

Relationship between Regular Attendance to Ambulatory Appointments and Blood Pressure Control among Hypertensive Patients

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OBJECTIVE

Our objective was to determine the rate of hypertensive patients with controlled BP (BP <140X90 mmHg) and to study its relationship with regular attendance to ambulatory appointments.

METHODS

A total of 245 medical records from patients followed up at the Unidade Clínica de Hipertensão Arterial (Clinical Unit of Arterial Hypertension) HCFMRP-USP for a period of one year were randomly and retrospectively reviewed. The patients were classified as assiduous (A) and as regularly absent to scheduled appointments (F), with the second group being defined as those who failed to appear longer than 30 days after the scheduled appointment. The mean of three measurements prior to the date of the scheduled appointment was calculated to determine the rate of patients with controlled BP. Compliance with the treatment was inferred through a questionnaire applied by the nurse team before the appointment.

RESULTS

From the 245 patients analyzed, 220 were classified as A (89.7%) and 25 (10.3%) as F. Group A patients showed a higher rate of BP control than F patients (30% vs. 8%, $p=0.02$, Fischer exact test). Compliance with pharmacological treatment was higher in A patients than in F patients (91% vs. 56%, $p<0.05$) as well as to non-pharmacological treatment (63% vs. 44%, $p<0.05$).

CONCLUSION

Although the rate of blood pressure control was low in the population studied, lower compliance with the treatment and BP control was observed in individuals who usually missed the scheduled appointments.

KEY WORDS

hypertension, compliance, treatment, blood pressure

One of the greatest challenges in controlling blood pressure is due to the non-compliance with anti-hypertensive treatment, which means, the non-observance to pharmacological or non-pharmacological measures for the control of blood pressure (BP)¹. The understanding of factors that affect compliance becomes, this way fundamental in the long-term assessment of the effectiveness of the proposed anti-hypertensive treatment. Patients, with bad compliance with the treatment, may lead the physician to erroneously judge the instituted treatment, by assuming it has no efficacy. Such assumption may cause a mistaken therapeutic decision making, either through the increase of dosage, exchange for another class, or even the addition of a new medication in the previously prescribed anti-hypertensive scheme. Additionally, there may be an induction to the diagnosis of refractory hypertension and unleashing of diagnostic investigation for the causes of secondary hypertension, which gives rises to additional onus and unnecessary suffering to the patients². Detailing the mechanisms through which patients behave as non-compliant is not a simple task, either due to the lack of accurate methods or to its multifactor characteristic³. The compliance with the treatment of any chronic disease, through an indefinite length of time, has an influence from own patient factors and others unleashed by the physician. The main factors attributed to the patients are related to the perception of hypertension as a disease, the attitude by the patient towards the fact of being hypertensive, and the personal motivation for the search for a better health condition⁴. The physician has to have the role of encouraging and educating the patient, by informing him/her about the clinical and prognostic meaning of his/her disease also, is a role of physician. Keeping a constant monitoring for the development of adverse reactions to anti-hypertensive medications, by using criteria based on clinical epidemiology and on results from well-designed clinical studies for the selection and individualization of the best anti-hypertensive agent for a given ill-taken patient⁵. The hypertensive patient rate with controlled blood pressure has been shown low, considering values of blood pressure lower than 140 mmHg of systolic blood pressure and 90 mmHg of diastolic blood pressure as control targets. A correlation between the number of returns/year and the best control of blood pressure² have been reported. Although not studied yet, one of the main indirect ways of inferring on one of the features of compliance with the proposed anti-hypertensive treatment is the observation of the assiduity to scheduled appointments. That simple measure can evidence the will of the patient to have his/her disease treated and reveal the perception of his/her awareness of having a health problem that needs care. So, our main objective was to determine the rate of hypertensive patients with BP under control (<140x90 mmHg) and study its relationship between assiduity to ambulatory appointments, in a casual

sample of patients followed-up at Unidade Clínica de Hipertensão (Clinical Hypertension Unit) (UCH) of Divisões de Cardiologia e Nefrologia (Cardiology and Nephrology Divisions), of Hospital das Clínicas da FMRP, da USP.

METHODS

The characteristics of medical care at UCH ambulatory were described in a previous publication⁶. It is important to emphasize that such ambulatory consists of a multi-professional team composed by nurses, social workers, nutritionists, psychologists, physicians and professors of Nephrology and Cardiology divisions of Hospital das Clínicas da FMRP-USP.

Two hundred and forty-five (245) patients were assessed, followed-up in ambulatory, in a period of one year. They were randomly selected, being their medical records retrospectively analyzed by considering periodic appointments they should attend every 3 months, as part of the medical care protocol of the service. All patients were submitted, at every appointment, for two blood pressure measurements by the ward team of UCH, in accordance to guidance established at IV Diretrizes Brasileiras para o Tratamento da Hipertensão (4th Brazilian Guidelines for Hypertension Treatment)⁷, by using a mercury column sphygmomanometer (*Baumanometer - W.A. Baum Co. Inc.*, Copiague, New York, USA, 11726), with the cuff size corrected through previously measurement of arm circumference. For each patient, the average of systolic/diastolic blood pressures in the last three appointments were calculated, defining as controlled those with systolic and diastolic pressures lower than 140x90 mmHg, respectively. Patients who attended to appointments up to 30 days from the previously scheduled date for their return were classified as assiduous. Patients who returned in periods higher than 30 days or who abandoned the treatment were classified as failing to follow up. Through a sheet with structured questionnaire, patients were asked concerning the correct use of medications prescribed and if they followed or not the non-medicamentous treatment prescribed.

Relationships between proportions of assiduous patients and those who failed to follow up, and the control of blood pressure were analyzed by using Fischer exact test and establishing, as a significance level, alpha higher than 5%.

RESULTS

From the total of patients, 67.7% were of male sex, 75.9%, were white, and 24%, black. The mean of the ages was 36 ± 14.9 years old, varying from 17 to 86 years old. From 245 analyzed patients, 220 were classified as assiduous (89.7%) and 25 (10.3%) as failing to follow up, being that from the latter, 17 patients

abandoned the returns, which made an abandonment rate of 6.9%. Assiduous patients showed a higher rate of blood pressure control when compared to those who failed to follow up (30% vs. 8%, respectively, $p=0.02$). In assiduous patient group, 66 patients (30%) had systolic and diastolic blood pressures controlled, whereas 99 (45%) did not have any of them under control. The

of mechanisms through which a better control of blood pressure for a greater portion of hypertensive patients can be achieved.

Results, presently shown, demonstrate that in our ambulatory, a specialized clinic of a University Hospital of tertiary medical care, regular attendance to appointments is high. That behavior shows that patients

Table I - Assessment of the follow-up of 245 patients concerning the control of systolic and diastolic blood pressures.

Follow-up Situation	SBP and DBP under control	Without control of SBP and DBP	Only SBP under control	Only DBP under control	Number of patients
Assiduous n (%)	66 (30)*	99 (45)	22 (10)	33 (15)	220 (100)
Failed to follow up (%)	2 (8)	19 (76)	2 (8)	2 (8)	25 (100)
Total (n)	68	118	24	35	245

*SBP = systolic blood pressure; DBP = diastolic blood pressure; *P=0.02 (assiduous vs. failed to show up).*

remaining 55 patients (25%) did not show control of systolic or diastolic blood pressure. From 25 patients who failed to follow up, only two (8%) had diastolic and systolic blood pressures controlled, 19 (76%) did not have any of them under control, and 4 (16%) showed a control of systolic or diastolic blood pressure (table I).

Table II - Assessment of the follow-up of 245 hypertensive patients concerning the compliance to the treatment prescribed

Follow-up Situation (n)	Treatment prescribed	
	Compliant with medicamentous (%)	Compliant with non-medicamentous treatment n (%)
Assíduos (220)	200 (90.9)*	138 (62.7)*
Faltosos (24)	14 (56.0)	11 (45.8)
Total (245)	214 (87.3)	149 (60.8)

**p<0.05, assiduous vs. failed to show up.*

Compliance reported by patients with the pharmacological treatment, presented in table II, was higher among assiduous patients than among those who failed to follow up (90.9% vs. 56%, respectively, $p<0.05$), as well as for non-pharmacological treatment (62.7% vs. 45.8%, respectively, $p<0.05$).

DISCUSSION

Cardiovascular diseases are the major cause of death among western countries, including Brazil. Hypertension is an independent risk factor for coronary disease, cerebrovascular accidents, atherosclerosis, retinopathy and nephropathy. The fact that hypertension treatment significantly reduces the risk for cardiovascular complications, especially cerebrovascular accidents^{8,9}, is well consolidated in the literature. However, despite of having more new medications available, with proven efficacy in reducing cardiovascular mortality associated to hypertension, and of propagating massively the risks following it, little importance has been given to the studies

from our service have the perception of having a health condition requiring medical care, willing to be treated. It is also observed that the behavior of regular attendance to appointments is associated to a better rate of blood pressure control and a better compliance with pharmacological or non-pharmacological treatment of hypertension. Despite that, only approximately a third from those patients was able to achieve blood pressure control, by considering the values preconized by IV Diretrizes Brasileiras para o Tratamento da Hipertensão. Such data were not different from those in our previous analyses, since 1995⁶. That does not seem to be an isolated situation, as data from National Health and Nutrition Examination Survey - NHANES II e III, showed a percentage of 29% of control, in a 12-year study interval¹⁰.

Regarding abandonment of ambulatory follow-up at UCH - FMRP - USP, we observed that, since 1995, that rate has been sensitively decreasing. In 1995, abandonment level was between 45 to 61%, going along two years to 20.4% and, currently, to even lower figures, reaching 6.9%. It is possible that the high rate of observance to appointments is a search for safety and care in relation to the patient's disease perception.

Another interesting aspect in this study was that, from 220 assiduous patients, 200 (90.9%) said they were taken medication in accordance to the medical prescription, which disagrees with the finding of only 33% of patients with controlled blood pressure. As previously commented, the reason for such discrepancy is multifunctional and depends as much on patient-related factors as the physician. The Canadian group, Angus Reid, showed that 62% from patients who answered a questionnaire, by phone, confirmed they did not take medication in accordance to the prescription. Half of those patients blamed on adverse effects for the non-follow-up and only 41% knew that cardiovascular accidents could be a complication from hypertension. In that same study, what really drew attention was that patients did not take the medication, made their own scheme of treatment or even omitted the times

medications should be taken. Even though, under such circumstances, they revealed having the sensation of being protected with the treatment¹¹. Wallenius et al.¹² comment that all patients learned fast to make their own private experiments, trying to optimize advantages and disadvantages with the risks. So, 36% of patients studied by those authors acknowledged they tried to modify their treatment with a lower dosage or a smaller number of drugs. That difficulty of the treatment may be due to the presence of secondary hypertension, exogenous substances, which increase blood pressure or interfere with administrated drugs, improper treatment or other factors leading to non-compliance¹³. In our ambulatory we observed that patients, who reported being taken prescribed medications correctly (usually three or four different classes of medications) and, even so, showed high values of blood pressure, featured, when admitted for investigation of refractory hypertension, a good response to previously prescribed anti-hypertensive medications and in lower doses than those they should, theoretically, be taking (non-published data). In 50% of refractory hypertension, failure from patients in using recommended drugs has been identified¹⁴. Besides, many other factors, as the class of prescribed medications, the use of many daily doses, the profile of adverse reactions, the age of patients, the long intervals between returns, and economic factors, seem to affect compliance to anti-hypertensive treatment^{8,13}.

Physicians must be aware that compliance greatly depends on their ability to have a good interaction with patients⁵. Besides, studies have demonstrated that there is a trend of physicians to avoid regimen adjustments, or even the introduction of a new therapeutic scheme for patients with persistently high blood pressure and with a non-compliant profile¹⁵. There is also a clear tendency in valuating even more the measurement of diastolic than systolic blood pressure. Frequently, patients who show high systolic blood pressure and the diastolic lower than 90 mmHg are not treated with the necessary strictness¹⁶. However, decades ago, epidemiological studies have clearly shown that the increase of systolic blood pressure marks, in a more precise way, the risk of cardiovascular complications due to hypertension¹⁷. Data from literature show that physicians who treat chronic diseases in

ambulatories spend very short time in guidance on the correct use of prescribed medications, which leads to a mistake of their use, loss of efficacy and appearance of adverse reactions.

The treatment of hypertensive patients, however, should not only involve reduction of blood pressure. The control of other associated risk factors must be searched for¹³. We know that oriented non-pharmacological interventions (life-style modifications) are beneficial to reduce many types of cardiovascular risks, including hypertension, and they must be used in all patients, whether they are hypertensive or not⁵.

Our study has limitations, deserving some criticisms and considerations. Low rate of blood pressure control in our sample may be due to a selection bias. For being a reference service, in the context of university hospital, the population seen consists of mostly patients who had difficulties in blood pressure control in primary care centers, as, for instance, basic healthcare units. It is still possible that they have been sent there because there was the suspicion of secondary hypertension.

On the other hand, the use of a questionnaire to obtain information on the compliance with medicamentous measures or not, can provide us with overestimate information.

In conclusion, our observations show that assiduity to ambulatory appointments is expressive at UCH of HCFMRP-USP. Assiduous patients have a greater probability of success in blood pressure control. However, such control is far from being the ideal one.

Some factors could improve that picture, as the current trend of customization of treatment with the physician, choosing drugs that decrease cardiovascular risk, offering high anti-hypertensive efficacy, safety, good life quality and, above all, favoring a higher compliance¹⁸.

Finally, although BP control rate is low at UCH of HCFMRP-USP, as all over the world, a worse compliance to the treatment and a lower control of blood pressure among individuals with the habit of not following up at scheduled appointments is still observed, and such aspect must deserve attention in medical care services towards hypertensive patients.

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