FACTORS ASSOCIATED TO PATIENTS' NONCOMPLIANCE WITH HYPERTENSION TREATMENT[1]

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Dosse C, Cesarino CB, Martin JFV, Castedo MCA. Factors associated to patients' noncompliance with hypertension treatment. Rev Latino-am Enfermagem 2009 março-abril; 17(2):201-6.

The greatest challenge posed by Systemic Hypertension (SH) is related to patients' compliance with treatment. Thus, this study aimed to determine attendance of these patients to medical appointments and the percentage of adherence to medication and non-medication regimens, and also identify the main reasons hypertensive patients report for non-adherence. This is a descriptive study with 68 hypertensive patients (64.71% women with average age of 63.9 years) at a teaching outpatient clinic. The instruments used for data collection were: multiprofesional team care report form, the Morisky-Green test and telephone interview. The results show that 61.76% attended the medical consultations, 86.76% did not comply with the medication regimen and 85.29% did not comply with the non-medication regimen, reporting at least one non-healthy life habit. The emotional factor was the most reported (69.12%) among patients' reasons for non-adherence to treatment. The study can support interventions in care delivery to patients with systemic hypertension, with a view to improving their level of adherence and quality of life.

DESCRIPTORS: hypertension; health education; patient compliance; quality of life; therapeutics; treatment refusal; nursing

FACTORES ASOCIADOS A LA NO ADHESIÓN DE LOS PACIENTES AL TRATAMIENTO DE HIPERTENSIÓN ARTERIAL

El mayor desafío de la hipertensión arterial sistémica (HAS) es la adhesión de los pacientes a su tratamiento, así, este estudio tuvo como objetivos determinar la frecuencia a las consultas y el porcentaje de adhesión al tratamiento medicamentoso y no medicamentoso, además de identificar los principales motivos referidos por los pacientes hipertensos para la no adhesión. Se trata de estudio descriptivo, realizado con 68 hipertensos en un ambulatorio escuela, con 64,71% de mujeres (promedio de edad de 63,9 años). Los instrumentos utilizados para recolección de datos fueron: formulario de atención del equipo multiprofesional, la prueba de Morisky-Green y la búsqueda a través del teléfono. Los resultados: muestran que 61,76% eran asiduos a las consultas, 86,76% no presentaron adhesión al tratamiento medicamentoso y 85,29% al tratamiento no medicamentoso, refiriendo, por lo menos, un hábito de vida no saludable. Entre los motivos para la no adhesión, el factor emocional fue el más relatado (69,12%). Se concluye que este estudio puede proporcionar subsidios para intervenciones sobre la asistencia a los pacientes con HAS, con la finalidad de aumentar las tasas de adhesión y calidad de vida.

DESCRIPTORES: hipertensión; educación en salud; cooperación del paciente; calidad de vida; terapéutica; negativa del paciente al tratamiento; enfermería

FATORES ASSOCIADOS À NÃO ADESÃO DOS PACIENTES AO TRATAMENTO DE HIPERTENSÃO ARTERIAL

O maior desafio da hipertensão arterial sistêmica (HAS) é a adesão dos pacientes ao seu tratamento, sendo assim, este estudo teve como objetivos determinar a frequência às consultas e o percentual de adesão ao tratamento medicamentoso e não medicamentoso, além de identificar os principais motivos referidos pelos pacientes hipertensos para a não adesão. Trata-se de estudo descritivo, realizado com 68 hipertensos em um ambulatório escola, com 64,71% de mulheres (média de idade - 63,9 anos). Os instrumentos utilizados para coleta de dados foram: formulário de atendimento da equipe multiprofissional, o teste de Morisky-Green e a busca fonada. Os resultados: mostram que 61,76% eram assíduos às consultas, 86,76% não apresentaram adesão ao tratamento medicamentoso e 85,29% ao tratamento não medicamentoso, referindo, pelo menos, um hábito de vida não saudável. Dentre os motivos para a não adesão, o fator emocional foi o mais relatado (69,12%). Conclui-se que este estudo pode proporcionar subsídios para intervenções sobre a assistência aos pacientes com HAS, com a finalidade de aumentar as taxas de adesão e qualidade de vida.

DESCRITORES: hipertensão; educação em saúde; cooperação do paciente; qualidade de vida; terapêutica; recusa do paciente ao tratamento; enfermagem

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INTRODUCTION

Systemic hypertension (SH) is a public health problem that affects between 22.3 and 43.9% of the urban adult Brazilian population and more than half of the elderly in the world[1]. It is considered one of the most important risk factors for the development of cardiovascular diseases, held accountable for 40% of deaths by cerebrovascular accident and 25% of deaths by coronary arterial disease[2]. About 40 to 83% of the hypertensive population does not know their diagnosis and 75 to 92% of those in treatment do not control their blood pressure (BP)[3].

Compliance with treatment is defined and characterized when medical or health advice coincides with the individual's behavior with regard to the use of medication, recommended changes in life style and attendance to medical appointments[4]. This definition expresses the meaning of compliance, which implies the patient's agreement with recommendations, assuming the patient is aware of alternative therapies and participates in the decisions related to the treatment[3].

There are several ways to assess patients' adherence to treatment. Among them, attendance to appointments and behavior regarding the use of prescribed medicine are highlighted. In this perspective, the *Morisky-Green*[5] scale, composed of four questions to identify attitudes and behavior in relation to recommendations, has been useful to identify whether patients comply with medication treatment.

Reasons patients report regarding the control of blood pressure are other factors that help to understand adherence to treatment. This information can help to optimize the outcome of health teamwork and permit identifying factors involved in non-adherence to treatment[6].

Therefore, control of SH is directly related to the level of patient's adherence to the therapeutic regimen[7]. Thus, this study aims to determine the percentage of attendance to appointments and adherence to medication and non-medication regimens, and also to identify the main reasons reported by patients for their non-adherence to SH treatment.

METHOD

This is a descriptive study, involving 327 hypertensive patients who participate in the high blood pressure group at the teaching hospital of São José do Rio Preto Medical School (FAMERP), SP, Brazil.

After approval was obtained from the Research Ethics Committee at FAMERP, data collection was initiated through two steps.

In the first step, data were collected from profiles of 327 patients registered in the outpatient clinic during a period of six months. Percentage of attendance was identified, as well as medication and non-medication regimens. One hundred and three patients were selected, who presented BP > 140/90mmHg in the three previous appointments and average BP > 130/80mmHg during 24-hour outpatient blood pressure monitoring (ABPM) carried out in the previous 12 months. Values were established according to the V Brazilian Guidelines on Hypertension and IV Guidelines for outpatient blood pressure monitoring[8-9].

In the second step, all patients with uncontrolled blood pressure were telephoned and asked about the reasons for non-adherence to medication and non-medication regimens through the following question: "what is, in your opinion, the reason for your uncontrolled blood pressure?" The *Morisky-Green*[5] test, composed of four questions, as follows, was also used: 1. Do your ever forget to take your medicine? 2. Are you careless at times about taking your medicine? 3. When you feel better, do you sometimes stop taking the medicine? 4. Sometimes, if you feel worse when you take the medicine, do you stop taking it?

According to the test protocol, patients who obtain the maximum score of four points adhere to the treatment, while those who score three or less do not adhere to the treatment.

For the analysis of non-medication adherence, patients were classified in five groups: group 0 – those who maintained healthy habits; group 1 – maintained at least one non-healthy habit; group 2 – maintained two non-healthy habits; group 3 – maintained three non-healthy habits and group 4 – had no healthy habits. The analyzed habits were: smoking, alcohol, physical exercises and adequate diet (hyposodic). Those who maintained at least one non-healthy habit were considered non-adherent to non-medication treatment.

Diagnosed diabetes (through medical history or by the use of hypoglycemic agents) and obesity, evaluated by waist-hip ratio (normal up to 0.85cm in women and 0.95 cm in men)[8] were also considered in the studied patients.

Of the 123 selected patients, only 68 (55.3%) were found by the telephone search; the majority (64.71%) were women. The average age for women was 63.9 years old (CI 95%; 60.3–67.5 years) and for men 55.7 years old (CI 95%: 48.9–62.5).

Excel (Microsoft R) and Graphpad Instat software were used for data analysis. Cross tabulations were analyzed through Pearson's Chi-square and Fisher's exact tests. One-sample T and two-sample T – tests were used to define degrees of freedom. One-way ANOVA was used in variance analysis for the sake of classification. The T-test was used to estimate percentage frequency with 95% of confidence interval for one proportion. Mood's median test, which replaced the two-sample T – test or variance analysis, was used when Gauss distribution was not found or when variance analysis was not heterogeneous ($p<0.05$).

RESULTS

Of the 68 studied patients, 61.76% attended their appointments and 38.24 missed at least one of the three last appointments. Associations between attendance and gender ($p=0.927$), attendance and age ($p=0.452$), and attendance and *Morisky-Green* test were not found (question 1 $p= 0.245$; question 2 $p=0.976$; question 3 $p=0.309$; question 4 $p=0.198$).

According to recommendations for the *Morisky-Green* test, the sum of scores revealed that 86.93% of patients presented score < 3, which indicates non-adherence to medication regimen[5]. No statistically significant difference ($p=0.895$) was found in the relation gender and *Morisky-Green* (Figure 1).

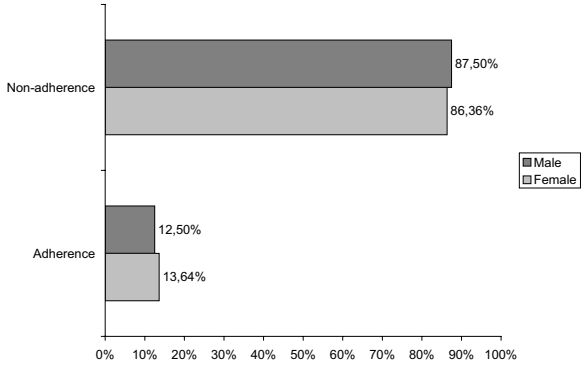

Figure 1 – Distribution of patients regarding adherence to medication regimen according to gender. São José do Rio Preto, SP, Brazil

The relation between gender and number of anti-hypertensive drugs taken was another parameter used for evaluation and all classes of anti-hypertensive agents were analyzed (diuretic, adrenergic inhibitors, direct-acting vasodilator, calcium channel blockers, angiotensin-converting enzyme inhibitors, angiotensin II—AT1 receptor antagonists). Figure 2 shows that 58.33% of men used up to two anti-hypertensive drugs and 61.36% of women used three or more, with no statistically significant difference. Only one patient was treated with monotherapy ($p=0.119$).

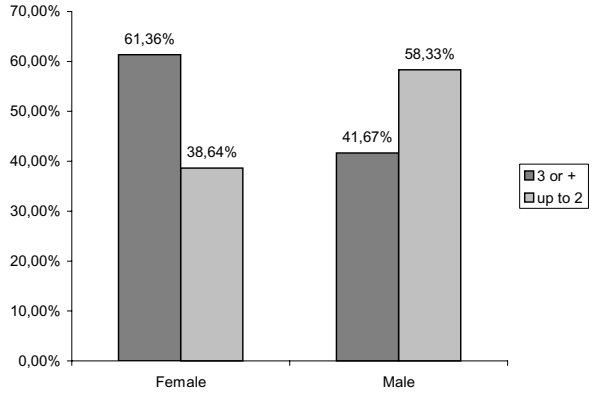

Figure 2 – Distribution of hypertensive patients according to the quantity of drugs taken and gender. São José do Rio Preto, SP, Brazil

It was observed that 85.29% maintained at least one non-healthy habit with regard to the non-medication regimen (Figure 3).

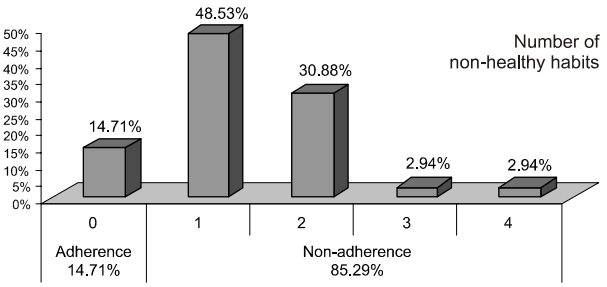

Figure 3 – Distribution of individuals according to the number of non-healthy habits and percentile of non-adherence. São José do Rio Preto, SP, Brazil

Although it was not the objective of this study, a significant relation ($p=0.049$) between diabetes mellitus and waist-hip ratio (WHR) was observed; 82% of patients presented altered WHR, that is, men with WHR > 0.95cm and women with WHR > 0.85cm, while 25% of these presented diabetes mellitus.

The emotional factor was highlighted by both genders among the reasons reported for non-adherence to medication and non-medication regimens. The majority of women (84.09%) and 41.67% of men reported that the emotional factor affected their blood pressure. There is a statistically significant relation between men and women regarding reasons reported. The following are among the reasons appointed: cannot tell the reason (p=0.006), associated diseases (p=0.049) and alcohol consumption (p=0.013) (Table 1).

Table 1 – Reasons reported for non-adherence to medication and non-medication regimens in patients' opinion according to gender. São José do Rio Preto, SP, Brazil

Reasons	Female		Male		Value
Tiredness	N°	%	N°	%	p
Yes	2	4.55	0	0	**
No	42	95.45	24	100	
Emotional					
Yes	37	84.09	10	41.67	**
No	7	15.91	14	58.33	
Sadness					
Yes	3	6.82	0	0	0.191
No	41	93.18	24	100	
Cannot tell the reason					
Yes	1	2.27	6	25	0.006*
No	43	97.73	18	75	
Food					
Yes	3	6.82	3	12.5	0.43
No	41	93.18	21	87.5	
Hot weather					
Yes	2	4.55	0	0	**
No	42	95.45	24	100	
Anxiety					
Yes	1	2.27	1	4.17	**
No	43	97.73	23	95.83	
Associated diseases					
Yes	1	2.27	4	16.67	0.049*
No	43	97.73	20	83.33	
Lack of medication					
Yes	1	2.27	0	0	**
No	43	97.73	24	100	
Smoking					
Yes	0	0	1	4.17	**
No	44	100	23	95.83	
Alcohol					
Yes	0	0	4	16.67	0.013*
No	44	100	20	83.33	
Drugs					
Yes	0	0	1	4.17	**
No	44	100	23	95.83	
Hereditariness					
Yes	0	0	2	8.33	**
No	44	100	22	91.67	
Work					
Yes	0	0	1	4.17	**
No	44	100	23	95.83	

* p-value according to Fisher's exact test; **not possible to find p-value

DISCUSSION

Of the 327 patients, 123 presented uncontrolled blood pressure (BP > 140/90mmHg and average BP > 130/80mmHg during 24-hour ABPM), indicating that only 204 patients had their blood pressure under control, that is, 62.38% of adherence.

Adherence to SH treatment is essential for adequate control of BP, however, it is difficult to assess and even harder to quantify[10-11]. In a study carried out in Lubango, Angola with 60 undergraduate students who admitted being hypertensive, only 16 (26.7%) were under some kind of treatment to control the disease[12]. It is important to have in mind that this is a multidimensional concept, since it includes different aspects. Even though hypertensive patients should be the main focus of the process, adherence to treatment does not exclusively depend on them, but rather on the set of elements that constitute the process, that is, hypertensive patients, health professionals and the health system. Effort exerted by any isolated element will not lead to good results and joint action is needed to achieve "adherence to the anti-hypertensive treatment"[7].

Some important limitations were identified in this study. The first was the lack of available information on the nursing care profiles, which were almost always incomplete. The major difficulty, however, is related to the search for patients through telephone calls. Of the 123 pre-selected patients for the study, 55 were not contacted due to lack of information or wrong information available in their profiles. This fact reveals the health system's inefficiency to maintain the system updated.

The majority of the studied population was in the age range of highest risk, that is, older than 60 years. This fact is appointed by the V Brazilian guidelines on Hypertension, which estimates that more than 60% of the elderly are hypertensive. Another important factor is that, although men used to be at a higher risk of developing SH due to life habits, an increase in the number of hypertensive women has been observed due to their greater participation in the job market and changes in life style[13].

The female gender is predominant in the study. Similar results were found in a study on hypertensive patients' adherence to medical treatment[14]. Studies suggest that labor activity out of home might have influenced such results. Nevertheless, these arguments are not consistently

established in literature, due to difficulty in designing large studies, especially because of potential biases[3,14].

Attendance to appointments can be one of the parameters used to evaluate adherence to treatment[15]. Research found, in a follow-up program for hypertensive patients, greater reduction of tensional levels among patients who attended appointments more regularly[16]. Hence, the patients' presence at the health unit is crucial to control hypertension because it motivates individuals, which in turn leads to attitudes that contribute to reduce BP.

Frequent encounters yield better monitoring of blood pressure levels and provide opportunities to access information, such as orientation regarding the medication and non-medication regimens[17]. One of the main benefits of a higher number of medical visits is the possibility to adjust the therapy and monitor the occurrence of side effects. These visits also favor a more effective change of patients' life style and well being, with potential reduction of anxiety and stress[18].

Attendance to appointments and to the encounters of the hypertensive group was considered satisfactory in this study. Attendance of those patients who did not follow the medication or non-medication regimens was analyzed and, according to the institution routine, these patients attend a medical consultation every 90 days. The study found greater reduction of pressure levels in groups of patients who attended visits every two weeks when compared to the group whose encounters were held every 90 days[18]. Additionally, the group whose encounters were more frequent maintained reduced tensional levels in the course of the treatment, which shows the favorable effect of frequent visits to assure adherence and maintain therapy efficacy.

There are several factors that interfere in treatment adherence (gender, advanced age, attendance, among others) and behavior regarding the use of medication is highlighted[19]. According to the *Morisky-Green*[5] test protocol, patients who obtain the maximum score (four points) are considered adherent to treatment and those who obtain lower scores are considered non-adherent to treatment. Thus, the majority of the studied patients were classified as non-adherent to treatment. A study carried out in São Paulo, Brazil with 130 patients presented similar results: 77% presented score < 3, that is, non-adherent[19]. According to some authors, despite the frequent use of this method in studies, some problems regarding self-information, such as omission, memory failure and failure in communication[15] may arise.

In daily life conditions, adherence to anti-hypertensive treatment has been insufficient. Studies show that around 2/3 of hypertensive cases did not achieve expected BP reductions with monotherapy. Because of this, new drugs are introduced to the therapy, which consequently hinder its follow-up[8]. Because of a more rigid BP control, the current tendency is to introduce combined therapy of anti-hypertensive agents at once as the first medication measure, easing adherence. This strategy might not be adequate for patients in this study because medication is provided by the public service, which does not offer combined anti-hypertensive agents in a single pill.

A great challenge in the diagnosis and control of blood pressure is to know the impact of the disease and its treatment on the patients' life[9]. Four of several patients' life habits were analyzed in this study and 85.29% had non-healthy life habits.

Simultaneously occurring non-healthy habits like smoking, sedentariness and alcohol consumption with no treatment were also reported in another study[7].

CONCLUSIONS

The results obtained in this study on the adherence of hypertensive patients to medication and non-medication regimens allowed for the following conclusions: 61.76% frequently attended appointments; 86.76% were non-adherent to medication treatment according to the *Morisky-Green* protocol; 85.29% had at least one non-healthy habit, that is, did not totally adhere to non-medication treatment; the main reasons reported by the hypertensive patients for non-adherence to treatment were: emotional (69.1%), could not tell the reason (10.3%) and eating habits (8.8%).

FINAL CONSIDERATIONS

A level of adherence higher than that reported in current literature was found in this study. This fact might be explained by care delivered by a

multidisciplinary team . The struggle to keep up patients' adherence to SH treatment is a great challenge for the State government as well as for health professionals, because it depends on the implementation of multidisciplinary programs at all levels of care to hypertensive patients, so that interventions are more effective.

These results can support interventions in care delivered to patients with SH, with a view to improving the level of adherence and quality of life.

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Recebido em: 4.9.2007
Aprovado em: 10.2.2009