Compliance with outpatient clinical treatment of hypertension

Adesão ao tratamento clínico ambulatorial da hipertensão arterial sistêmica

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Abstract

Objective: Assessing the compliance with outpatient treatment of hypertension.

Methods: Cross-sectional study in which were studied demographic and socioeconomic variables, as well as of knowledge about the disease. The Morisky-Green Test (MGT) was applied to measure the compliance with treatment, and multiple logistic regression to identify factors associated with it.

Results: There was homogeneity between compliance/non-compliance regarding gender, age, marital status, color/race, education, professional activity, number of people in the household and occupation. There was a significant association between income and compliance with treatment (p = 0.039). The hypertensive subjects guided by the community health agents had 2.21 times greater risk of non-compliance with medication compared to those guided by the team and adjustment to income of the subjects non-compliant with medication (OR = 2.21, CI 1.08 -4, 85, p = 0.033).

Conclusion: Income and the guidance provided by community health agents interfered in the compliance with treatment, requiring training and the offer of fundraising practices and lifestyle changes.

Resumo

Objetivo: Analisar adesão ao tratamento clínico ambulatorial da hipertensão arterial.

Métodos: Estudo transversal, onde foram estudadas variáveis demográficas, socioeconômicas e de conhecimento sobre a doença. Aplicou-se Teste de *Morisky-Green* (TMG) para medir adesão, e regressão logística múltipla, identificando os fatores associados à adesão.

Resultados: Observou-se homogeneidade entre adesão/não adesão quanto ao sexo, faixa etária, estado civil, cor/raça, escolaridade, atividade profissional, número de pessoas na casa e ocupação. Evidenciou-se associação significativa entre renda e adesão ao tratamento (p=0,039). Os hipertensos orientados pelos agentes comunitários de saúde apresentaram 2,21 vezes mais chance de não adesão à medicação quando comparados aos orientados pela equipe e ajustados a renda de não/adesão à medicação (OR= 2,21; IC 1,08 -4,85; p=0,033).

Conclusão: A renda e as orientações prestadas pelos agentes comunitários de saúde interferiram na adesão, havendo necessidade de capacitação e oferecimento de práticas de captação de renda e mudança de hábitos.

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Introduction

Systemic hypertension is correlated to clinical complications that lead a significant number of Brazilians to die. Many complications could have been avoided and/or minimized, such as acute myocardial infarction, cerebrovascular accident and kidney failure, with precocious compliance with a treatment plan.[1]

The rates are alarming and account for a major cause of death in the country. The mortality rate from diseases of the circulatory system is increasing every year. Between the years of 2000 and 2011, the number of deaths increased by 28.6% and in 2011, ischemic heart diseases and cerebrovascular diseases accounted for 61% of deaths in this category. In addition, cardiovascular diseases are responsible for sequelae and complications that impair the performance of these citizens in their own lives, in the lives of their families and ultimately in society as a whole.[2,3]

Studies indicate that low compliance with treatment is present in 50% of cases of decompensated hypertensive patients and this fact has been as a barrier to blood pressure control in this population.[1,4]

An important factor for determining interference in care for people with chronic diseases is related to the terms *adherence* and *compliance*. Although interconnected and relating to the same action, they differ because they indicate the act (compliance) and the effect (adherence) of this action. Thus, compliance with treatment of a disease means to follow the treatment exactly as proposed by health professionals. [4]

It is important to conduct studies on the subject of compliance that identify the influences of human behavior and the socioeconomic structure for non-compliance with a treatment regimen for hypertension considered relatively simple and sustained on the triad of medication, balanced diet and physical activity.

Thus, specific interventions can be made in the monitoring of this population, such as enforcing public health programs and establishing quality indicators, and then evaluate those programs.

The aim of this study was to assess the compliance with clinical treatment of hypertension in the population assisted by a unit of the Family Health Strategy (ESF - Estratégia de Saúde da Família).

Methods

This is a cross-sectional study carried out in a unit of the Family Health Strategy in the city of Montes Claros, Minas Gerais, southeastern Brazil. Initially, was used the Clinical Management System of Hypertension and *Diabetes Mellitus* of the Primary Care (SIS-HIPERDIA - Sistema de Gestão Clínica de Hipertensão Arterial e *Diabetes Mellitus* da Atenção Básica).

In total, participated of the study 140 people in outpatient treatment for arterial hypertension and residents of the covered area. It was a non-probabilistic sample, and those with comorbidities were excluded.

The used instruments were related to socio-clinical and epidemiological variables, linked to the Morisky-Green test validated in Brazil, which assesses the attitudes of patients about the drug treatment of hypertension.[5]

Variables related to the object of the study were presented using descriptive statistics. The Pearson's Chi-squared test or the Fisher's exact test were used for the comparison between compliance with treatment and the other variables.

In multivariate analysis, the dependent variable of the research was non-compliance with treatment. The associations between the dependent variable and the study variables - socioeconomic, demographic, of lifestyle and knowledge of the disease - were established by the Pearson's chi-squared test or the Fisher's exact test.

In order to verify the factors associated with non-compliance with treatment, was used the multivariate logistic regression. Measures of risk and odds ratio (OR) were estimated for each variable individually in the model (crude OR), and also the adjusted OR by the multiple regression model. In all statistical tests was considered a significance level of 0.05. The statistical pro-

gram used was the Statistical Package for Social Science (SPSS), version 14.0.

The development of study followed the national and international standards of ethics in research involving human beings.

Results

Among the 140 investigated subjects, the majority are female (70.7%), aged between 40-49 years (42.1%), unmarried (50%). Regarding color/race, the highest proportion was declared as non-white (70.7%).

With regard to education, 94 people (67.1%) reported having completed the primary education, 17.1% were illiterate, and 15.8% had attended high school or college. With regard to occupation, the majority, or 98 subjects (70%) were classified as not economically active, being away from work or retired. A total of 119 (85%) subjects had a family income of only a minimum wage, 108 (77.1%) subjects resided in homes with fewer than five residents. In relation to the condition of property 108 (77.1%) reported living in their own house.

Analyzing both groups of compliance and non-compliance with antihypertensive treatment and the demographic variables, similarities are observed between the two regarding gender, age, marital status, and race/color (Table 1).

Table 1. Demographic characteristic and compliance with treatment

Variables	Compliance		p-value
	Yes n(%)	No n(%)	
Gender			
Male	15(36.6)	26(26.3)	0.222
Female	26(63.4)	73(73.7)	
Age (years)			
< 50	34(82.9)	75(75.8)	0.353
≥ 50	07(17.1)	24(24.2)	
Marital status			
Married	05(12.2)	10(10.1)	0.767
Unmarried	36(87.8)	89(89.9)	
Color/Race			
White	10(24.4)	21(21.2)	0.680
Non-white	31(75.6)	78(78.8)	
Total	41(100.0)	99(100.0)	

The groups are also similar with respect to education, occupation, number of people in the house and condition of employment. However, a significant association was found between the income and compliance with treatment (p = 0.039), demonstrating heterogeneity in relation to this variable (Table 2).

Table 2. Socioeconomic characteristic and compliance with treatment

Variables	Compliance		p-value
	Yes n(%)	No n(%)	
Education			
Iliterate	5(12.2)	19(19.2)	0.553
Primary school	30(73.2	64(64.6)	
Secondary school or higher	06(14.6)	16(16.2)	
Profissional activity			
Yes	14(34.1)	28(28.3)	0.491
No	27(65.9)	71(71.7)	
Family income			
< 1 minimum wage	09(22.0)	09(9.1)	0.039
≥ 1 minimum wage	32(78.0)	90(90.9)	
Number of people			
< 5 people	32(78.0)	21(21.2)	0.870
≥ 5 people	09(22.0)	78(78.8)	
Condition of housing			
Owner	30(73.2)	76(76.8)	0.471
Not owner	11(26.8)	23(23.2)	
Total	41(100.0)	99(100.0)	

The hypertensive groups of compliance and non-compliance with treatment were similar with respect to the guidance, the Body Mass Index - BMI and changes in habits after the guidance.

In relation to body mass index - BMI, 114 (81.4%) people are classified between overweight and obesity (84%), reporting to have received guidance on diet (88.6%), physical activity (84.3%), cigarette smoking (62.9%) and alcohol (60.0%), and also on the use of medicines (96.4%). In relation to the guidance received, the majority, or 94 (67.1%) subjects reported the Community Health Agent as responsible for it.

Regarding knowledge of the disease, it was observed that the groups were homogeneous for the following variables: time of diagnosis, treatment time, attendance to medical appointments and receipt of home visits (Table 3).

As for the distribution of non-compliance with treatment by hypertensive subjects associated with exclusive guidance given by the Communi-

Table 3. Knowledge about the disease

| Variables | Compliance | | p-value |
	Yes n(%)	No n(%)	
Time of diagnosis (years)			
< 9	26(63.4)	62(62.6)	0.930
≥ 9	15(36.6)	37(37.4)	
Treatment time (years)			
< 9	25(61.0)	61(61.6)	0.944
9 |– 10	16(39.0)	38(38.4)	
Attendamce to appointments			
Yes	39(95.1)	85(85.9)	0.150
No	2(4.9)	14(14.1)	
Receive home visits			
Yes	39(95.1)	95(96.0)	1.000
No	2(4.9)	4(4.0)	
Compliance with treatment (self-reported)			
Yes	41(100.0)	69(69.7)	-
No	0	30(30.3)	
Total	41(100.0)	99(100.0)	

ty Health Agent (ACS – Agente Comunitário de Saúde), the hypertensive were 2.21 times more likely of 'non-compliance' with treatment compared to those not advised by the Community Health Agent, regardless of family income, use of drugs and cigarettes. (Crude OR 95% CI (1.08 - 4.91) adjusted OR (95% CI) = 2.21 (1.08 - 4.85; p = 0.033), The p-value of the adjustment model test (Hosmer & Lemeshow) is 0.94 in the model adjusted to household income, use of drugs and cigarettes, and in the model without adjustment variable.

Discussion

This research with descriptive analysis obtained by a cross-sectional study has some limitations related to selection bias, i.e., because the data were collected in a single unit of health as well as based on self-reported information, it does not allows us to make generalizations regarding compliance with treatment by hypertensive people registered in other services.

Compliance with treatment of chronic conditions is a major challenge for public health and nursing. Thus, the results of this study may help nurses with defining strategies, as carrying out new researches and educational interventions that contribute to increase the effectiveness of actions taken to control hypertension.

The largest portion of the study population is female. The prevalence of hypertension in the female population has been suggested by some studies carried out in Brazil and abroad, reflecting the increased demand of this population for health services. In Brazil, this fact may be related to the increased availability of women to participate in activities developed in health services, in particular in the Family Health Strategy.[6-9]

Studies point to the fact that women seek treatment as a cultural reflection motivated by how the health services are organized (opening hours, location), and the higher life expectancy of women compared to men, which is attributed to cardiovascular protection and the lower consumption of tobacco and alcohol.[10-12]

The most common age in the study population was the range between 40 and 49, different from information found in the literature, which indicates that hypertension is prevalent in the male population of around 50 years old, and equating the female population after menopause.[6,7,11,12] This was observed in this study because it was based on record data rather than population survey, characterizing as a possible selection bias.

Regarding the level of education, in this study predominated the complete elementary education, an important social indicator and determinant factor in the health-disease process. Despite not having found a significant association between education and compliance with treatment, the literature shows a falling trend in mean blood pressure and hypertension with higher levels of education, considering that the influence of other social factors and conditions of occupation may occur.[13,14]

Individuals with lower education and chronic diseases have difficulties in understanding both the prescription as the information obtained in the drug leaflet regarding the correct dosage, indications, contraindications and warnings, since these limitations of understanding increase the risk of errors with medication.[15,16]

Regarding marital status, individuals classified as 'separated' had a higher frequency of hypertension. We can infer that the formal or informal support

that people receive from their partners may improve compliance with treatment. People with companions are two times more likely to comply with treatment compared to those without partners.[17]

As for the color/race, most participants consisted of non-whites. Studies that approach gender and color in Brazil show a predominance of black women with hypertension by up to 130% compared to white and that, in Brazil, the impact of miscegenation on the disease is not known with accuracy.[4,18]

The significant association (p = 0.039) found between non-compliance with treatment and financial resources can be corroborated by studies indicating that the low purchasing power not only hinders survival but also the access to antihypertensive medications. In this sense, it is observed in the literature that lower economic levels had higher prevalence of hypertension and exposure to risk factors for increasing blood pressure.[4,6,7,10,19]

The compliance with treatment is considered a complex behavioral process strongly influenced by the environment, individuals, health care professionals and health care, covering the biological, psychological, socioeconomic and cultural dimensions. It is observed that both the received health guidance as the habits and living conditions like excess weight, alcohol intake, smoking, poor diet, and stress, among others, constitute risk factors for non-maintenance of blood pressure control.[1,2,19,20]

By analyzing the distribution of hypertensive subjects according to the guidance received on health and lifestyle habits, it was observed that the majority (81.4%) mentioned having obtained information on diet, physical activity, smoking and alcohol intake. These subjects signaled changes in their lifestyle habits after receiving such information.

The effect of educational programs on compliance with drug treatment indicates low compliance with these recommendations by the studied population. Education constitutes one of the most successful interventions to improve compliance and self-management of people with chronic diseases, especially if the educational program is centered on the beliefs and concerns about their conditions of health and treatment.

Hence the need for a greater number of investigations about the self-reported change in habits, in order to assess the effectiveness and quality of guidance given by health professionals.[21-25]

Regarding the distribution of hypertensive subjects according to treatment time, attendance to medical appointments, receipt of home visits and self-reported compliance, it is observed that those who report themselves as non-compliant, in majority, have time of diagnosis and treatment time of less than nine years. These are the people who attend consultations more often and receive home visits. These data are similar to the results shown by studies on the subject of compliance with treatment and control of hypertension, as well as the fragility of self-reported data by study subjects in research.[26,27]

There was a statistically significant relationship (p <0.05) between the non-compliance with treatment when the health guidance was given by the community health agent only. This may be linked to the short time of activity that these professionals have in this area without any training or qualification. These findings are consistent with another study indicating that the process of qualification of health agents has been fragmented and insufficient to develop the necessary skills for preventive health actions and insertion in the line of care of hypertension.[28,29]

The Morisky-Green test showed low compliance with drug therapy for the treatment of hypertension (70.7%), a fact mainly related to forgetting to take doses of medication. Similar results were found in observational studies that demonstrated the lack of compliance of hypertensive patients associated with forgetfulness in the ingestion of medication.[18,22]

When asked about the reason for non-compliance, 30 (21.4%) subjects cited the lack of medicines in the unit as a cause. In Brazil, despite representing a large part of investment in public health, the free dispensing of medicines is still not enough to cover the current needs.

Thus, it is necessary to invest in improving the quality of care offered to the population, improving user embracement, increasing the resolutivity across the entire network of services, encouraging account-

ability of health professionals and staff for the care of patients, and integrating services through lines of care and greater coordination among the various levels of the local health system.[30]

The lack of training of community workers in the survey and in meeting the needs of hypertensive patients indicates the importance of developing strategies and professional training that enable the knowledge and application of lines of care for hypertension, in order to improve the quality of primary care provided.

Conclusion

The income and the guidelines provided by community health workers were significant factors for adherence to the recommended treatment.

Collaborations

Martins AG; Chavaglia SRR; Ohl RIB; Martins IML and Gamba MA declare to have contributed to the conception and design, analysis and interpretation of data, drafting the article, critical revision of the important intellectual content and final approval of the version to be published.

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