

**109 - EVALUATION OF DYSLIPEDEMIA IN PATIENTS WITH DIABETES MELLITUS TYPE 2**

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**INTRODUCTION**

The Diabetes Mellitus (DM) it is a syndrome of multiple aetiology, due to the insulin lack and/or of the capacity of that hormone to do their effects appropriately. It is characterized by chronic hyperglycemia, frequently accompanied of dyslipidemia, arterial hypertension and dysfunction endothelial (SBD, 2006).

The consequences of DM in long period elapse of alterations personal microvascular and macrovascular that taken the dysfunction, damage or bankruptcy of the organs. The chronic complications include the nephropathy, with possible evolution for renal inadequacy, retinopathies, with the possibility of blindness and/or neuropathic, with risk of ulcers in the feet, amputations, arthropathy of Charcot and manifestations of autonomous dysfunction, including sexual dysfunction (BRAZIL, 2006; SBD, 2006).

The current symptoms of the hyperglycemia include loss weight, poliury, polidipsia and infections. Even in individuals without symptoms it can have discreet hyperglycemia, however in enough degree to cause alterations functional or morphologic for a long period before the diagnosis is established (BRAZIL, 2006).

In agreement with the World Organization of Health (OMS) and the American Association of Diabetes (ADA) DM is classified in three clinical classes: DM type 1, DM type 2 and DM gestational, being the second present in 90%-95% of the cases and it is characterized by defects in the action and in the insulin secretion (SBD, 2006).

The number of diabetic individuals is increasing due to the growth and to the population aging, to the largest urbanization, to growing prevalence of the obesity and of the sedentarism, as well as to the patient's largest over life with DM (BARCELÓ et al., 2003). The incidence of DM type 2 is difficult to be certain in great populations, because it involves continuations during some years, with periodic measurements of glycemia (ONKAMO et al., 1999).

According to Ministry of Health (MS), DM attacks 10% of the world population and is possible that exists 8 million bearers of this Chronic Disease no-transmissible (DCNT) in Brazil (SBD, 2006).

The dyslipidemia is one of the main risk factors for Cardiovascular Disease (DCV) in diabetic patients, whose influence is larger than the others. The alterations more frequent lipidic in that population correspond the hypertriglyceridemia (increase in the triglycerides levels), HDL-cholesterol (HDL-c) lower and qualitative alterations in the lipoproteins, such as the formation of particles of LDL-cholesterol (LDL-c) small and dense (LEHTO et al., 1997).

The disease atherosclerotic corresponds the Arterial Disease Coronary (DAC), Outlying Vascular Disease (DVP) and Cerebral Vascular Accident (AVC), it is responsible for 75% of the individuals' deaths and it is influenced by dyslipidemia (SBD, 2006).

Tends knowledge that the hyperglycemia in the pathogeneses of the disease macrovascular in patients of DM type 2, associated to the dyslipidemia increases the probability of DCV considerably, it is necessary to identify the bearers of this risk factor and to evaluate the same ones already present cardiovascular risks so that future works of orientations can be developed regarding practices of habits that will contribute to a healthier and happy longevity.

**METHODOLOGY**

The sample corresponded to bearers of DM type 2 that participate in the Program of Pharmaceutical Attention (PROATENFAR) developed by the Universidade Estadual da Paraíba – UEPB, in partnership with the Municipal City hall of Campina Grande, Brazil.

It was treated of a study of the descriptive and longitudinal type, approved for the ethics Committee and Research of the Universidade Estadual da Paraíba through the opinion n°. 0294.0.133.000-07, developed in the period of August to December of 2007.

The first stage corresponded to an interview where personal data were observed, weigh, height, blood pressure, abdominal waist, use of medicines, practice of physical activity, among others. The second stage went to the collection of the data of the determinations biochemical glycemia, Triglycerides (TG), total cholesterol and fractions (LDL-c and HDL-c) contained in the books of registration of PROATENFAR, whose evaluation followed the values extolled by the IV Brazilian Guideline about dyslipidemia and prevention of the arterioscleroses (SBC, 2006).

All the obtained results will be submitted to the statistical analysis through the software EPIINFO 2003, version 3.4.1, being later presented in graphs.

**RESULTS AND DISCUSSION**

57 bearers of DM type 2 were accompanied, being most of the feminine gender (63,2%) and 81% of the sample were dyslipidemic.

The women's presence didn't correspond to the dyslipidemia prevalence, but her largest frequency to the services of health. According to Lessa et al., (1997) the demand for the medical aid in Brazil is always larger for the feminine gender, being possible that the women have a larger opportunity of dyslipidemia diagnosis than the men.

The pattern present dyslipidemic in the diabetic individuals is part of an insulin-resistance study. Bearers of DM type 2 frequently present dyslipidemia in the previous phase of Decrease of Tolerance the Glucose (DTG). This dismetabolism is associate with other alterations that in your group constitute the Metabolic Syndrome (SM) (it TOASTS, 2005).

The risk factors for dyslipidemia more prevalence were DM, OC and Hereditariness (ILLUSTRATION 1).

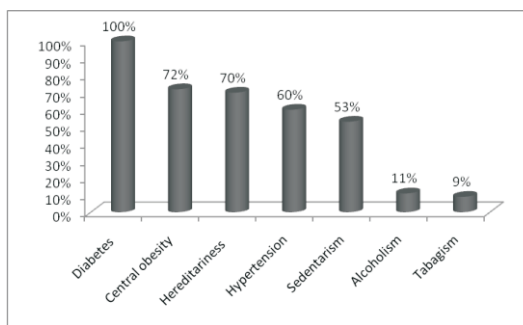


ILLUSTRATION 1: Risk factors for dyslipidemia presented by the participants.

According to Chzarini et al., (2002) 80% of the people with DM type 2 have some dyslipidemia type being frequent hypertriglyceridemia associate the decrease of the HDL-c, demonstrating a factor of independent cardiovascular laughter.

OC is considered the most relevant for the individuals' diagnosis with elevation of the risk to the health than the general obesity, because the excess of central adiposity associates strongly to the development of cardiovascular and metabolic disturbances. Overweight and obesity show a significant epidemic relationship with dyslipidemia and DM, probably expressing a complex condition that involves the metabolism of the carbohydrate and of the fats (GUIMARÃES, 2002).

The hereditarianism according to Ortiz and Zanetti (2003) a factor is considered no-changed, so much for (HAS) as for DM.

Souza et al., (2003) explained that the hypertension is the largest determinant of the occurrence of cardiovascular events in patients with DM2, being twice more prevalent between the diabetic individuals and the presence increases the occurrence of complications personal microvascular and macrovascular.

As for the dyslipidemia types most of the patients presented associated hypercholesterolemia the hypertriglyceridemia (ILLUSTRATION 2).

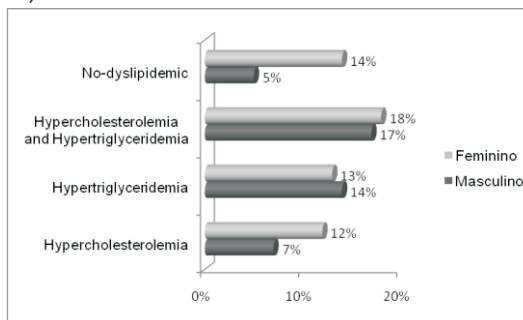


ILLUSTRATION 2: Dyslipidemia type presented by gender.

The dyslipidemia prevalences are geographically variables, depending on the habits dietary, cultural or acquired and of the lifestyle of the different populations. The frequency of isolated hypercholesterolemia is same to the one of the population in general, however its impact as factor of cardiovascular risk gets to be twice more in the person with DM (CHZARINI et al., 2002).

Patient with hypertriglyceridemia show complex picture of metabolic alterations that should be considered when it is made the control lipidic, among them we can highlight: intolerance to the glucose, resistance to the insulin, obesity, consumption of alcohol (moderate or intense), rich feeding in carbohydrate and use of medications as corticoids, strogenio, inhibitors of the protease and betablockeds (XAVIER, 2005).

When individuals hypertenses and diabetics also present dyslipidemia associated to the atheroma formation the risk for DCV is still larger, once they possess three of the risk factors for those diseases, that it corresponds to one of the main death causes for diabetes in Brazil (MAGALHÃES, 2004).

The HDL-c it was altered in 41% of the men and in 55% of the women (Illustration 3).

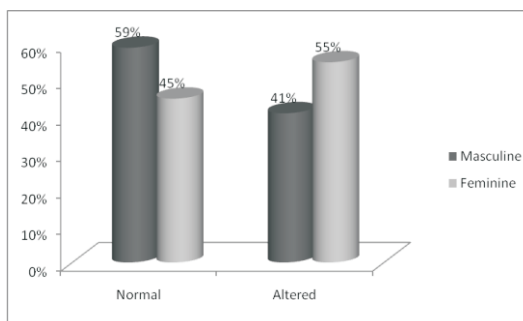


ILLUSTRATION 3: Evaluation of the HDL-c for gender

Before the obtained data, it was verified that the patients presented ILLUSTRATION 3: Evaluation of the HDL-c for gender.

larger risk for DCV, and this happens for they demonstrate reduction in the levels of HDL-c. For Lima et al., (2007) a correlation exists among the plasmatic levels of HDL-c and DCV and east dyslipidemia type is more common in women.

**CONCLUSION**

In the studied sample the presence of several risk factors was observed for dyslipidemia. It is necessary to motivate more and more for the patients to intensify the practice of physical activity and accomplish a healthy diet, because all these

factors predispose DCVs, because they possess direct relationship with the progressive population aging due to the current apprenticeship of the demographic and epidemic transition of the population.

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## EVALUATION OF DYSLIPEDEMA IN PATIENTS WITH DIABETES MELLITUS TYPE 2

### SUMMARY

The Diabetes Mellitus (DM) is a syndrome of multiple aetiology, due to the insulin lack and the capacity of that hormone to do their effects appropriately. It is characterized by chronic hyperglycemia, frequently accompanied of dyslipidemia, arterial hypertension and endothelial dysfunction. The dyslipidemia is one of the main risk factors for DCV in diabetic patients, whose influence is larger than the others. The more frequent lipidic alterations in the population correspond to hypertriglyceridemia (increase in the triglycerides levels), HDL-c low and qualitative alterations in the lipoproteins, such as the formation of particles of LDL-c small and dense.

With these premises, the work aimed to evaluate the association of DM type 2 and dyslipidemia. It was treated as a descriptive and longitudinal study, performed in the Servicio Municipal de Salud (SMS) and in the Laboratory of Clinical Analyses of the Universidad Estatal de Paraíba, UEPB, whose appraised parameters were fast glycemia, triglycerides, total cholesterol and fractions. The data was appraised through percentile statistics. Of the 57 patients, most were women and 81% of the samples were dyslipidemic. Regarding dyslipidemia risk factors, the most representative were DM and Central Obesity. Most demonstrated associated hypercholesterolemia the hypertriglyceridemia; the HDL-c was altered in 41% of the men and in 55% of the women DM, in spite of being a degenerative chronic disease that is not contagious, it makes possible a larger lifespan to their bearers when they adhere to treatment.

Therefore, the population in study needs to be more motivated to accomplish a balanced diet and to practice physical activities, and once these cares are attended, they will reduce the glycemia and lipid levels contributing to a healthier longevity.

**WORD-KEY:** Diabetes Mellitus; Dyslipidemia; Systemic Arterial hypertension.

## ÉVALUATION DE DYSLIPEMIE DANS MALADES AVEC DIABÈTE SUCRÉ DE TYPE 2

### RÉSUMÉ

Le Diabète Sucre (DS) c'est un syndrome étiologique multiple, dû au manque de l'insuline et/ou de la capacité de cette hormone faire convenablement leurs effets. Il est caractérisé par hyperglycémie chronique, fréquemment accompagné de dyslipidémie, hypertension artérielle et dysfonctionnement endothelial. Le dyslipidémie est un des facteurs du risque principaux pour DCV dans malades diabétiques dont l'influence est plus grande que les autres. Les modifications lipidique plus fréquents dans cette population correspondent l'hypertriglycéridémie (l'augmentation de niveaux de triglycérides), modifications de HDL-c basses et qualitatives dans le lipoproteins, ainsi que la formation de particules de LDL-c petit et dense. Avant cette prémisses le travail a visé l'intention d'évaluer l'association de DM type 2 avec les dyslipidemie. Il a été traité d'une étude documentaire,

descriptif et longitudinal et avait lieu dans le Serviço de Municipal Saúde (SMS) et dans le Laboratoire d'Analyses Cliniques de l'Universidade da Estadual Paraíba - UEPB, dont les paramètres estimés soit glycémie rapides, triglycérides, cholestérol total et fractions. Les données ont été estimées à travers les statistiques du centile. Des 57 malades, la plupart était du genre féminin et 81% de l'échantillon était des dyslipidémiques. Concernant les facteurs du risque pour le dyslipidémie les plus représentatives étaient DM et Obésité. Plupart a démontré l'hypercholestérolémie associée l'hypertriglycéridémie; le HDL-c il a été changé dans 41% des hommes et dans 55% des femmes. Le Diabète sucre, bien que soit une maladie chronique dégénérative aucun transmissible, il fait possible un plus grand sur vie à leurs porteurs quand ils adhèrent au traitement. Par conséquent, la population dans l'étude a besoin d'être motivé mieux accomplir une alimentation équilibrée et pratiquer des activités physiques, une fois ces soins réduiront le niveaux de glycémie et des lipides qui contribuent à une longévité plus saine.

**MOT CLEF:** Diabète Mellitus ; Dyslipidemia ; Hypertension Artérielle systémique.

## **LA EVALUACIÓN DE DISLIPIDEMIA EN LOS PACIENTES CON LA DIABETES MELLITUS TIPO 2 EL RESUMEN**

La Diabetes Mellitus (DM) es un síndrome de etiología múltiple, debido a la falta de insulina y/o de la capacidad de esa hormona de hacer sus efectos apropiadamente. Se caracteriza por el hiperglicemia crónica, frecuentemente acompañada de dislipidemia, hipertensión arterial y endotelial del trastorno. La dislipidemia es uno de los factores de riesgo principales para DCV en pacientes diabéticos cuya influencia es más grande que los otros. Las alteraciones los lípidos más frecuentes en esa población corresponden al hipertriglicéridemia (el aumento en los triglicéridos niveles), HDL-c las alteraciones bajas y cualitativas en el lipoproteínas, como la formación de partículas de LDL-c pequeño y denso. Antes de estas premisas el trabajo apuntó a evaluar la asociación de DM tipo 2 y dislipidemia. Se trató de un estudio documental, descriptivo y longitudinal y se comprendió en el Servicio Municipal de Salud (SMS) y en el Laboratorio de Análisis Clínicos de la Universidad Estatal da Paraíba - UEPB que estimó los parámetros sea glycemia rápidos, triglicéridos, colesterol total y fragmentos. Los datos se estimaron a través de las estadísticas del porcentaje. De los 57 pacientes, la mayoría era del género femenino y 81% de la muestra era los dislipidémico. Con respecto a los factores de riesgo para el dislipidemia, los más representativos eran DM y la Central Obesidad. La mayoría demostró el hipercolesterolemia asociado el hipertriglicéridemia; el HDL-c era alterado en 41% de los hombres y en 55% de las mujeres DM, a pesar de ser una enfermedad crónica degenerativa ningún trasmisible, hace posible un más grande encima de la vida a sus portadores cuando ellos adhieren al tratamiento. Por consiguiente, la población en el estudio necesita ser motivada bien lograr una dieta equilibrada y practicar las actividades físicas, una vez estos cuidados reducirán el glicemia niveles y de lípidos que contribuye a una longevidad más saludable.

**LAS PALABRAS - LA LLAVE:** La diabetes Mellitus; Dyslipidemia; La hipertensión arterial sistémica.

## **AVALIAÇÃO DA DISLIPIDEMIA EM PACIENTES COM DIABETES MELLITUS TIPO 2 RESUMO**

O DM é uma síndrome de etiologia múltipla, decorrente da falta de insulina e/ou da capacidade desse hormônio exercer adequadamente seus efeitos. É caracterizada por hiperglicemia crônica, frequentemente acompanhada de dislipidemia, hipertensão arterial e disfunção endotelial. A dislipidemia é um dos principais fatores de risco para DCV em pacientes diabéticos, cuja influência é maior que os demais. As alterações lipídicas mais frequentes nessa população correspondem a hipertriglicéridemia (aumento nos níveis de triglicérides), HDL-c baixo e alterações qualitativas nas lipoproteínas, tais como a formação de partículas de LDL-c pequenas e densas. Diante destas premissas o trabalho objetivou avaliar a associação de DM tipo 2 e dislipidemias. Tratou-se de um estudo documental, descritivo e longitudinal e realizou-se no Serviço Municipal de Saúde (SMS) e no Laboratório de Análises Clínicas da Universidade Estadual da Paraíba, cujos parâmetros avaliados foram glicemia de jejum, triglicérides, colesterol total e frações. Os dados foram avaliados através da estatística percentual. Dos 57 pacientes, a maioria era do gênero feminino e 81% da amostra eram dislipidêmicos. Com relação aos fatores de risco para as dislipidemias as mais representativas foram DM e Obesidade Central. A maior parte demonstrou hipercolesterolemia associado a hipertriglicéridemia; o HDL-c esteve alterado em 41% dos homens e em 55% das mulheres O DM, apesar de ser uma doença crônica degenerativa não transmissível, possibilita uma maior sobrevida aos seus portadores quando eles aderem ao tratamento. Portanto, a população em estudo precisa ser melhor incentivada a realizar uma dieta equilibrada e a praticar atividades físicas, uma vez que estes cuidados reduzirão os níveis de glicemia e de lípidos contribuindo para uma longevidade mais saudável.

**PALAVRAS-CHAVE:** Diabetes Mellitus; Dislipidemias; Hipertensão Arterial Sistêmica.

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