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Riesgo cardiovascular en profesionales de enfermería adscritos a una unidad de cuidados intensivos

Cardiovascular risk in nursing professionals assigned to an intensive care unit

Risco cardiovascular em profissionais de enfermagem lotados em unidade de terapia intensiva

Eduardo Tamayo Salazar
Universidad Autónoma del Estado de México, México
lalocritcare@gmail.com
https://orcid.org/0000-0001-7020-244X

Rafael Antonio Estévez Ramos
Universidad Autónoma del Estado de México, México
restevezr@hotmail.com
https://orcid.org/0000-0001-6638-0550

Ihosvany Basset Machado
Universidad Autónoma del Estado de México, México
ibassetcuba@yahoo.com
https://orcid.org/0000-0001-7764-8276

María Cristina Pérez Guerrero
Universidad de Ciencias Médicas Carlos J. Finlay, Cuba
mcperezg.cmw@infomed.sld.cu
https://orcid.org/0000-0003-4593-0538

Gloria Ángeles Ávila
Universidad Autónoma del Estado de México, México
gloangelesavila@yahoo.cpm.mx
https://orcid.org/0000-0002-0023-5809

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Resumen

Introducción: la Organización Mundial de la Salud (OMS) afirma que las enfermedades cardiovasculares son la principal causa de muerte en el mundo. En México, las enfermedades del corazón y la enfermedad cerebrovascular ocuparon el primer y sexto lugar, respectivamente, en la tabla de mortalidad general durante el año 2014. La prevalencia de obesidad y sobrepeso en enfermeras es elevado.

Objetivo: evaluar el riesgo cardiovascular en los profesionales de enfermería que laboran en una unidad de cuidados intensivos.

Material y métodos: estudio descriptivo, transversal. Se evaluaron 25 enfermeras —elegidas mediante criterios de selección— que laboran en la unidad de cuidados intensivos de un hospital de tercer nivel de la Ciudad de México durante el año 2016, con aplicación de una entrevista, mediciones antropométricas y toma de perfil lipídico. El análisis estadístico se realizó con el programa SPSS versión 21.

Resultados: el riesgo cardiovascular encontrado en los profesionales de enfermería a través de las tablas de estratificación fue bajo, con un porcentaje de riesgo menor a 10 %. Sin embargo, se detectó síndrome metabólico en 28 % de la población, así como dos predictores de mortalidad cardiológica y vascular: enfermedad arterial periférica y valores de producto de acumulación lipídica de riesgo para desarrollar enfermedad coronaria. Con respecto a los antecedentes heredofamiliares de cardiopatía coronaria o ictus, 28 % de los profesionales refirió tener antecedentes cardiovasculares de relevancia —siendo el infarto agudo al miocardio la cardiopatía principal—, 24 % mostró problemas de hipercolesterolemia, 20 % cifras de riesgo en triglicéridos y 24 % mostró un depósito acelerado del material lipídico al interior de los vasos sanguíneos. Por otro lado, 40 % de los profesionales de enfermería padecían un nivel de estrés alto.

Conclusiones: la población estudiada mostró un riesgo cardiovascular bajo calculado mediante diversas escalas. Sin embargo, presentó otros factores de riesgo independientes para enfermedad coronaria, por lo que se deben tomar medidas de prevención primaria y secundaria.

Palabras clave: índice tobillo-brazo, perfil antropométrico, profesional de enfermería, riesgo cardiovascular, tabla de Framingham.

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Abstract

Introduction: the World Health Organization (WHO) states that cardiovascular diseases are the leading cause of death in the world. In Mexico, heart disease and cerebrovascular disease occupied the first and sixth place, respectively, in the general mortality table during 2014. The prevalence of obesity and overweight in nurses is high.

Objective: to evaluate the cardiovascular risk in the nursing professionals who work in an intensive care unit.

Material and methods: descriptive, transversal study. Twenty-five nurses -elected by selection criteria- who work in the intensive care unit of a tertiary hospital in Mexico City during 2016, with an interview, anthropometric measurements and lipid profile taking were evaluated. The statistical analysis was performed with the SPSS program version 21.

Results: the cardiovascular risk found in the nursing professionals through the stratification tables was low, with a risk percentage lower than 10%. However, metabolic syndrome was detected in 28% of the population, as well as two predictors of cardiological and vascular mortality: peripheral arterial disease and product values of lipid accumulation of risk to develop coronary disease. With respect to the heredity of coronary heart disease or stroke, 28% of the professionals reported having a relevant cardiovascular history - acute myocardial infarction being the main heart disease - 24% showed problems of hypercholesterolemia, 20% triglyceride risk figures and 24% showed an accelerated deposition of the lipid material inside the blood vessels. On the other hand, 40% of nursing professionals suffered from a high level of stress.

Conclusions: the population studied showed a low cardiovascular risk calculated using different scales. However, it presented other independent risk factors for coronary heart disease, so primary and secondary prevention measures should be taken.

Keywords: ankle-brachial index, anthropometric profile, nursing professional, cardiovascular risk, Framingham table.

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Resumo

Introdução: a Organização Mundial de Saúde (OMS) afirma que as doenças cardiovasculares são a principal causa de morte no mundo. No México, as doenças cardíacas e cerebrovasculares ocuparam o primeiro e o sexto lugares, respectivamente, na tábua geral de mortalidade em 2014. A prevalência de obesidade e sobrepeso em enfermeiros é alta.

Objetivo: avaliar o risco cardiovascular nos profissionais de enfermagem que atuam em uma unidade de terapia intensiva.

Material e métodos: estudo descritivo, transversal. 25 -elegidas enfermeiros foram avaliados por critérios selecção- de trabalho na unidade de terapia intensiva de um hospital terciário na Cidade do México em 2016, com a aplicação de uma entrevista, tomando medidas antropométricas e perfil lipídico. A análise estatística foi realizada com o programa SPSS versão 21.

Resultados: o risco cardiovascular encontrado nos profissionais de enfermagem através das tabelas de estratificação foi baixo, com percentual de risco menor que 10%. No entanto, a síndrome metabólica foi detectada em 28% da população, e dois preditores de mortalidade cardíaca e vascular: doença arterial periférica e os valores dos produtos risco de acumulação de lípidos para o desenvolvimento de doença cardíaca coronária. No que diz respeito a uma história familiar de doença cardíaca coronária ou acidente vascular cerebral, 28% dos profissionais relataram ter histórico cardiovascular de relevância -ser infarto agudo do miocárdio a doença, principalmente, 24% apresentaram problemas hipercolesterolemia, 20% figuras risco triglicérides e 24% mostraram uma deposição acelerada do material lipídico dentro dos vasos sanguíneos. Por outro lado, 40% dos profissionais de enfermagem sofreram um alto nível de estresse.

Conclusões: a população estudada apresentou baixo risco cardiovascular calculado em diferentes escalas. No entanto, apresentava outros fatores de risco independentes para doença coronariana, de modo que medidas de prevenção primária e secundária deveriam ser tomadas.

Palavras-chave: índice tornozelo-braquial, perfil antropométrico, profissional de enfermagem, risco cardiovascular, tabela de Framingham.

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Introduction

Currently, the World Health Organization (WHO) states that cardiovascular diseases cause about "17 million deaths every year", a figure that is equivalent to approximately "one third of deaths worldwide" (WHO, 2013, p. .one). These diseases are expected to be the leading cause of disability and death in the future and cause an economic burden close to the "3.76 trillion dollars" during the period from the year "2011 to 2025 in low and middle income countries" (WHO, 2013, p.14).

According to the Global Burden of Disease Study 2010, endorsed by the World Bank (WB) and WHO, showed that "ischemic heart disease and stroke" were the main diseases that killed about "12.9 million people" in ages ranging from "15 to 49 years of age throughout the world during the year 2010" (Lozano et al., 2012, page 2112).

In Mexico, the National Institute of Statistics, Geography and Informatics (INEGI, 2015), reported in 2014 that heart disease originated 121,427 deaths - occupying the first place in the general mortality table - while diseases cerebrovascular events caused 33 thousand 166 deaths, occupying the sixth place in the aforementioned table.

In the case of Mexico City, the INEGI (2015), reported in 2014 13 thousand 085 deaths of cardiac origin, occupying the first place in the local mortality table. On the other hand, cerebrovascular diseases caused 3,177 deaths, ranking fourth in the local mortality list.

The specialists in cardiology (Guisado, Crisobo and Barón Esquivias, 2012, p.1) mention that the approach to cardiovascular diseases can be based on two approaches: primary prevention and secondary prevention. Primary prevention aims to prevent the development of cardiovascular disease in healthy subjects; secondary prevention seeks to prevent complications arising from the onset of the disease.

The first algorithm that was proposed for the estimation of cardiovascular risk arose in 1991 with the Framingham study. This algorithm predicts the absolute risk in an individual of suffering from cardiovascular disease at 10 years, among which are: acute myocardial

infarction, cerebrovascular accident, coronary artery disease and death due to cardiovascular disease; (Vega, Guimará, Garces, Vega, and Rivas, 2015, p 208). In addition, "it allows to calculate vascular age, a relatively new concept that gives us an estimate of vascular damage" (Mayta et al., 2015, p.28).

Due to certain limitations of the Framingham algorithm, in order to correctly estimate the cardiovascular risk in different populations, this algorithm was calibrated in order to have a reliable estimation table. Thus, the WHO / ISH table for the Americas region emerges (WHO, 2008, p.10).

Currently there are other tables to predict acute myocardial infarction and fatal and non-fatal stroke, such as the risk algorithm for atherosclerotic cardiovascular disease (ASCVD score), a multiracial estimation model that is characterized by estimating to 10 years, and for life, the risk of atherosclerotic disease (Cedeño et al., 2017, p.294).

Intensive care nurses face several stressors during their activities that can influence their personal and professional health. These stressors are related to making quick decisions in patient care, professional relationships, family relationships, and characteristics of their workplace (Inoue, Gomes da Silva, and Misue, 2014).

The ankle-brachial index began to be used around 1969 to assess the permeability of the arterial system of the lower region of the legs and to detect the presence of peripheral arterial disease.

- This index is a "risk predictor that has been investigated in different cohorts in Europe and North America". Aboyans et al., Citing Fowkes (2008), mention that patients with "a low ankle-brachial index have an increased risk of myocardial infarction, stroke and cardiovascular death" (Aboyans *et al*., 2012, p. 6).

Nieves, Hernández y Aguilar (2011) mention that obesity and overweight have been a health problem in Mexican nursing professionals in recent years (p.89). This pathological entity has been associated with the development of hypertension, dyslipidemia and cardiovascular disease.

Ioachimescu, Brennan, Hoar and Hoogwerf explain that "the body mass index is the marker used" most frequently to evaluate obesity in the clinic; However, this anthropometric index has the main limitation of "not distinguishing between lean and adipose tissue". For

this reason, "it has not proven to be a good predictor of cardiovascular events" (Ioachimescu et al., 2010, page 1836).

An alternative to the body mass index is the product of lipid accumulation, which can be calculated from the abdominal circumference of the subject and a number of fasting triglycerides, this being a predictor of cardiovascular death in several cohorts (Wehr, Pilz , Boehm, Marz, and Obemayer 2011).

The study evaluated the cardiovascular risk of nurses assigned to an intensive care unit (ICU) through various tables of cardiovascular risk stratification. He also measured anthropometric cardiovascular risk factors that could accelerate the development of heart disease in these health professionals.

Material and methods

A descriptive, cross-sectional study was carried out. In this study, the universe consisted of 30 nursing professionals assigned to the ICU of a third-level hospital in Mexico City, of which five were excluded (Table 1).

Tabla 1. Características de los profesionales de enfermería que laboran en UCI (n= 25)

Variable	n	%
Universo	30	
Número de profesionales incluidos[a]	25	100 %
Número de profesionales excluidos[b]	5	
Intervalo de edad (años)		
30 – 40	14	56 %
41 – 50	10	40 %
51 – 60	1	4 %
Género		
Hombre	5	20 %
Mujer	20	80 %
Turno laboral		
Matutino	7	28 %
Vespertino	6	24 %
Nocturno	12	48 %
Estado civil		
Soltero(a)	7	28 %
Casado(a)	17	68 %
Unión libre	1	4 %
Antecedentes heredofamiliares de cardiopatía o ictus		
Sí	7	28 %
No	18	72 %

Fuente: Instrumento aplicado

Nota: n= número de profesionales de enfermería; %= porcentaje.

[a] Los profesionales de enfermería incluidos cumplieron con todas las mediciones programadas.

[b] Los profesionales de enfermería excluidos habían tenido diagnóstico médico de angina de pecho o estaban en tratamiento por dislipidemia.

For the selection of the sample, a non-probabilistic sample was used for convenience. The study was approved and authorized by the Bioethics Committee of the University Center UAEM Valle de Chalco.

The research took as reference the fundamentals specified in the ethical codes of the declaration of Helsinki (2003), as well as in the guidelines described in the Regulation of the General Law of Health in the Matter of Research for Health, published in the Official Gazette of the Federation of the United Mexican States.

We evaluated 25 nurses who met the inclusion criteria, during the months of January and February of 2016.

The inclusion criteria were the following: a nursing professional over 30 years of age, who will work in any shift, without cardiovascular conditions diagnosed at the time of the study and who did not ingest cholesterol control or reductive drugs for weight control.

All nursing professionals with a previous medical diagnosis of myocardial infarction, angina pectoris, ischemic or hemorrhagic stroke, transient ischemic attack, heart failure or deep vein thrombosis were excluded.

All subjects underwent an interview based on the Pan American STEPS questionnaire for the collection of information on diet, physical activity, alcohol and tobacco consumption, as well as hereditary family history.

He anticipated the application of the interview, the informed consent of all the participants was obtained, in accordance with the principles that govern research in human beings.

The established variables were age, sex, physical activity, smoking, diabetes, body mass index, systolic blood pressure, total cholesterol, HDL cholesterol, triglycerides, abdominal perimeter, waist-height index, cardiovascular risk, vascular age, ankle-brachial index , product of lipid accumulation and level of stress.

The Pearson correlation coefficient was used to determine the relationship and direction among the various variables evaluated.

Vascular age was obtained using the risk prediction calculator of the Framingham Heart Study (FHS, 2016).

Glucose figures were determined by fasting capillary glucose measurement -with the support of the Accu-Check® Performa glycemia monitor, of Roche-y products, corroborated by a blood glucose report in blood chemistry, the person with diabetes was considered as diabetic (a) previous diagnosis, use of hypoglycaemic treatment or with fasting plasma glucose greater than or equal to 126 mg / dl.

The weight measurement was determined by means of a statistic scale with the nurse (or) in minimal clothes. Regarding the body mass index (BMI), it was considered thinness (BMI <18.4), "normal weight (BMI 18.5 to 24.9), overweight (BMI> 25 to 29.9), and obesity (BMI> 30)" (Ortiz and Hernández , 2013, p.8).

The detection of metabolic syndrome was performed using the following criteria: "abdominal circumference greater than 102 cm in men, and greater than 88 cm in women"; serum triglycerides "greater than 150 mg / dl, HDL cholesterol less than 40 mg / dl in men and less than 50 mg / dl in women, systolic blood pressure greater than 130 mmhg / and diastolic blood pressure greater than 85 mmhg; and fasting glucose greater than 100 mg/dl" (Lizarzaburu, 2013, p. 317).

The presumptive diagnosis was made when three or more criteria were presented.

Blood pressure measurement was carried out with the nurse (or) in dorsal decubitus with 20 minutes of previous rest, with the support of exact aneroid baunometer, Riester and bidirectional vascular doopler, sonoline C, 8 MHz, from Contec Medical Systems. Hypertension was considered if the blood pressure obtained was equal to or greater than 140/90 mmhg (WHO, 2008, p.17).

The measurement of the lipid profile was made by obtaining a single blood sample, with a minimum fasting of 12 hours, which was sent immediately to a private laboratory for centrifugation and analysis by spectrophotometric technique.

The presence of dyslipidemia was considered under the following criteria:

1. Total cholesterol> 200 mg / dl.
2. Triglycerides> of 150 mg / dl.
3. HDL cholesterol <40 mg / dl (in men) and <50 mg / dl (in women).

4. LDL cholesterol> of 100 mg/dl (Escobedo, de Jesús, Schargrodsky y Champagne, 2014, p. 130).

The measurement of the abdominal perimeter was made with the nurse standing around the abdomen at the midpoint between the iliac crest and the last rib at the navel, making sure that the tape was parallel to the abdomen. floor.

For the evaluation of the abdominal perimeter, it was considered as a high risk perimeter that greater than 102 centimeters in men and greater than 88 centimeters in women (Aráuz, Guzmán and Roselló, 2013).

Regarding the waist-height index, this index was considered as a reference value for cardiometabolic risk above 0.5 (Luengo, Urbano and Pérez, 2009).

For the evaluation of cardiovascular risk in nursing professionals, the online calculator of the Framingham Heart Study was used to establish the risk of developing a cardiovascular event in 10 years (FHS, 2016) in conjunction with the WHO / ISH table (WHO , 2008, p.13) and the ASCVD score application of the American College of Cardiology (ACC / AHA, 2016), classifying as risk under the scores lower than 10%; moderate risk between 10 and 20%; and high risk scores greater than 20%.

The ankle-brachial index was determined with bidirectional vascular doopler of 8 Mhz and a sphygmomanometer, with the nurse (or) in dorsal decubitus. The ankle-brachial index figures between "0.90 and 1.30 were considered normal", and the values "above 1.30 or below 0.90" were considered diagnoses of atherosclerotic vascular disease (Maggi, Quadros, Azzolin, and Golmeier, 2014, p.222).

The lipid accumulation product was determined by measuring the abdominal circumference and the serum measurement of fasting circulating triglycerides. The reference figure was calculated using the following formula: "(Abdominal circumference in cm - 65) x (Triglycerides in mmol / l) for men and (Abdominal circumference in cm - 58) x (Triglycerides in mmol / l) for women" (Ioachimescu et al., 2010, p.1837).

To quantify the psychological stress level of the nursing professional, the Holmes and Rahe social readjustment scale was used to evaluate the stressful life events that the nursing professionals go through and, based on this score, to predict the probability they had of get sick in a short time (Suárez, 2010).

The cost of tests, material and equipment used were assumed in full by the researchers.

Results

The nursing professionals assigned to the ICU were in an age range between 30 and 54 years, with an average age of 39.6 years, with women predominating compared to men.

Regarding cardiovascular risk, calculated using the Framingham scale, the observed interval was from 0.6% to 9%, while with ASCVD score -a to 10 years- the average was 1.4% and the cardiovascular risk for a lifetime- average- was 34.7%. On the other hand, the risk calculated for a lifetime if the nurse had controlled risk factors on average was 7.6%, categorizing the nursing professionals in a low cardiovascular risk category (Table 2).

Tabla 2. Riesgo cardiovascular de los profesionales de enfermería que laboran en UCI (n= 25)

Nombre del puntaje	n	Riesgo cardiovascular en (%)[a]
Framingham score	22	0.1 – 5.0 %
	3	5.1 – 10 %
ASCVD score	20	0.1 – 2.4 %
	5	2.5 – 5.0 %
OMS / ISH score	25	< 10 %
ASCVD score de toda la vida		Riesgo cardiovascular en (%)[b]
	5	8 %
	3	27 %
	12	39 %
	2	46 %
	1	50 %
	2	69 %

Fuente: Base de datos del estudio riesgo cardiovascular en profesionales de enfermería que laboran en una Terapia Intensiva

Nota: n= número de profesionales de enfermería.

[a] Riesgo cardiovascular en (%)[a] probabilidad de padecer o morir a causa de infarto agudo al miocardio, angina inestable o accidente vascular cerebral a 10 años, utilizando perfil de lípidos como biomarcador sérico.

[b] Riesgo cardiovascular en (%)[b] probabilidad de padecer o morir a causa de infarto agudo al miocardio, angina inestable o accidente vascular cerebral para toda la vida del sujeto utilizando perfil de lípidos como biomarcador sérico.

Regarding the prevalence of family history of coronary heart disease and stroke, 20% (five) of the nursing professionals reported a history of myocardial infarction in a first-degree relative and only 8% (two) reported having a family history of stroke.

In relation to the ankle-brachial index, seven professionals presented one less than 0.9 classified as peripheral arterial disease, despite not reporting any symptoms in the extremities (Figure 1).

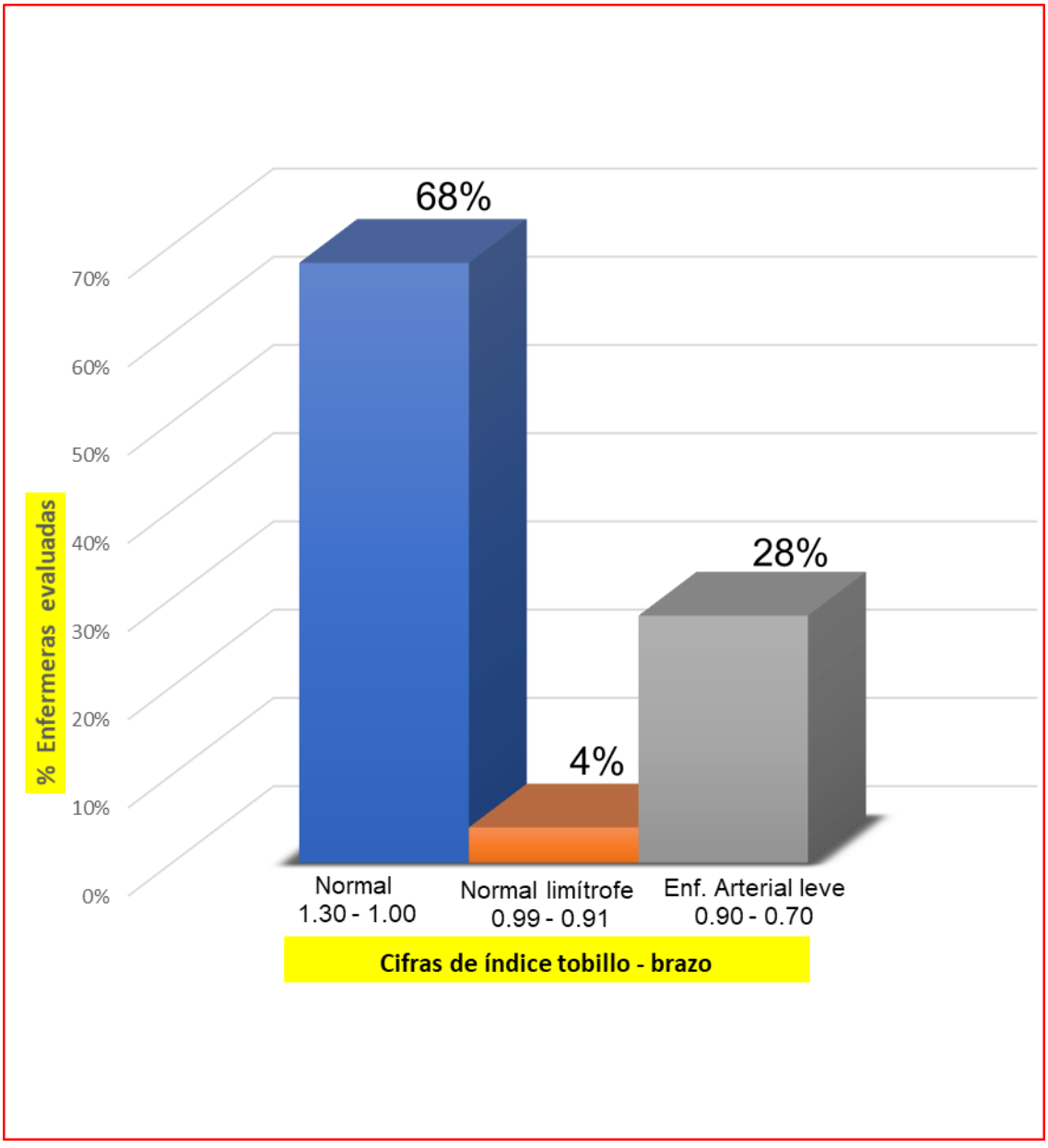
The totality (25) of the nursing professionals did not present hypertension problems. However, it is important to note that 8% (two) of them were in the prehypertensive group (120-139 mmhg / 80-89mmhg).

On the other hand, 96% (24) of the participants do not know the allowable salt intake in 24 hours indicated by the WHO (less than 5 g / day) and 24% (six) consume, often, processed foods high in content of sodium.

Regarding the lipid accumulation product LAP, the average number of nurses was 69.9 centimeters per mmol / L; presenting coronary risk figures in 60% (15) of the population (Figure 2).

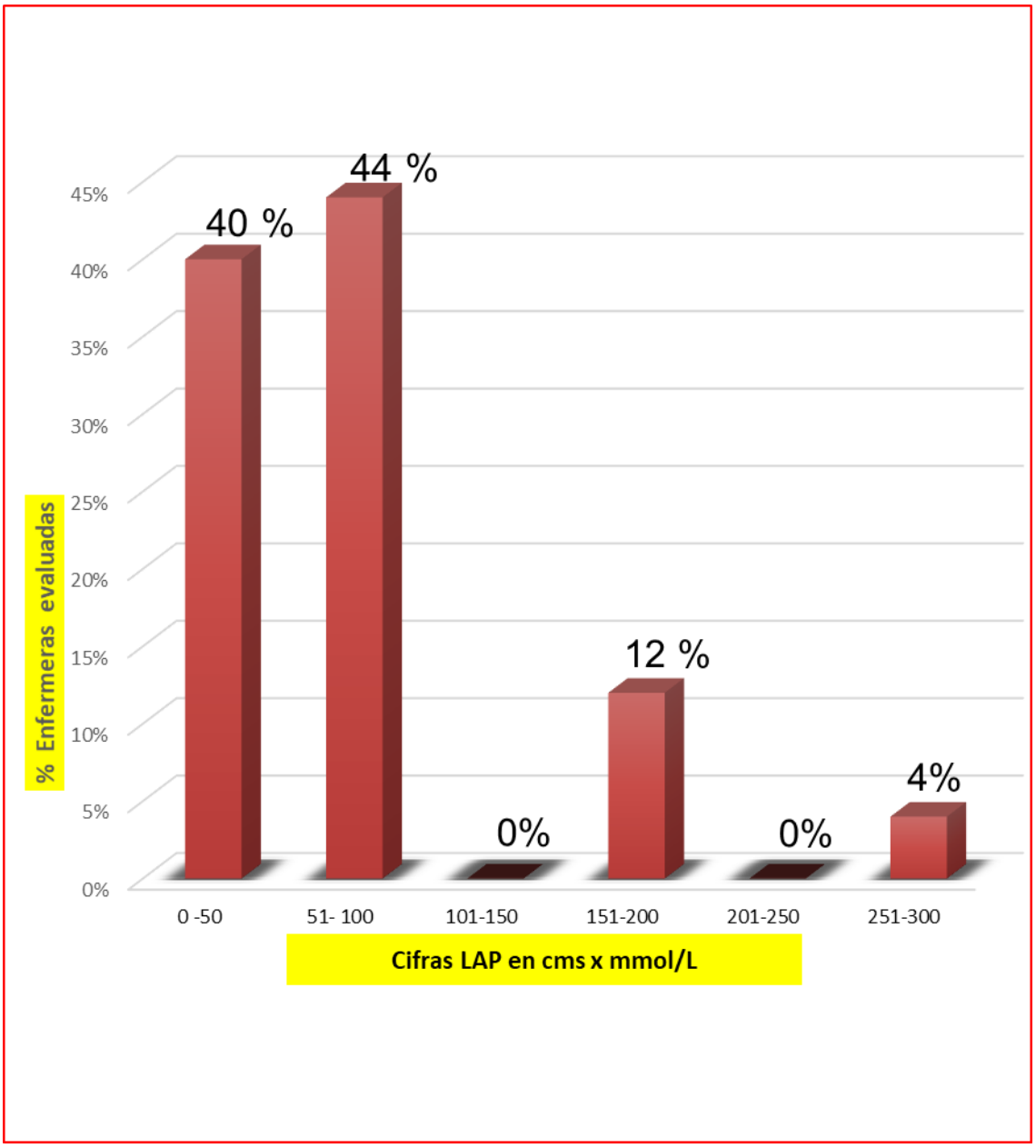
Regarding the lipid profile used as a serum biomarker, it was observed that 24% (six) showed an increase in the total cholesterol levels; 56% (14) of the population showed a decrease in HDL cholesterol and 36% (nine) had serum levels of risk in triglycerides.

Figura 1. Clasificación de los profesionales de enfermería basada en índice tobillo – brazo (n= 25).



Fuente: Cifra obtenida por medición directa con baumanometro y doopler vascular bidireccional de 8 MHz.

Figura 2. Cifras de producto de acumulación de lípidos LAP en los profesionales de enfermería (n= 25).



Fuente: Cifra calculada a partir de la circunferencia abdominal en cms y triglicéridos séricos en ayuno.

The average value of fasting basal glycemia in nurses was 93.6mg / dl, with high basal glycemia values (100-125 mg / dl) in 28% (seven) of the study population and hyperglycemia (> 126 mg / day). dl) in 4% (one).

Regarding physical activity, 64% (16) of nursing professionals have sedentary problems, with an average inactivity time of 218.4 minutes - 23.6 minutes of physical activity per day.

Regarding BMI, a predominance of overweight in men and obesity in women was found (Figure 3).

The average abdominal perimeter of women was 94.5 cm, while in men it was 100.4 cm.

The waist-height index of nursing professionals averaged 0.6, presenting values higher than 0.5 in 84% (21) of the professionals evaluated.

Likewise, 28% (seven) of the nurses evaluated presented metabolic syndrome.

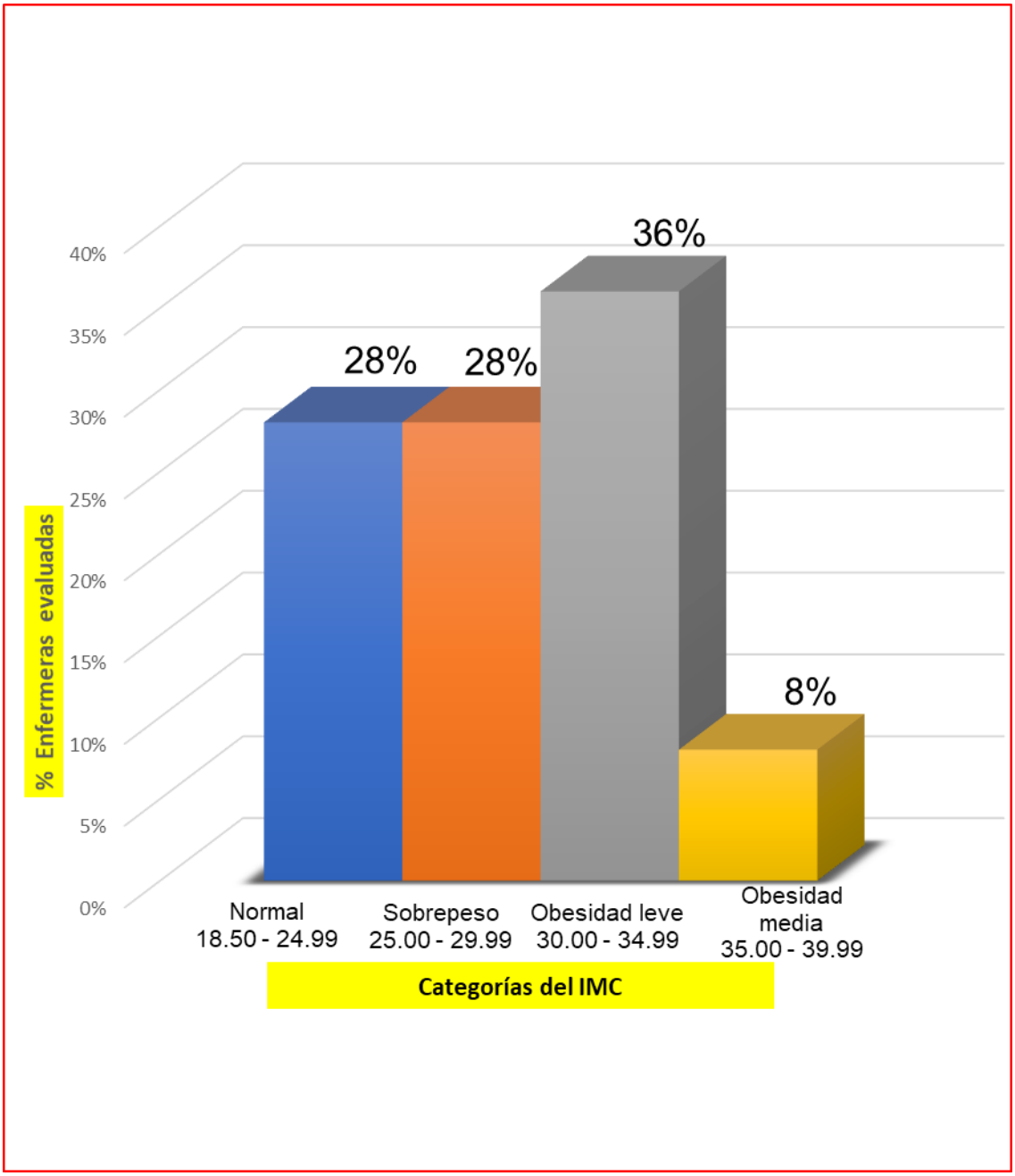
Regarding vascular age, the mean of the population was 36.7 years; 32% (eight) of the nurses had a vascular age greater than their chronological age.

In relation to smoking, 28% (seven) of nursing professionals are smokers. This habit is more prevalent in women compared to men; the average age of onset of this habit was 17 years.

Regarding the level of stress -calculated using the Holmes and Rahe scale-, we found that 40% (10) of the nurses assigned to the ICU had high levels of stress, which translates into 80% risk of health loss in the two subsequent years because of stress. The highest-rated life events among nursing professionals were changes in the health status of a family member, 76% (19); changes in the habit of sleeping, 68% (17); changes in the economic situation, 56% (14); changes in eating habits, 48% (12); poor relationship with the spouse, 36% (nine) and change of responsibility at work, 28% (seven).

Regarding the allocation shift, 48% (12) of the nurses work in the night shift, 28% (seven) in the morning shift and 24% (six) in the evening shift.

Figura 3. Clasificación de los profesionales de enfermería basado en índice de masa corporal (n= 25).



Fuente: Índice calculado mediante fórmula de Quetelet tomando en consideración peso y talla.

Discussion

Currently, there is a wide variety of tables for the estimation of cardiovascular risk, such as SCORE, Q-RISK1, ASSIGN, among others (Hippisley et al., 2008). However, the Framingham score was chosen because it is the most widely used table in the world and the most used in Latin American studies (Calderón, Aranguren, Gerónimo and Castañea, 2012, Giraldo, Martínez and Granada, 2011), being a benchmark for other estimation tables such as the ASCVD Score and the WHO / ISH table, validated for the subcategory B region of the Americas, in which Mexico is located (WHO, 2008).

When applying the Framingham score in this study, it could be observed that the nursing professionals assigned to the ICU presented a low cardiovascular risk, the results of this study being similar to those found by Sifuentes, Sosa, Pérez and Parra (2011), who found a low cardiovascular risk in a group of nurses assigned to a surgical area, finding as main coronary risk factors the reduction of HDL cholesterol, smoking and hypertension.

However, this study - unlike that of Sifuentes et al. (2011) or Calderón et al. (2012) - used three different tables in the estimation of cardiovascular risk that were concordant among themselves due to their level of correlation, as well as the scores obtained, avoiding overestimation of coronary risk.

On the other hand, the recognition of peripheral arterial disease, through the ankle-brachial index, is not only a sensitive marker of systemic atherosclerosis, but also an important marker in the detection of fatal and non-fatal cardiovascular events (Cantú et al. , 2011), making it an important risk factor for application in clinical practice.

In this sense, in the present study, the detection of peripheral arterial disease showing the usefulness of the ankle-brachial index in the reclassification of people with low cardiovascular risk, as indicated by Baena et al. (2011) in a multicenter study in Spain.

The product of lipid accumulation is an index based on the combination of two measurements: the abdominal circumference, and the serum measurement of triglycerides; both parameters have been associated with metabolic resistance to insulin and cardiovascular risk (Wehr, 2011).

Ioachimescu et al. (2010) described the utility of this anthropometric index in a cohort of 5,924 patients in Cleveland, noting that the lipid accumulation product LAP is a strong

predictor of cardiovascular mortality. In the case of this study, we found LAP risk figures (> 40.0) in the population studied.

Regarding the level of stress, it was observed that a high percentage of nursing professionals presented high levels of stress, placing them in a position of high risk of cerebrovascular disease (Henderson et al., 2013), coinciding with the study carried out by Zhang et al. (2014), who found high levels of burnout, emotional exhaustion and depersonalization in a sample of intensivist nurses - also young - from 10 tertiary level hospitals in Liaoning, China. The data from both studies show that the stress levels shown in ICU nurses are associated with the work environment, social support, and coping strategies.

It was not an objective of the study to recommend the cardiovascular risk scores used as an absolute method for the stratification of cardiovascular risk in the Mexican population, because these functions are based on American cohorts with a mortality similar to the one shown here. However, it is important to point out that the joint use of these scales -in combination with the anthropometric indexes- added risk factors for coronary disease that are not contemplated by the classic scales of cardiovascular risk prediction, but that contribute to the estimation of the coronary risk, being applicable in the absence of functions specific to Mexico. The study shows the usefulness of emerging risk factors described in recent years -such as the ankle-brachial index, the product of lipid accumulation and the abdomen height index- that can improve the screening of cardiovascular risk, as well as being non-invasive techniques. of low cost, and of greater accessibility, unlike other studies such as quantification of coronary arterial calcium by CT and measurement of C-reactive protein.

Conclusion

Nursing professionals, despite having a low cardiovascular risk, showed other independent anthropometric risk factors for the development of coronary heart disease. This situation must be considered when assessing the nursing professional and thus influence the primary prevention of cardiovascular disease of this important health professional.

Since cardiovascular diseases are the main causes of morbidity and mortality worldwide, it is very important to develop studies that improve the prevention of these diseases, given that Mexico occupies an important place in the numbers of myocardial infarction, stroke and obesity.

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Rol de contribución	**Autor (es)**
Conceptualización	**Rafael Antonio (principal) y Eduardo**
Metodología	**Rafael Antonio**
Software	**No aplica**
Validación	**Rafael Antonio y Eduardo (igual)**
Análisis Formal	**Rafael Antonio (principal) y Ihosvany (apoyo)**
Investigación	**Eduardo y Rafael Antonio (igual)**
Recursos	**María Cristina y Gloria (igual)**
Curación de Datos	**Eduardo y María Cristina (igual)**
Escritura-Preparación del borrador original	**Eduardo (principal) Ihosvany (apoyo)**
Escritura-Revisión y edición	**Rafael Antonio y Eduardo (igual)**
Visualización	**Ihosvany y Gloria (igual)**
Supervisión	**Rafael Antonio (principal) y Gloria (apoyo)**
Administración de Proyectos	**Rafael Antonio y Eduardo (igual)**
Adquisición de fondos	**No aplica**