Non-Interventional Study (NIS) Report Synopsis	
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Hypertension and Health-Related Quality of Life Adherence: Cross-sectional Observational Study in Ambulatory Patients: ADHERENCE

Study dates: First Subject In: 18 Aug 2009
Last Subject Last Visit: 29 Jan 2010

This study was performed in compliance with Good Clinical Practice, including the archiving of essential documents.

Study centre(s)

One hundred and seven care sites have been included

Publications

No publications at the moment

Objectives and criteria for evaluation

Primary Objective

- Assess antihypertensive treatment adherence in a cohort of patients with diagnosis of essential hypertension according to JNC VII criteria, under antihypertensive treatment for more than 6 months

Secondary Objectives

- Assess quality of life in patients in this cohort.
- Identify associated factors that may alter adherence to antihypertensive treatment.
- Know pharmacological groups used for this pathology.
- Compare treatment adherence level according to the different therapeutic regimes used.

Study design

Phase IV, Cross-sectional, descriptive, observational study in a cohort of hypertensive patients under pharmacological treatment during 6 months or more.

Patients from both sexes, older than 21, with a diagnosis of essential hypertension who have been under antihypertensive treatment for more than 6 months shall be assessed, following the criteria laid down by the JNC VII .

Two questionnaires shall be prepared

The first questionnaire shall be anonymously completed by the patient willing to participate. It is divided into two parts:

1. Treatment Adherence Scale (MMAS): this survey is made up of 4 questions having YES/No answers and it grants 1 point per every “NO” answer, and zero points to every “YES” answer. Those subjects that can be considered as adhering to the treatment (ADH) are those replying NO to the four questions, and those that answer YES to one or more questions, shall be considered as Not-adhering to the treatment (NAD). The final result may be zero points in which case this patient does Not

Adhere to treatment, or else, 4 points may be achieved by interpreting the result as Adhering to treatment.

2. The second part is the health-related quality of life Questionnaire (MINICHAL)

The questions refer to the «last 7 days» with 4 possible answer options: 0 (no, absolutely not), 1 (yes, sometimes), 2 (yes, frequently) and 3 (yes, a lot).

It is made up of 16 items, 10 correspond to the «State of Mind» dimension and 6 to the «Body-related Symptoms », also described as «Physical symptoms».

The punctuation scale ranges from 0 (best health level) to 30 (worst health level) in the «State of Mind» dimension, and from 0 to 18, in the «Body-related Symptoms» dimension.

The second questionnaire shall be completed by the intervening physician as regards patients that attend medical visits, and who have answered the anonymous questionnaire, put in on an envelope and surrendered it to the doctor, and who comply with the criteria established in this study protocol.

Data to be completed is as follows:

A—Demographical data (sex , age, marital status, education, work experience, health care system) – months since HBP diagnosis – reason for the visit –Risk factors– High blood pressure severity - Target organ damage – Global Cardiovascular Risk (according to ATPIII (11, 12)– Time lapsed since the last two visits; Non pharmacological treatment; time lapsed since the commencement of the first pharmacological treatment; Current treatment, time lapsed since the last treatment and dosage – Other non antihypertensive treatments; Number of co morbidity

Inclusion Criteria

Patients older than 21 years of age.

Patients with diagnosis of essential hypertension under the criteria established by the Joint National Committee VII and those patients under pharmacological treatment with the same therapeutic regime during at least the last 6 months.

Exclusion Criteria

The following subjects shall be excluded from the studies: patients with secondary HBP, pregnant women or nursing mothers, those patients with acute illnesses or having a definite psychiatric diagnosis, as well as those patients who are unable to complete questionnaires.

Target subject population and sample size

Patients with diagnosis of essential hypertension under the criteria established by the Joint National Committee VII and those patients under pharmacological treatment with the same therapeutic regime during at least the last 6 months.

Sampling:

In turn, patients will be offered to answer the questionnaire until they complete the number of booklets assigned to the doctor, and in the case of those patients who answer the anonymous form, this will also be completed with the information submitted by the family doctor.

Sample Size:

In order to achieve the primary objective "Assess antihypertensive treatment adherence in a cohort of patients with diagnosis of essential hypertension according to JNC VII criteria, under antihypertensive treatment for more than 6 months", a representative sample shall be considered whenever the different treatment regimes represented within the sample are found, particularly those regimes including the ARB II pharmacological group. In accordance with previous data, the use of ARB II in 10% of hypertensive patients receiving treatment with a 95% confidence interval, 0,05 type I alpha error and 20% beta error shall be considered as the worst scenario.

Considering p = **0.10**

$$\mathbf{n = p \times (1 - p) \times (1.96 / p \times 0.20)2,}$$

An estimate for n = 865 patients was taken into account, considering a 10% frequency and a 95% confidence interval.

Assuming 30% of forms are not adequately completed or are not returned, the number of patients shall be ≥ 1124.

Statistical methods

For all the proposed objectives it will be carried out the descriptive statistics. For the proportions analysis it will be used chi2, and for the numeric variables it will be used Mann Whitney or t test accordingly Subject population

Results

The study involved a total of 1074 patient around the country, who met the inclusion criteria (a 1.1% was discarded due to incomplete data). A 47.6% were males, 61.2 were married, and the highest percentage was not living alone (77.1%) and the mean age was 65 years old (SD 12 years).

As regards the educational background, 31.6% of the patients had only elementary education, 38.6% had tertiary education and the minority represented the population with high school and university education (16.2% and 13.4% respectively).

The cohort was formed by retired people, 51.6% and active people, 42.7%. The majority had medical insurance paid by their employers (67.4%) and a 28.3% reported to have private medical insurance.

The time from the HBP diagnose to the assessment was 63 months (mean), IQR: 26-128 months. As regards risk factors, 63.2% had 2 or more risk factors, and a 10% did not report any. A 73% of this cohort had moderate to high cardiovascular risk (according to ATPIII).

Regarding the grade control of blood pressure measured at consultation, a 46.9% continued to be hypertensive grade 1 and 1 after ≥ 6 months treatment, only a 5.3% had normal BP values and 47.6% normal high BP.

As per pharmacological treatments, 37.1% was using monotherapy being the most used the Converting Enzyme Inhibitors (ACE) and Angiotensin-II Receptor Antagonists (ARAII) (39.5% - 38.8%), most of the patients were receiving two or more drugs (55.1) and only 7.8% received a fixed combination.

A total of 436 patients (40.6%) was Adherent to treatment (answered NO to the 4 questions of the MMAS), whereas 638 patients (59.4%) were NO adherent to treatment.

The characteristics between the 2 groups were compared.

Table S1 Associated factors ratio in No ADH vs. ADH population

NO ADHERENTS (N 638)	ASSOCIATED FACTOR	ADHERENTES (N 436)	P*
52.9%	BP normal to high	52.8%	0.97
28.7%	HBP Grade 1	31.8%	0.27
18.2%	HBP Grade 2	15.2%	0.20
32.7%	Elementary education	29.6%	0.28
51.3%	Tertiary education	36.5%	0.005
71.7%	Employers paid Medical Insurance	61.3%	0.05
24.3%	Private Medical Insurance	34.2%	0.05

NO ADHERENTS (N 638)	ASSOCIATED FACTOR	ADHERENTES (N 436)	P*
25%	1 tables/day	31.6%	0.021

* CHI-SQUARE TEST

As for the health-related quality of life of this cohort ,one can see in the mean values (SD) of the MINICHAL score and the comparison between adherent and non-adherent groups

Table S2 MINICHAL Score. Comparison between adherent and non-adherent groups:

Sex	Adherent	Non-adherent	P
Male	6.25	7.4	0.005
Female	17.2	8.9	0.0001
Marital status			
Single	10.6	6.6	0.3575
Married	10.4	7.6	0.0005
Divorced	13.5	8.1	0.1087
viudo	16.2	9.9	0.0504
Lives alone			
Yes	16.2	9.9	0.0001
No	11.5	7.9	0.0151
Education Level			
Elementary	14.0	8.7	0.1036
High school	11.9	8.8	0.1280
College	11.5	7.9	0.0004
university	8.9	8.0	0.0375
Cardiovascular Risk Factors			
Yes	11.6	7.1	0.0004
No	12.6	7.3	0.00001
Hypertension grades			
normal	10.7	7.3	0.0008

Sex	Adherent	Non-adherent	P
High .Normal	11.8	9.2	0.0924
Grade 1	12.0	8.3	0.2776
Grade 2	12.7	7.0	0.0030
Risk stratification			
Low	10.7	7.6	0.0020
Moderate	11.9	9.0	0.2042
High	12.8	6.6	0.0058
Very high	13.2	7.6	0.0110
Diet			
Yes	12.0	9.3	0.0062
No	12.0	10.1	0.7434
Exercise			
Yes	10.1	8.0	0.0001
No	13.3	8.4	0.3365
Number of Daily doses			
1	11.4	8.0	0.0001
2	12.6	8.8	0.0763
3	11.8	9.0	0.0002
MINICHAL SCORE			
State of mind	11.3	8.16	0.0001
Somatic manifestations	6	3.47	0.0001

Regarding sex , non-adherent men had a better health-related quality of life (HRQL) than adherent ones (6.25 vs 7.4 ;p 0.005).On the contrary ,adherent women had a better quality of life (17.2 vs 8.9; p 0.0001).

Adherent married people and widows/widowers had a better HRQL than non-adherers (10.4 vs 7.6 p 0.0005 , 16.2 vs 9.9 p0.05 respectively) while the rest did not show any statistical significance.

Likewise, those who live alone and are adherent showed a higher score in quality of life compared to the non-adherent group.

If we consider the education level , adherent patients with college degree had a better HRQL than non-adherent group (11.5 vs 7.9 p 0.0004) with no statistical differences among the other educational levels.

With regard to the following variables: Cardiovascular risk factors, grades of hypertension and risk score, patients who were adherent presented higher scores of HRQL than non-adherent patients. However, statistical analysis of patients without risk factors, normal blood pressure and low cardiovascular risk revealed a stronger association between these variables versus the same non-adherent subgroup (p 0.0004, p 0.0008, p0.002 respectively) .

When we consider the life style, adherent patients who followed an exercise and diet plan had a better HRQL score than patients who did not.

Another variable taken into account was the number of doses of the medication where we observed that the adherent group had a better HRQL score for one and three doses (1 dose: 11.4 vs 8.0 p 0.0001 and 3 doses: 11.8 vs 9.0 p 0.0002) and a positive trend in patients who were taking two doses daily (p 0.07).

Finally, as for the quality of life according to the MINICHAL score, the adherent group had a better HRQL score (11.3 SD 7.44 and 6 SD 4.69 p0.0001) compared to the non-adherent group (8.16 SD 5.3 and 3.47 SD 3 p0.0001) for both somatic and psychic manifestations.