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Evaluation of the actions of the Hiperdia program for hypertensive patients

Avaliação das ações do programa Hiperdia para pacientes hipertensos

Evaluación de las acciones del programa Hiperdia para pacientes hipertensos

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This is a quantitative, descriptive and exploratory study, aimed at evaluating the influence of the actions of the program HIPERDIA in the quality of life of hypertensive patients in a city in the Triângulo Mineiro, from 2013 to 2016. It used sociodemographic and health questionnaires, blood collection, as well as educational interventions. Four hundred and five hypertensive patients (18.4% of those registered in the city) participated in the study. Diabetes was significantly higher among hypertensive patients (41.98%) than in normotensive ones. The same was true for eyesight (58.77%) and cardiac (26.17%) problems. In 61.14% of cases, despite the medication, blood pressure was not under control. Other relevant risk factors were: sedentarism (63.46%), obese and overweight patients (80.72%), and abdominal circumference measurements (88.3%). Users of the HIPERDIA have risk factors for ischemic complications that could be cut down if they adhered better to the practices encouraged by the Program.
Descriptors: Unified Health System; Health centers; Risk factors; Hypertension.

Este é um estudo quantitativo, descritivo e exploratório com o objetivo de avaliar a influência das ações do HIPERDIA na qualidade de vida dos pacientes hipertensos de uma cidade do Triângulo Mineiro, realizado entre 2013 e 2016. Utilizou-se questionário sociodemográfico e de saúde, coletas de sangue, bem como intervenção educativa. Quatrocentos e cinco hipertensos (18,4% do total dos cadastrados na cidade) participaram do estudo. Diabetes foi significativamente maior nos pacientes hipertensos (41,98%) do que nos normotensos, assim como problemas visuais (58,77%) e cardíacos (26,17%). Em 61,14% dos casos, apesar da medicação, a pressão arterial não estava controlada. Outros fatores de risco relevantes foram: sedentarismo (63,46%), sobrepeso e obesidade (80,72%), e medida da circunferência abdominal (88,3%). Conclui-se que os usuários do HIPERDIA apresentam fatores de risco para complicações isquêmicas que poderiam ser reduzidos com melhor adesão às práticas incentivadas pelo Programa.
Descritores: Sistema Único de Saúde; Centros de saúde; Fatores de risco; Hipertensão.

Este es un estudio cuantitativo, descriptivo y exploratorio con el objetivo de evaluar la influencia de las acciones del HIPERDIA en la calidad de vida de los pacientes hipertensos de una ciudad del Triângulo Mineiro, realizado entre 2013 y 2016. Se utilizó un cuestionario sociodemográfico y de salud, colectas de sangre, así como intervención educativa. Cuatrocientos cinco hipertensos (18,4% del total de los registrados en la ciudad) participaron en el estudio. La diabetes fue significativamente mayor en los pacientes hipertensos (41,98%) que los normotensos, así como problemas visuales (58,77%) y cardíacos (26,17%). En el 61,14% de los casos, a pesar de la mediación, la presión arterial no estaba controlada. Otros factores de riesgo relevantes fueron: sedentarismo (63,46%), sobrepeso y obesidad (80,72%) y medida de la circunferencia abdominal (88,3%). Se concluye que los usuarios del HIPERDIA presentan factores de riesgo para complicaciones isquémicas que podrían ser reducidos con mejor adhesión a las prácticas incentivadas por el Programa.
Descriptores: Sistema Único de Salud; Centros de salud; Factores de riesgo; Hipertensión.

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INTRODUCTION

Systemic arterial hypertension (SAH) is a clinical and multi-factorial condition characterized by elevated levels of blood pressure (BP). Its diagnostic is established through the measurement of systolic BP of 140mmHg or above and diastolic BP of 90mmHg or above, without the use of any anti-hypertensive medication.

This disease is a serious health problem and one of the main chronic diseases responsible for hospitalizations. It leads to high costs associated to its morbimortality and to commitments to the quality of life of the people who are affected by it, since it progresses slowly and continuously, generally making it so patients manifest symptoms late, when cardiovascular problems are already installed[1-4].

It is also known as one of the most common risk factors for the development of coronary arterial diseases, strokes, peripheral vascular disease, kidney failure and congestive heart failure.

Worldwide, 26.4% of the population is estimated to be hypertensive. In Brazil, the prevalence varies from 22.3 to 43.9% and nearly 30% of the deaths by known causes are due to cardiovascular diseases[1,4,5].

Due to the severity of the SAH, the Brazilian federal government created the HIPERDIA (National Program for Attention to Hypertension and Diabetes mellitus), a national health care program for hypertensive and diabetic patients, which is a system of registration and monitoring of such patients through the Primary Health Care Units (UBS) of each city. Medications and multi-professional teams were made available for periodical meetings about health care regarding diet, the practice of physical activities and healthy life habits[6,7].

The objective of the program is to diminish the number of hospitalizations, the search for emergency care units, the expenditures with treatments and complications, early retirement and cardiovascular mortality, with a consequent improvement in the quality of life of those affected by these diseases[1].

Since the implantation of the program in 2002, the incidence of hospitalizations due to ischemic strokes (IS) diminished substantially in the country6. Considering that the HIPERDIA program offers information/healthy daily life habits for its users (hypertensive and/or diabetics), and that these can help in the diminution of the risk factors for the IS, this study aims to evaluate the influence of the HIPERDIA actions in the quality of life of the hypertensive patients of a city in the Triângulo Mineiro region.

METHOD

This is a quantitative, descriptive and exploratory study, conducted in the UBSs in the city of Uberaba, from August 2013 to April 2016, including hypertensive individuals who participated in the HIPERDIA program. Normotensive volunteers, workers in the Service of Clinical Pathology at the GH of the Triângulo Mineiro Federal University (UFTM), EBSERH branch, were also included.

Aiming to clarify the patients cared for in the HIPERDIA, in the different UBS, about health and SAH, short and simple speeches were presented with the participants. This activity was conducted together with the entire health team of the UBS units.

All those who participated in the study signed the Free and Informed Consent Form, after being informed of the objectives of the research and guided about them in an accessible language.

All patients and volunteers filled in a questionnaire containing data on physical activities, smoking, drinking, diabetes, kidney problems, dyslipidemia, medications being used, obesity, whether they ever lived in rural areas, eating habits, in addition to personal data, such as name, ID number, date of birth, gender, address and phone number. Previous ECG and x-ray data were also obtained, in cases where the patient had already undergone these exams.

Blood pressure was measured from all the patients, in sitting position and laying down, from both arms. It indicated good parameters if the BP was ≤ 140 × 90mmHg, which is in accordance to the

recommendations of the 7th Brazilian Directive of Arterial Hypertension (2016)[4]. It was measured with a digital wrist equipment by G-Tech, model BP3AF1-3, batch 1710, approved by the National Institute of Metrology Standardization and Industrial Quality (INMETRO). Weight and height (for calculating the BMI) and abdominal circumference measure were extracted from the users' records.

Numerical data were analyzed through t-tests or Mann-Whitney's, to compare the normotensive and hypertensive groups. Regarding categorical data, the groups were compared using the chi-square test. The statistical analysis was conducted using the software Statistica 10.0 (Statsoft, Tulsa, OK, 2011), and significant results were those with a p-value < 0.05.

RESULTS

During the study, 24 out of the 26 public care units were visited (92.3%), including urban and rural units, including UBS, Parent Health Units (UMS) and Family Health Units (USF), spread among three districts in the city.

During the 110 visits conducted, an average of 20 patients a day participated in the HIPERDIA. In this period, about 2,200 hypertensive (H) patients were approached, of which only 18.4% (n=405) participated in the research project. In addition to these, 17 normotensive people agreed to participated as well, and formed the control group that enabled the realization of some comparisons. In addition to the patients, professionals from the HIPERDIA teams also participated in the activities of education in health, to a total of nearly 25 nurses, 40 nursing technicians and 120 health agents.

The evaluation of the data in the questionnaires answered by the patients of the study indicated that 61.7% (n=250) of the hypertensive ones and 70.6% (n=12) of the normotensive ones were at least 60 years old, with a mean age of 56.93 for the hypertensive group and 52.47 for the normotensive group (p-value=0.118). It stood out that 19.51% (n=79) of the hypertensive patients were from 36 to 50 years of age and 3.95% (n=16) were from 26 to 35 years of age. Regarding their gender, 73.7% and 58.8% of the hypertensive and normotensive patients, respectively, were women.

Regarding other comorbidities or metabolic disorders, 41.98% of the hypertensive patients had diabetes (p-value<0.001), 50.37% had dyslipidemia, 58.77% had eyesight problems (p-value<0.001) and 14.57% had kidney problems. Among the hypertensive patients, only 52.8% had results of previous ECG and x-rays, 26.17% of which were abnormal (p-value=0.019). Significant differences concerning the risk factors for hypertension among hypertensive and normotensive groups can be found in Table 1.

Regarding their life habits, 64.52% of hypertensive patients and 100% of normotensive ones informed that they have up to three meals a day (p-value=0.003). In addition, 40.05% of the hypertensive patients and 17.65% of normotensive ones consume little to no fruit. Among the hypertensive patients, 39.55% informed that they do not follow the low-sodium diet, and even though they are hypertensive, 19.75% drink alcohol and 18.02% are smokers (Table 1).

Regarding the practice of physical activities, only 36.54% regularly practice them, while normotensive patients do it in 76.47% of cases (p-value=0.001). The body mass index of hypertensive patients showed that 80.72% of them are overweight or obese, while only 52.94% of the normotensive ones are in these same categories (p-value=0.013). An additional measurement was the abdominal circumference, which was abnormal for most patients, both hypertensive and normotensive ones, to a total of, respectively, 88.3% and 52.94%, p-value<0.001 (Table 1).

Concerning the pressure levels of hypertensive patients, their median was 130x80mmHg, within normal limits. However, minimum and maximum levels of BP were 83 and 240mmHg (systolic) and 57 and 135 mmHg (diastolic), respectively. Thus, the pressure levels of hypertensive patients who were using medication and stayed above 140mmHg x 90mmHg were compared to those with BP below these levels. It was found

that in 61.14% (n=247) of cases, the BP was not controlled even with the use of medication. The comparison of the risk factors between the hypertensive patients with and without controlled BP showed a significant association between an abnormal abdominal circumference and hypertensive patients with uncontrolled BP (p-value=0.002).

Table 1. Risk factors and life habits of hypertensive patients cared for in the HIPERDIA program in the Primary Health Units. Uberaba, from Augusto 2013 to April 2016.

Risk factors	Hypertensive		Normotensive		*p*-value
	n	**%**	**n**	**%**	
Diabetes	170	41.98	0	0.0	**< 0.001**
Kidney problems	59	14.57	0	0.0	0.090
Dyslipidemias	204	50.37	6	35.29	0.223
Visual problems	238	58.77	2	11.76	**< 0.001**
Abnormal ECG/x-ray	56	26.17	0	0.0	**0.019**
Up to three meals a day	251	64.52	16	100.00	**0.003**
No low-salt diet	159	39.55	6	35.29	0.725
Low or no fruit consumption	161	40.05	3	17.65	0.110
Alcohol consumption	80	19.75	5	29.41	0.331
Smoker	73	18.02	3	17.65	0.968
Practices physical activities regularly	148	36.54	13	76.47	**0.001**
Overweight/Obese	314	80.72	9	52.94	**0.013**
Abnormal abdominal circumference	332	88.30	9	52.94	**< 0.001**

*ECG> Electrocardiogram; Reference abdominal circumference values (WHO): ≤94cm (men) e ≤80cm (women); p-value<0.05.

A lower percentage of hypertensive individuals under controlled BP stated that they eat up to three meals a day (p-value=0.003) and a much higher percentage (p-value =0.022) did not follow a low-salt diet, showing that other factors, in addition to eating habits, certainly influence the BP of the patients (Table 2).

Table 2. Risk factors and life habits of hypertensive patients with controlled and uncontrolled BP cared for in the HIPERDIA program in the Primary Health Units in Uberaba from August 2013 to April 2016.

Risk factors	Hypertensive with controlled BP		Hypertensive with uncontrolled BP		*p*-value
	n	**%**	**n**	**%**	
Diabetes	65	41.40	104	42.11	0.889
Kidney problems	28	17.83	31	12.55	0.143
Dyslipidemias	84	53.50	120	48.58	0.335
Visual problems	83	52.87	154	62.35	0.059
Abnormal ECG/x-ray	23	30.26	33	24.09	0.327
Up to three meals a day	82	55.41	169	70.42	**0.003**
No low-salt diet	72	46.75	87	35.22	**0.022**
Low or no fruit consumption	69	44.81	91	36.84	0.139
Alcohol consumption	27	17.20	52	21.05	0.341
Smoker	31	19.75	42	17.00	0.486
Practices physical activities regularly	58	36.94	89	36.03	0.853
Overweight/Obese	117	78.00	197	82.43	0.344
Abnormal abdominal circumference	116	81.69	215	92.27	**0.002**

*ECG> Electrocardiogram; Reference abdominal circumference values (WHO): ≤94cm (men) e ≤80cm (women); p-value<0.05.

DISCUSSION

The work conducted in the UBS was well-received by the Family Health Teams (ESF), which included the theme of the research in the didactic activity of the HIPERDIA, showing that educational programs, such as this one, are important to encourage health professionals and promote better care.

However, a low percentage of patients participated (18.4%), mentioning many reasons, such as: fear that blood collection would find they have some disease, need to go back home fast to care for a sick partner or grandchildren, work, among others. Participation was at its peak in places where the nursing team encouraged the patients to participate, since the patients trust them.

Most hypertensive people were older than 51 years old, as expected. However, patients from 18-50 years of age also participated in the study in expressive numbers (23.7%, n=96), confirming that the SAH is a serious public health problem, since it affects people in a productive stage of their lives. The heterogeneity of the hypertensive group with regards to their age can be partially explained by the fact that the ESF perform active searches for patients and refers them for attention in the health units according to the cases[8].

A higher frequency of females corroborates other studies[9-11]. For instance, in another research involving HIPERDIA, 69.4% of women participated. In a study to evaluate the connections between physical activities and anthropometric indexes of hypertensive and diabetic patients, 66.25% of patients were female[10]. In another research, which aimed to associate risk factors and complications in hypertensive and diabetic patients, women represented 73.6% This data indicates that women seek health units more frequently than men, even when it comes to follow-up treatments, and are more concerned about their health.

Diabetes was a common and significant comorbidity among hypertensive patients, at a higher rate (41.97%) than the one found in similar works 31%[9] and 33.5%[12], and closer to the rates mentioned in the 7th Brazilian Directive of Arterial Hypertension[4], according

to which the chances of association between diabetes and hypertension are near to 50%.

Such an association is worrying, since both diseases have micro- and macrovascular lesion mechanisms that can lead to important cardio-cerebral-vascular accidents[4]. Hypertensive patients with uncontrolled BP had diabetes as frequently as those who were controlled (41.11% and 41.40%, respectively), a result that does not corroborate the one found in another study, which found direct associations between uncontrolled hypertensive patients and diabetes[9].

Another significant association found in this study was regarding visual problems, which were more common in hypertensive patients than in normotensive ones. In addition, it was higher among hypertensive patients with uncontrolled BP, even with the use of medication, than it was among those with controlled BP, though this result lacked statistical significance.

Kidney problems were found in 14.57% of hypertensive patients, but there was no statistical significance. Perhaps the low levels of kidney complications are due to the fact that the patients are monitored in the HIPERDIA program, considering that hypertension is known as the most important risk factor for the progression of kidney lesions in the population, whether or not they are diabetic[13].

Concerning life habits, excessive weight and obesity, abdominal circumference measurements, sedentarism and up to three meals a day were factors associated to hypertensive patients.

In this population, 19.75% and 18.02% of patients consumed alcohol and smoked, respectively, but there was no significant association between these results and hypertension. These data are according to other studies that show that obesity, sedentarism, and the increase in the abdominal circumference are important risk factors not only for SAH, but also for ischemic strokes and others[10-12,14].

On the other hand, it is widely known that the practice of physical activities helps not only to prevent SAH, but in drug-free treatments for it, as well as in the control of pressure levels[15,16].

In the analysis of risk factors between hypertensive patients with controlled or uncontrolled BP, it was found that the latter had higher abdominal circumferences (p-value=0,002). However, no association was found between sedentarism and excessive weight and obesity, nor was any found regarding adequate BP control.

Most hypertensive patients with uncontrolled BP had up to three meals a day and did not maintain low-salt diets, which demonstrated that, although low-salt diets are essential to help control the BP, there are other factors, such as genetic ones and low treatment adhesion, that are responsible for maintaining altered BP levels.

The fact that inadequate BP controls were found[9] suggests that the HIPERDIA program, despite contributing to diminish strokes in Brazil[6], still needs to improve their strategy to sensitize the population to care for their health and encourage and train better its health agents, so they can have their best performance together with the population.

CONCLUSION

This study allowed for the identification of risk factors connected to HIPERDIA users, such as diabetes, difficult to improve visual and cardiac problems (abnormal ECGs and x-rays), and other factors, such as sedentarism, excessive weight/obesity, increased abdominal circumferences and BP control, all of which could be reduced if the users adhered more to the practices encouraged by the Program.

This shows that, despite the importance of HIPERDIA actions, they have not been able to raise the awareness of some of the users so that these users can take measures to diminish the complications of SAH, whether or not these are associated to diabetes.

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CONTRIBUTIONS

Anderson de Oliveira Vieira took part in data collection, blood collection and in the educational intervention. **Gabriel Antônio Nogueira Nascentes** participated in the statistical analyses. **Dalmo Correia** contributed in the conception of the project. **Marlene Cabrine-Santos** took part in the conception and coordination of the project. **Fabiana Bernadelli de Andrade** collaborated in the organization of the samples of the study.

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