraqis with diabetes having a BMI >25 kg/m2, compared with 85.7% of Saudis with diabetes. This agreed with our study that confirmed obesity as risk factor for diabetes [21].

Blood glucose level and anthropometric measurements of BP, height, weight, and waist circumference were carried out per standard methods. Results: Of 542 adult persons involved in the investigation, 13.3% had diabetes, of which 8.1% were previously diagnosed and 5.2% represented new cases. The proportions of DM were 14.7% for men and 10.8% for women. Diabetes was significantly higher through persons aged ≥40 years old compared to those <40 years (31.3% vs. 9.3%; p<0.001). The risk of diabetes was significantly raised with older age, fatness and hypertension [22]

Conclusions

This study showed that the prevalence of type IIDM in Fayoum governorate was 24.7%, only 14.2% of them knew that they had type II DM, only 35.7% of known diabetic patients were controlled and 28.2% of known diabetic patients had complications. There is also high prevalence of HTN 26.2%, obesity 48% and smoking 10.9%.More researches are required to reveal reasons behind these near low levels of control and awareness, in order to put in the picture appropriate policy to improve the rate of control and quality of life of diabetic patients in Egypt.

Limitations of the Study

More studies are required for better understanding of diabetes mellitus prevalence, awareness, treatment, risk factors and complications.

Conflict of Interest: None

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6/11/2021