Research Article

Investigation of Diabetics Recruited into a Clinic in the Vicinity of M'sila Town-Algeria

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Accepted on: 25-06-2014; **Finalized on:** 31-08-2014.

ABSTRACT

Diabetes mellitus is a common endocrine disorder chronic metabolic affecting the metabolism of carbohydrates, lipids, proteins and enzyme activities. Diabetes mellitus is a disease not without complications, including acute metabolic complications and chronic complications that are the basis of a very high mortality rate. The objective of this study is to estimate the effect of paraclinical factors (ABP, WS and BMI) upon diabetes mellitus and evaluate the state of antidiabetic treatment. This study is both prospective and retrospective, was held in a nearby clinic M'sila City-Algeria Country, we have followed the development of diabetes in 30 patients (09 men and 21 women) divided into two groups 15 Diabetic patients of type I (DID) and 15 Diabetic patients of type II (DNID) in a period of 12 months, where we are interested in a paraclinical evaluation (ABP, WS, BMI, and type of antidiabetic treatment).

Keywords: ABP, Antidiabetic, BMC, Diabetes mellitus, Type I diabetes, Type II diabetes, TT.

INTRODUCTION

In 1946, in the preamble to the constitution of the World Health Organization (WHO) definition of health is established: "Health is a state of complete physical, mental and social. And not merely of the absence of disease or infirmity. "With this definition, prevention and care are not the only means at the service of health, there are also laws, regulations, political orientations in environment, town and country planning 's. Population health becomes a liability collective.[1-3] The term diabetes mellitus etymologically derived from two Greek roots "diabetes" (pass through) and "mellitus" (honey).[4] Diabetes mellitus is a common endocrine disorder affecting metabolic chronic metabolism of carbohydrates, lipids, proteins and enzyme activities.[5] Diabetes mellitus is a disease not without complications, including acute metabolic complications and chronic complications that are the basis of a very high mortality rate.[6]

The different types of diabetes are all manifested clinically by hyperglycemia, but will differ in their acute or chronic manifestations, by severity and age of onset. They were recently classified into four major groups, including the two main ones are diabetes type I and type II.[7] Diabetes mellitus (type I and II) is a disease of great frequency and progresses rapidly, it is a major public health problem.[8] If formerly, Diabetes mellitus contributes to the morbidity and mortality observed in developed countries, today's developing countries are not spared.[9]

The objective of this study is to estimate the prevalence of diabetes and testing renal and pancreatic function and evaluation of the liver function, and the search for the presence or absence of metabolic complications associated with diabetes mellitus .The techniques we have used are those of the interview, clinical examination, biological assessments.

MATERIALS AND METHODS

From January 2, 2013 to December 31, 2013 an investigation was held in endocrinology clinical unit of public health nearby of M'sila City. Our sample includes 30 patients (09 males and 21 females), divided into 15 patients with DID and 15 DNID. All these patients have consistently benefited from a measure of hypertension, weight, waist sizes. The techniques we have used are those of the interview, clinical examination, laboratory test results. Clinical examination was realized for all, they Have been fully checked, systematic and unified manner for 1 month and then every 3 months, 6 and 12 months.

The study was conducted by an endocrinologist, he has established an exhaustive list of his patients how have Diabetes monitored them from January 2013. We also systematically searched the existence of cardiovascular risk factors such as smoking and dyslipidemia.

The clinical evaluation included

Weighing regularly appreciation patients for possible weight gain. Taking blood pressure, seeking for one or more metabolic or degenerative complications (BMI, ND, RD, AVC, ...).

Biological evaluation

The evaluation of lipid metabolism (TC, HDL, LDL, TG) and glucose (FPG, HbA1c).

Variables raised in our survey are:

- The sex, height, weight, WS

- The therapeutic care
- The cardiovascular risk factors associated with diabetes (hypertension, smoking, lipid).
- The parameters of glucose monitoring (blood glucose, HbA1c).

from the weight and size we have calculated the BMI. We have collected quantitative data as mean and standard error (M ± SE). For paraclinical and biological parameters of type II, BMI, hypertension, HbA1c, and TC, HDL, LDL, TG of each patient at the beginning of consultation at the endocrinology unit. These quantitative data were seized into Microsoft Office Word 2007 and analyzed in Graph Pad Prism software (Version 5.0). Then they were recovered on pages Microsoft Office Excel 2007 with the consultation form (Appendix 4) filled in by the doctor during the consultation but also through the results reported by either the patients them selves or by nursing. The comparison between groups was performed by Student's t test. The value found by calculating the t can affirm that different populations with a risk of error p such that:

-p> = 0.05= the difference was not significant.

-0.05> p> 0.01 =the difference is significant.

-0.05> p> 0.001 = the difference is highly significan.

- P <0.001 = the difference is very highly significant.

RESULTS

Body Mass Index (BMI)

Table 1: Evolution of BMI in diabetic patients how have Diabetes after 1,3, 6 and 12 months

	BMI (Kg/m²)			
	1st month	3rd month	6th month	12th month
DID	27.55±0.98	27.83±0.96	28.56±0.95	29.37±0.97
DNID	28.86±0.98*	29.01±0.98*	29.68±0.95*	29.96±1.01*

Student t test: *0,05 > p > 0,01

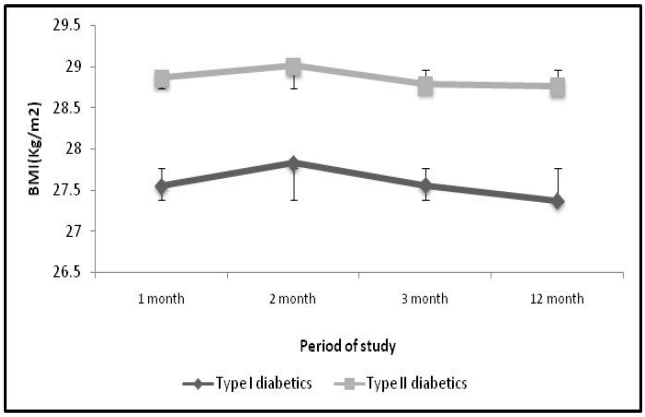

Figure 1: Evolution of BMI in diabetic patients how have Diabetes after 1,3, 6 and 12 months

We started on the hypothesis that the size of the patients did not change during the study, and the variable was the weight data. The average body mass index varies from 0.98 ± 27.55 1 29.37 ± 0.97 months at 12 months in patients with DID. While it varies from 28.86 ± 0.98 to 29.96 ± 1 month to 1.01 at 12 months in patients with DNID indicate the over weight.

The comparison of the BMI in both groups of patients (DID) and (DNID) on the 1st month shows a significant difference, DNID patients had a greater over weight than DID patients. This significant difference is found in the comparison of the BMI for other different time.

Waist Size (WS)

Table 2: Evolution of Waist Size (WS) diabetic patients after 1, 3, 6 and 12 months

	(WS) Cm			
	1st month	3rd month	6th month	12th month
DID	94.67±3.04	94.93 ±3.06	94.33 ±3.08	94.40 ±3.10
DNID	96.27±2.95	96.27±3.04	96.67±2.94	96.33 ±2.98

Each value corresponds to the mean ± SD (Student test: ns p > 0.05)

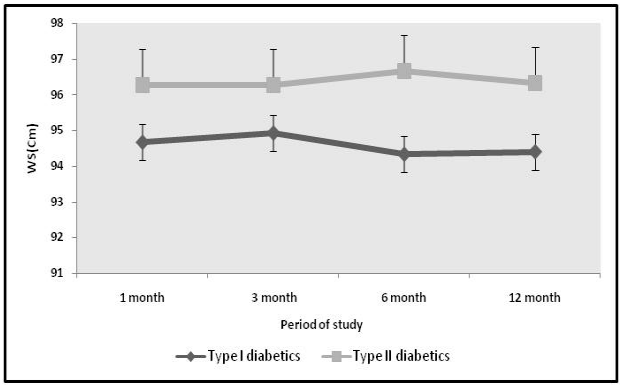

Figure 2: Evolution of Waist Size (WS) diabetic patients after 1,3, 6 and 12 months

The 1st month, the patients DNID show a higher abdominal obesity than DID patients, with a highly significant difference to 6th month.

Arterial Blood Pressure (ABP)

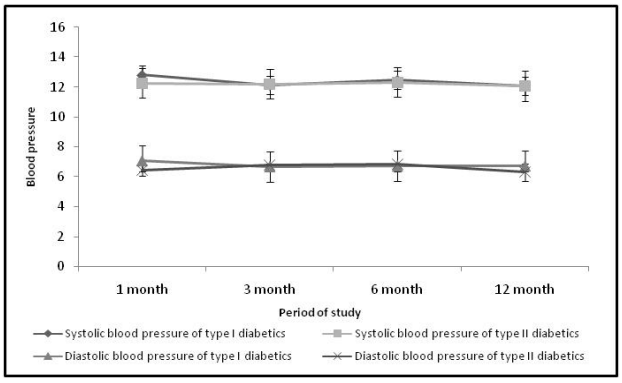

Figure 3: Evolution of hypertension in diabetic patients after 1,3, 6 and 12 months

The pressure profiles of diabetic patients remained stable. There was no significant difference in mean blood between the two groups throughout the study period.

Table 3: Evolution of average hypertension in diabetic patients after 1, 3, 6 and 12 month

	1st month		3rd month		6th month		12th month	
DID	SAT	DAT	SAT	DAT	SAT	DAT	SAT	DAT
	12.80±0.2	7.07±0.2	12.13±0.2	6.68±0.16	12.47±0.2	6.73±0.1	12.07±0.2	6.73±0.1
DNID	12.27±0.1	6.47 ±0.13	12.20±0.2	6.80 ± 0.1	12.33 ±0.2	6.87 ±0.1	12.07 ±0.1	6.33 ±0.1

Each value represents Mean ± Standard Deviation (Student test: ns p > 0.05) TAS / DAT (× 10) expressed in (mm Hg).

The distribution of patients according to the type of treatment

Table 4: Distribution of diabetes according to type of treatment

Type of treatment	Number of women	Number of men
Insuline	13	06
The oral antidiabetic (ADO)	05	02
Insuline+ ADO	03	01

In our series, the vast majority of patients were on insulin (63.33%). 23.33% of our patients were on oral antidiabetic and while only 13, 33% of them were under both.

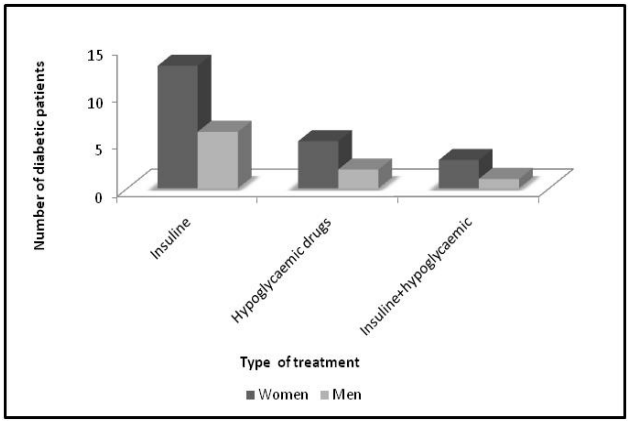

Figure 4: Distribution of diabetes according to type of treatment.

DISCUSSION

In our study, the mean BMI in the tow groups diabetes (type I and II) is in the zone of over weight, with an BMI significantly higher in patients with DNID compared with DID patients (statistically significant difference) . Result has been proven by several recent studies.[10-14]

During the 12 month follow-up, BMI increased in the two groups. So we can say that the DID or DNID leads to a significant weight gain in patients if they do not regularly attend their consultation with taking weight. In our study, we found a higher abdominal obesity in patients with DNID than in DID patients, our results are in agreement with several studies.[12-15] They showed that 80% of all people with DNID they have abdominal obesity the time of diagnosis. However, when we consider the evolution of Around the waist(ws) during the study period within the each group, the Around the waist (ws) remained stable in different times and in the two groups. We did not observe any changes after 12 months. Arbouche and colleagues followed their patients for 18 months (suggesting that a longer time is required for a significant change in this parameter).

Hypertension is an important risk factor to monitor in diabetic (type I and II). Since the UKPDS showed that good blood pressure control results in a 32% reduction in mortality and 56% of the risk of BMI. The blood pressure measurements are therefore strict in diabetic patients and should get closer to 130/80 mmHg. The blood pressure status was satisfactory in the two groups. We do not therefore found hypertensive patients in our study.

Our results are similar to those of the study[12], which may explain why studies based on measurements of blood pressure in a timely manner in consultation, did not find any differences. But they differ from other studies[16-19], who were able to show a significant change in blood pressure status when they followed the blood pressure in diabetic homogeneous with systematic manner, their monitoring focused mainly on nocturnal blood pressure measurements. Therapeutic means existing in the management of diabetes are many and varied. In our study, the vast majority of patients were on insulin (63.33%). 23.33% of our patients were on oral antidiabetic and while only 13, 33% of them were under both. So our results are consistent with those of [20, 21, 22].

CONCLUSION

Diabetes mellitus in humans, is a disease whose incidence is likely to increase significantly in the coming years, especially in obese individuals. There is an urgent need for a quantitative assessment of diabetic pandemic. In medical practice, this assessment is based on the identification of risk. The latter is determined not only by biological markers but by a series of long known clinical parameters, in particular the interview looking for family history Clinical examination and arterial of diagnostic tests.

There is currently a very important development of radiological examinations, ultrasound or IRM to assess arterial status well before the appearance of a complication. In all patients with diabetes, the search for a smoking, blood pressure monitoring and measurement of waist circumference, are essential but often forgotten. Every year, it seems necessary to measure microalbuminuria, total cholesterol, HDL cholesterol and triglycerides, transaminases and urea and creatinine to detect any complication associated with diabetes. The new highlighting continuous biochemical and genetic

markers is useful for the practitioner who is face of diabetes, must determine all risk of an Acute or chronic complication for a better under standing the pathophysiology of diabetic disease to find the most appropriate treatment.

Diabetes, its current prevalence in Algeria and projections, must be one of the priorities of public health in our country. Primary prevention, early diagnosis through screening in patients at risk and the improvement of care are essential. Such an outlook deserve to be continued reflection, a better coordination of efforts, and therefore an effective partnership between governments, health authorities, scientific societies, alternative media - such as Social Security (CNAS) - without forgetting the role of civil society through associations of diabetic patients.

It is certain that the prospects about the importance of diabetes in XXI century are quite dark. Under the pressure of globalization, lifestyles are changing through out the world, which adds to the demographic transition to produce a dramatic increase in the incidence of disease. The term epidemic is not usurped in many ethnic and geographic communities, where the disease is spreading at an astonishing speed, as in the Pacific Islands or in some First Nations communities. Social, financial and human consequences of this will depend on the adaptation of resources and the organization of health systems to prevent complications of the disease and cope.

We have already seen the causes of the epidemic. Means (theoretical) prevention can not just targeting individuals, to encourage them to "lose weight", "eat better" or "to move", although these initiatives remain essential. The major challenge of prevention is at the collective level, all the major actors of our public life- doctors, epidemiologists, administrators, politicians, industry groups, health workers, states, international donors, must be put in situation taking a total management of the disease, they must also be aware of the magnitude of the problem and then do something about this problem become a real challenge for public health.

This study will be really useful when it is followed by others, so compared to subsequent data to assess progress through the quest for quality. This would include more patients in order to increase the sensitivity of the results and evaluate the impact of time on them. It is therefore essential to involve the practice of evaluating for a dynamic change.

REFERENCES

1. Noubel J, Prise en charge des patients diabétiques dans un groupement interprofessionnel de santé territorial, Thèse de doctorat en médecin, Univ de Dijon, France, 2009, 19-28.
2. Arbouche LZ, Les effets du traitement substitutif post ménopausique chez la diabétique de type 2, sur le métabolisme des lipoprotéines et le métabolisme glucidique, Thèse doctorat d'état en Médecine, Univ d'Alger, Algérie, 2007, 16-23.
3. Saltiel AR, Kahn CR, Insulin signalling and the regulation of glucose and lipid metabolism, Nature, 414, 2010, 799-806.
4. Malek R, Belatrèche F, Laouamri S et al, Prévalence du diabète de type 2 et de l'intolérance au glucose dans la région de Sétif (Algérie), Rev, Diabetes Métab, 2, 27, 1, 2001, 65.
5. Youssouf DD, Complications métaboliques aigues du diabète en milieu de réanimation au point «G», Thèse doctorat d'état en Médecine, Univ de Bamako, Mali, 2007, 25-48.
6. Mohammed A, Tazia SA, Noureddine C, Les atteintes cutanées associées au diabète sucré, Thèse de doctorat en Médecine, Univ de Fès, Maroc, 2007, 30-54.
7. Monnier L, Colette C, Le diabète, Livre Masson, éd, France, 2010, 37-45.
8. Spinas GA, Lehmann R, Diabète sucré: Diagnostic, classification et pathogenèse, Rev, Forum Med, 20, 2001, 520.
9. Rigalleau V, Lang J, Gin H, Étiologie et physiopathologie du diabète de type 2, Rev, Endocrino-Nut, 10-366-D-10, EMC, 3, 2010.
10. Brunzell JD, Hokanson JE, Wilson P WF, Dyslipidemia of Central Obesity and Insulin Resistance, Rev, Diabetes Care, 22, Supplement 3, 2007.
11. Carey David GP, Abdominal obesity, Rev, Curr, Opin Lipidol, 9, 2010, 35-40.
12. Arbouche LZ, Aribi S, Arrada M, Ayad F, Actualités sur les marqueurs de dépistage des complications aigués et chroniques chez le diabétique, Programme du 15ème congrès de la SADIAB, 22-23-24 Novembre, Hôtel Sheraton, Alger, Algérie, 2013, 90-123.
13. Jean P, Facteurs de risque cardiovasculaires chez un diabétique, 49th Annual Meeting of the European Association for the Study of Diabetes (EASD), 23-27 Septembre, BARCELONE, Espagne, 2013, 210-234.
14. Lezzar E, L'obésité abdominale et l'hypertension artérielle, 7ème journées de diabétologie, 14-15-16 Février, Oran, Algérie, 2013, 29-45.
15. Raja M, Nouveautés sur le diagnostic des pathologies hépatique et cardiaque chez le diabétique, 49th Annual Meeting of the European Association for the Study of Diabetes (EASD), 23-27 Septembre, BARCELONE, Espagne, 2014, 23-64.
16. Enstrom T, Does blood pressure differ between users and non users of HRT, The Women's Health In the Lund Area (WHILA) study, Blood Press, 11(4), 2002, 240-243.
17. Butkevich C, HRT and 24 hours blood pressure profile of postmenopausal women, Rev, An J, Hypert, 13(9), 2007, 1039-1041.
18. Belhadj M, Malek R, Boudiba A, Épidémiologie, coûts et organisation des soins, Rev, Diab Care Algérie, 1, 4, 2010, 89.
19. Hayward CS, Effect of combination hormone replacement therapy on ambulatory blood pressure and arterial stiffness in diabetic post menopausal women, Rev A, M, J Hypertens, 14, 2010, 699-703.
20. Ibrahim MI, Attalah S, Benlatreche C, Metabolic Disturbance in Diabetic Patients With and Without Urinary Ketone Bodies, JASMR, 1, 1, 2006.
21. Malek R, Bendib W, Hamdi-CM, Épidémiologie du diabète en Algérie, Rev Med Métab, 3, 2, 2008, 1-5.
22. Brussaard HE, Short-term oestrogen replacement therapy improves insulin resistance, lipids and fibrinolysis in postmenopausal women with NIDM, Diabetologia, 40, 2012, 843-849.

Source of Support: Nil, **Conflict of Interest:** None.