

# Interrelationship between Clinical Characteristics, Socio-Economic Barriers and Quality of Life in Patients with Hypertension

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Received: March 21, 2019, Accepted: June 3, 2019

## Abstract

High blood pressure is a major issue that affects the quality of life of the patients worldwide. It also induces several complications. The model of the hypertensive patient in our study includes the high and very high cardiovascular risk category that needs a rapid and effective reduction in blood pressure that associates at least three other risk factors. The most common factors are dyslipidemia and diabetes that already have produced organ damage requiring antihypertensive drugs with additional benefits to lowering blood pressure. The findings of the study suggest that changes in lifestyle, increase adherence to pharmacological therapy and psychological support are essential for increasing patients' quality of life.

**Keywords:** hypertention, quality of life, medication

## Introduction

High blood pressure is a major health problem that affects the quality of life of the patients worldwide by itself and also by the induced complications. Despite the fact that the methods of diagnosis and follow-up of patients with hypertension are multiple and varied, both globally as well as in the case

of Romania. Still, many patients are found in advanced stages of high blood pressure, at least moderate, already with organ complications since their active socio-economic background, age and lifestyle don't allow them to check regularly their health. This has proven to further alter the areas of quality of life. On the other hand, this still proves the inefficient development and organisation of regional and national public health system.

Not only diseases such as congestive heart failure, ischemic heart disease, chronic kidney disease, diabetes are frequent causes of hospitalisation of patients, but also high blood pressure and especially the complications it induced. These elements have

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important implications for the economic burden of the health system of any country, which is reflected in the increased cost of hospitalisation and re-hospitalisation services for these patients. In many countries, including Romania, primary and secondary medicine does not yet have an effective control of the monitoring of hypertensive patients in terms of adherence to treatment, awareness of the disease and its complications, and their socio-economic implications for the individual. Unfortunately, the public data from Romania in the SEPHAR II study show that over the past 10 years, twice as many patients were found hypertensive with moderately high blood pressure compared to SEPHAR I in which most patients were diagnosed with slightly elevated values to blood pressure (10,11). The most effective monitoring of hypertensive patients, the highest degree of awareness of the disease and the best adherence to the therapeutic schemes in Romania are the patients in the Western region of the country and those in Bucharest. On the other hand, those in the region of Moldova and the South of the country registered the lowest values for these indicators. Data on the quality of life of patients with high blood pressure reported globally is not only related to the existence of the disease and its possible complications, but also to the associated co-morbidities that the patients have, the type of treatment scheme and the lifestyle. These are additional reasons for the management of the hypertensive patient, which requires not only to track the target blood pressure but also to reduce the risk of complications and to improve the quality of life, not just the survival time.

## **Methods**

This study was conducted at the cardiology clinic of the Bagdasar-Arseni Emergency Clinical Hospital during October 2017- October 2018 by Carol Davila University Medicine and Pharmacy students, aiming at the licensing thesis. There were 1277 patients aged 18-80 years diagnosed with hypertension within the previous year. The processing of the data included in the study was done by the students on the basis of the interview with the patient, by consulting their medical observation sheets, based on the answers that the patients or the patients' relatives gave to certain questions contained in a study questionnaire.

The socio-demographic characteristics were followed: age, gender, country of origin, marital status, educational level, type of medical insurance (state /private), retired/active worker, monthly average earnings. From a medical point of view, the history of the diagnosis of hypertension (in number of years), the symptom for which the patient was hospitalised, the factors of decompensation of the disease, the associated risk factors, the associated co-morbidities, the awareness and understanding of the disease, followed by treatment (non-pharmacological, medical, expressed in pills), adherence to treatment, degree of autonomy (can be maintained alone or have entourage to care), recognition and management of signs of decompensation of the disease or complications these.

To measure adherence to treatment for patients, drug adherence (MAQ) questionnaires were used. Admission scores between 0-5 points (0-nonexistent, 1-very poor, 2-poor, 3-modest, 4-good, 5-very good) were scored and analysed later. The WHO Standardised Questionnaire for Quality of Life Assessment (HRQoL) was also used, which included questions about the patient's assessment of the quality of his life: physical, psychological, social and environmental.

The statistical analysis was made using the SPSS. Descriptive analysis was also used to determine the frequency and the standard and average deviation. For the evaluation of the quality of life the linear regression analysis was used. The demographic characteristics were analysed in the initial database, followed by the medical history of the patient (the age of the hypertension, the risk factors, complications, number of drugs in treatment). These were then correlated with demographic data. For the analysis of quality of life and adherence to treatment, multivariate analysis was used.

## **Results**

Following the analyses regarding the characteristics of the studied population, we obtained:

- The average age was 54 +/- 15 years;
- Distribution by sex: 67% Women, 33% Men;
- For patients over the age of 69, distribution by sex: 78% women, 71% men

- Marital status: 68% married, 32% unmarried or widowed;
- Social status: 74% live with family (husband/wife/children), 26% live alone; 87% of patients are independent (can take care of themselves); 10% have another person who does not belong to the family but who helps them, and 3% need someone else's care but they can't afford the help of such a person.
- Educational level: 17% graduated higher education, 52% graduated high school, 34% have primary education, 7% have no studies.
- Employment levels: 69% pensioners, 12% employees, 9% without occupation.
- Monthly average income: 300 EUR

The demographic factors were also emphasised by the literature (4).

From the point of view of the medical characteristics, we have obtained:

- 7% (under 5 years), 22% (between 5-10 years), 41% (10-20 years old), 30% (over 20 years old) known as essential hypertension.
- risk factors: smoking (active/severed) 21%, 42% dyslipidemia, 59% diabetes, 17% obesity.
- associated co-morbidities: 59% diabetes mellitus, 42% dyslipidemia, 9% antecedent stroke, 24% anaemia, 47% ischemic heart disease, 73% heart failure, 34% atrial fibrillation, 21%
- symptoms of hospital presentation: 32% equilibrium/vertigo disorders, 12% headache, 23% previous chest pain, 37% dyspnea, 18% dyspnoea, 10% palpitations.
- insufficiency of inpatient decompensation of hypertension: 1 hospitalisation - 12%, 2 hospitalisations - 38%, minimum 3 hospitalisations - 50%.
- admission factors: 47% non-compliance with medication, 57% non-compliance with diet, 22% with respiratory infections, 21% with acute coronary syndrome, 7% with new rhythm disorders.
- pretreatment medication included the following treatment classes: 81% diuretics, 66% conversion enzyme inhibitors, 22% angiotensin II receptor blockers, 41% calcium channel blockers, 14% central antihypertensives, 51% beta-blockers.

- pills per day: 1 pill - 5%, 2 pills - 4%, 3 pills 34%, over 3 pills > 57%

The linear analysis of the data obtained after interpreting the answers to the quality of life questionnaires showed that there is good statistical correlation ( $p < 0.005$ ) for the psychological status with age, educational level, occupational status, monthly average gain, degree of independence, number of pills per day, the number of re-admissions, associated co-morbidities. Also, for the social and environmental factors there is a statistically significant correlation ( $p < 0.05$ ) with the level of training, professional concerns, age, average monthly earnings, number of re-admissions, marital status. For the physical domain, we obtained statistically significant data with age, degree of training, associated co-morbidities. The relationship between quality of life and the degree of adherence to treatment is not statistically significant ( $p = 0.3$ ). The result of the analysis of the Pearson correlation showed that awareness was significantly associated with all HRQoL plans.

## Discussions

The study showed that the model of the hypertensive patient admitted to the cardiology clinic of the Bagdasar-Arseni Emergency Clinical Hospital includes most frequently the following: is over 55 years of age, with moderately high blood pressure values at the time of previous diagnosis, with at least 2 risk factors with associated co-morbidities, a medium level of education, low adherence to medication and diet, a history of several factors contributing to the worsening of hypertension (by decompensation or complications) that it is difficult to manage for themselves the control of blood pressure arrhythmias at the time of their growth with impairment of the quality of life in the physical, psychological and social domain.

Demographic data analysis has shown that older women aged 18-69 are more affected than men with lower levels of instruction, poor socio-economic status (low average monthly earnings) (8). Possible explanations might be that they are more often unemployed or in less paid positions, and thus the degree of financial independence is lower, so the

possibility of adherence to treatment is lower especially when it is observed that they are in category with at least 2 drugs in treatment. Most of them also had more than 3 children in care, which made adherence to treatment under an inadequate schedule for the daily schedule to decrease (1-3). The linear analysis of the questionnaires revealed a low quality of life for these patients, especially on the psychological and social level and on the relationship with the environment. For patients over the age of 65, retired, most of them with a median monthly earnings, graduating high school, family-dependent or non-family-based assistance, which associate at least 2 co-morbidities have a minimum of two past hospitalisations for aggravation of high blood pressure, the quality of life analysis has shown that all their plans remain significantly affected: the physical, psychological, social and environmental relationship, the negative impact of hypertension on this age category leads to additional degradation of their biological and emotional status. This may be the response to low adherence to the treatment regimen and sometimes even to its abandonment.

The level of instruction and education has shown that the quality of life is higher as the patient has a higher of education (graduating from university studies). This gives patients in this category a better understanding of the disease, awareness of the negative consequences the disease can cause in the long term, thus making them better adherent to treatment and periodic medical monitoring (6,7).

All of this is revealed by the analysis of quality of life questionnaires proving an increased level of physical, social and environmental relation. In patients with hypertension who have at least two associated co-morbidities and at least a target organ damage, it has been shown to have statistically significant ( $p < 0.001$ ), but also psychological ( $p = 0.05$ ) physical consequences on quality of life.

The study had a significant number of patients with low adherence to treatment, the interview with them showed that the increased degree of non-treatment is due to the poor understanding of the medication, long-term treatment, inappropriate economic status treatment with a large number of pills per day, chosen from the category of high-priced medications; not adjusting the timetable for medication according to daily habits; for some of the non-patient patients to remember the time of

administration; absence of discussions prior to the initiation of the treatment plan between the medical team and the patient (fear of side effects is the most common cause of non-compliance).

Our results showed that the monthly income was negatively associated with the physical domain of HRQoL. Income and low socio-economic status have been associated with poor quality of life and unwanted health consequences such as poor general health, reduced mobility and social isolation.

Co-existing diseases can have considerable effects on patient well-being. People with chronic conditions usually have co-morbidities (5). The results of this study showed that most participants had co-morbidities that had a significant relationship with HRQoL, especially in the physical field. The reverse relationship between comorbidity and quality of life has also been reported.

The association between disease awareness and quality of life has been demonstrated for all areas of quality of life (9). It is noteworthy that patients with a high level of awareness are more devoted to maintaining their adherence. Our findings are important because it refers to patients with high blood pressure who, as I understand they have to adhere to both pharmacological and lifestyle behavior to control blood pressure, reduce the risk of complications and improve the quality of life. The more orderly and organised the patients, the more efficient the performance is in changing the lifestyle and in maintaining the pharmacological adherence for a better quality of life results.

## **Conclusions**

The model of the hypertensive patient in our study includes the high and very high cardiovascular risk category that needs a rapid and effective reduction in blood pressure that associates at least three other risk factors, most commonly: dyslipidemia and diabetes already has produced organ damage requiring antihypertensive drugs with additional benefits to lowering blood pressure.

The findings of the study suggest that when considering intervention efforts to improve the quality of life of patients with hypertension, an approach should be taken to change lifestyle, increase adherence to pharmacological therapy and psychological support.

## Conflict of interest

The authors confirm that there are no conflicts of interest

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