THE IMPACT OF HYPERTENSION AND ASSOCIATED COMORBIDITIES ON QUALITY OF LIFE ASSESSMENT QUESTIONNAIRE SF-36 V2

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Abstract

Hypertension is a common cardiovascular disease insufficiently treated and monitored due to nonspecific symptomatology. Untreated hypertension causes cardiovascular complications: coronary artery disease, heart failure or stroke which, alongside other comorbidities affect the patients' family, social and professional life [15].

Using SF-36 v2 quality of life assessment questionnaire, the present study aimed to analyze the influence the pathologies associated with hypertensive disease have on areas that make up its physical and psychosocial functions and its impact on patients' daily activities. This could help to improve the quality of health services in optimizing the adherence of the patients to the treatment.

The study compared the quality of life indicators between the group of patients and a control group comprising healthy individuals.

Comparing the scores obtained by the two groups, lower values in all subdomains were found for the study group compared with control group. The regression analysis showed that strong negative impact pathologies in all areas were heart failure, coronary heart disease, diabetes and anemia. The other pathologies differently influenced the physical and psychosocial functions.

Rezumat

Hipertensiunea arterială reprezintă patologia cardiovasculară cu incidenţa cea mai mare în populaţie datorită faptului că este insuficient tratată şi monitorizată. Netratată

cauzează complicaţii cardio-vasculare: boala coronariană, insuficienţă cardiacă, accidente vasculare ischemice care afectează pacientul din punct de vedere familial, social şi professional.

Studiul de faţă a avut ca scop compararea şi interpretarea indicilor de calitate a vieţii între lotul de pacienţi şi un lot martor care cuprinde indivizi sănătoşi. S-a observat că, la lotul de pacienţi valorile tuturor scorurilor sunt inferioare celor de la lotul martor, iar analiza de regresie a demonstrat impactul negativ puternic pe care îl prezintă insuficienţa cardiacă, boala coronariană, diabetul şi anemia asupra indicilor de evaluare a calităţii vieţii.

Scopul unei astfel de analize este acela de a ameliora calitatea vieţii pacienţilor prin optimizarea schemelor terapeutice şi îmbunătăţirea complianţei.

Keywords: hypertension, comorbidities, quality of life assessment, optimizing drug therapy.

Introduction

Health is the result of a complex association between individual factors (genetic background, lifestyle, individual characteristics) and social ones (education level, occupation, level of socialization), plus the quality of medical care and the way therapeutic interventions are managed.

Personal health assessment is how individuals define their own health, but also the quality of their lives [23].

WHO (World Health Organization) defines quality of life as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" [23].

The quality of life assessment is performed by using global and specific tools. It addresses different categories of subjects suffering from certain diseases [23, 30, 31].

Currently, clinical trials use increasingly quality of life assessment questionnaires because the aforementioned:

- describe the general condition of the patient in the presence of certain diseases;

- evaluate the indices of quality of life after treatment;

- are used in pharmacoeconomic studies which analyze the cost of a quality adjusted year of life for a certain therapeutic intervention;

- determine people's need for physical, emotional and social support while in a state of illness.

It was frequently found that hypertension is diagnosed relatively late, when the disease is already visceralized.

Most of the studies on hypertensive patients focus on demonstrating how medical treatment has an impact on the quality of life. Yet, fewer studies assess how the presence of other pathologies associated with

hypertensive disease is affecting the parameters included in the assessment of quality of life questionnaires [5, 18, 19, 29].

The purpose of this study was to describe how pathology associated to the hypertensive patient affects the areas of evaluation of the patients' quality of life compared to the results obtained for the healthy population.

Materials and Methods

The patients included in the study were admitted to ASCAR Cardiology Clinic, Timisoara, Romania and were assessed over the period: December the 1st 2011 to November the 30th 2012.

The study included a total of 358 patients, 195 women (54.46%) and 163 men (45.53%), primarily diagnosed with hypertension in different stages of evolution, associated with other cardiovascular or non-cardiac comorbidities.

The mean age of the patients (± SD) was 64.93 ± 10.75 years, within the range: 29 to 87 years.

The control group included 191 healthy individuals, 102 women (53.4%) and 89 men (46.59%) with a mean age of 63.54 ± 7.26 years, ranging from 25 to 86 years.

Questionnaire Management

In order to assess the quality of life for patients included in the study, the most widely used type of questionnaire was selected, namely the SF36-v2. License for the use of this questionnaire was obtained in November 2011. It also included the data processing software: Quality Metric Health Outcomes Scoring Software 4.0, Copywright 2010. The SF-36 questionnaire is the most frequently used for cardiac studies [26, 27, 30, 31, 32].

The SF-36v2 questionnaire by John Ware Jr includes the following areas of assessment:

1.   ***Physical function (PF)*** comprises eight items and reflects the levels and types of limitations between the margins of a physical activity.

2.   ***Physical role*** *(RP)* includes 4 items, reflecting physical incompatibilities with negative impact on daily and socio-professional activities.

3.   ***Bodily pain(BP)*** with 2 items, assesses physical pain intensity and its impact on daily activities;

4.   ***General health assessment (GH)***, contains 5 items including global assessment of health status, the patient's perceptions and expectations regarding their health status;

5.   *Vitality (VT)* contains 4 items and highlights changes in the well-being of patients.

6.   *Social function (SF)* with 2 items, quantitatively and qualitatively assesses the impact of sickness / health on an individual's social activities focusing on the influence of physical and emotional problems on social activities.

7.   *Emotional role (RE)* includes 3 items that indicate the emotional impact the disease has on the individual, thereby limiting his/her professional activity or limiting the performance of other daily activities.

8.   *Mental health (MH)*, with 5 items includes the assessment of the anxiety, depression, behavioral disorders, and the psychological well-being.

Two categories were identified as a result of the analysis and the correlations between the 8 areas abovementioned: *the physical (PCS)* and *the mental component (MCS)* of health. These two components evaluate the two assessment directions of the questionnaire: the mental and the physical one.

The questionnaire meets a score from 0 (minimum) to 100 (maximum). The software processes the responses to each question. Scores are obtained for each patient and for all 10 areas of evaluation. A minimum of 0 means the poorest health condition and maximum 100 means a perfectly good health [27, 32].

Respondents who completed the form met the following eligibility criteria: age>18 years, ability to read, cooperation and understanding while filling in the questionnaire.

The questionnaire was completed by patiens during hospitalization, under the guidance of a health professional (doctors and clinical pharmacists).

Medical assessment

All the diagnosis and the treatment regimens were collected from the medical records of the patients with the approval of the local Ethics Committee.

The co-morbidities associated to the hypertensive disease in the patients included in the study group, were the following: coronary artery disease (with or without a history of myocardial infarction), valvular heart disease, heart failure, arrhythmias, stroke, peripheral circulatory disorders, dyslipidemia, obesity, diabetes, chronic renal failure, thyroid pathology, gastrointestinal pathology (gastric ulcer, duodenal ulcer, liver disease).

Statistical analysis

Data distribution was evaluated by the Kolmogorov-Smirnov test. Continuous data were expressed as mean ± standard deviation (SD).

Categorical data were represented as frequency and percentage. The statistical analysis of each parameter was assessed by Student's *t* test or Mann-Whitney *U* test, as appropriate. The comparison between groups was performed by one-way ANOVA. For the correlation analysis, Spearman or Pearson test was applied, depending on the Gaussian distribution. The level of statistical significance was established at $p < 0.05$. Multiple linear regression was performed by using the IBM SPSS Statistics, ver.20, the dependent variables being the areas of the life quality assessment questionnaire and the independent variables considered were age, gender and comorbidities.

Results and Discussion

The mean age of the study group did not differ significantly from the control group ($p = 0.109$, Student's *t t*est).

The women group age was significantly higher (average 66.58 ± 10.87 years, median 66 years) compared to the group of men (average 63.44 ± 11.49 years, median 64 years $p = 0.008$, Student's *t* test). Most patients included in the study group (n=237, 66.20%) and those from the control group (n=120, 62.82 %) belonged to the 6 – 8th age decades.

The investigated patients had an average history of hypertensive disease of 10 years, only 25 (6.98%) of the patients were recently diagnosed with essential hypertension.

Patients included in the study had hypertension as their primary diagnosis in various stages of development. Comorbidities were represented by other cardiovascular diseases, metabolic disorders, neurological and peripheral circulatory disorders, their percentage being represented in table I.

Table I

The incidence of comorbidities in the study group

No.	Associated Pathology	No. of patients	Percentage within the group of patients	Confidence intervals for percentage within the group of patients
1	Coronary artery disease	262	73.18%	(68.59, 77.77)
2	Heart rhythm disturbances	112	31.28%	(26.48, 36.08)
3	Myocardial infarction	40	11.17%	(7.91, 14.43)
4	Valvular dysfunction	53	14.80%	(11.12, 18.48)
5	Valve prosthesis	20	5.59%	(3.21, 7.97)
6	Left ventricular hypertrophy	22	6.15%	(3.66, 8.64)
7	Heart failure	140	39.11%	(34.06, 44.16)

No.	Associated Pathology	No. of patients	Percentage within the group of patients	Confidence intervals for percentage within the group of patients
8	Ischemic stroke	26	7.26%	(4.57, 9.95)
9	Peripheral circulatory disorders	16	4.47	(2.33, 6.61)
10	Dyslipidemia	166	46.37%	(41.20, 51.54)
11	Obesity	74	20.67%	(16.48, 24.86)
12	Diabetes	71	19.83%	(15.70, 23.96)
13	Chronic renal failure	70	19.55%	(15.44, 23.66)
14	Anemia	13	3.63%	(1.69, 5.57)
15	Thyroid pathology (Graves' disease)	23	6.42%	(3.88, 8.96)
16	Cervical spondylosis	11	3.07%	(1.28, 4.86)
17	Pulmonary pathology (asthma, chronic obstructive pulmonary disease, sleep apnea, pulmonary infarction)	60	16.76%	(12.89, 20.63)
18	Gastrointestinal pathology (steatosis, gastritis, gastric or duodenal ulcers)	88	24.58%	(20.12, 29.04)

The mean age of the patients with more than 6 associated diseases was higher than that of patients with less than 3 comorbidities (70.14 ± 10.62 years *vs.* 63.31 ± 10.12 years, p = 0.112, Student's *t* test).

The number of associated pathologies did not significantly affect the quality of life. Thus, no significant differences were found in terms of value indices for assessing quality of life in patients with 2-3 associated pathologies, compared with 4-6 comorbidities, or more than 6 conditions. Hence, the one-way ANOVA test showed the following results: for PF p= 0.555, for RP p=0.288, for BP p=0.669, for GH p=0.644, for VT p= 0.979, for SF p= 0.684, for RE p=0.263, for MH p=0.107, for PCS p=0.731, respectively for MCS p= 0.101.

Most patients were treated with a total of 4-6 pharmacological agents (n=189, 52.79%). A total of 109 patients (30.44%) were treated with 1-3 drugs and 60 patients (16.75%) were taking over 7 drugs daily.

The number of comorbidities correlated positively and significantly with the number of drugs taken (r = 0.313; 95% CI 0.121 - 0.483, p=0.001).

By analyzing the influence of the number of drugs upon the quality of life assessment areas, it was shown that the physical, social and emotional functions were significantly higher in subjects treated with 1-3 medicines as compared to those treated with more than 7 (Table II).

Table II

The modification of life quality evaluation indices according to the number of drugs administered within the study group

Parameter (mean ± SD)	1 – 3 drugs (mean age: 61.8 years)	4 – 6 drugs (mean age 65.3 years)	≥ 7 drugs (mean age: 65.3 years)	p (ANOVA)
PF	59.00±25.37	45.10±27.49	42.49±22.35	0.04
RP	58.75±25.06	38.29±28.27	36.45±24.73	0.003
BP	49.72±25.40	34.95±22.88	43.06±26.19	0.050
GH	48.92±22.59	42.14±20.46	40.00±16.87	0.232
VT	56.75±19.50	42.42±20.60	46.25±22.60	0.025
SF	77.5±25.25	64.09±26.40	58.75±29.57	0.036
RE	71.66±24.99	48.40±28.32	44.16±24.28	0.0003
MH	64.6±18.48	54.46±18.94	52.83±21.20	0.057
PCS	41.39±9.90	36.73±8.84	37.46±6.70	0.086
MCS	48.58±9.46	41.49±10.10	40.17±11.84	0.008

The values of the life quality parameters obtained by using the questionnaire showed no significant differences between male and female patients (Student's *t* test): for PF p= 0.258, for RP p=0.669, for BP p=0.109, for GH p=0.219, for VT p= 0.329, for SF p= 0.476, for RE p=0.203, for MH p=0.186, for PCS p=0.237, for MCS p= 0.426.

By analysing the quality of life assessment area indices and by taking into consideration the patients' age, it was shown that the values of physical function (PF), physical role (RP) and those of physical component (PCS) were negatively correlated with age, while the values of general health (GH), vitality (VT) and mental component (MCS), correlated positively with age. Social function (SF) and emotional role (RE) values did not correlate significantly with the patient's age (Table III).

Table III

Correlation between age and quality of life parameters
(r, Spearman non-parametric correlation index)

Parameter	r Spearman index	95% Confidence interval	p
PF	-0.408	-0.493 to -0.314	< 0.0001
RP	-0.52	-0.593 to -0.437	< 0.0001
BP	0.127	0.02-0.231	0.011
GH	0.320	0.221-0.413	< 0.0001
VT	0.247	0.144-0.344	< 0.0001
SF	0.08	-0.02 to -0.19	0.101
RE	0.05	-0.05 to 0.15	0.330
MH	0.241	0.137-0.33	< 0.0001
PCS	-0.341	-0.432 to -0.243	< 0.0001
MCS	0.248	0.145-0.346	< 0.0001

By comparing the parameters in the quality of life assessment areas between the two groups, significantly lower values were registered in the study group compared with the control group ($p<0.0001$, Student's *t* test) (Table IV), which confirm the reality, but confirm also the reliability of the questionnaire.

Table IV

Quality of life parameters in the study group *vs*. control group

Parameter	Study group (n=358)	Control group (n=191)	p (*t* test)
PF (mean ± DS) Minimum-maximum	45.88 ±15.76 0-100	88.17±20.38 15-100	<0.0001
RP(mean ± DS) Minimum - maximum	40.51±16.72 0-100	87.36±21.11 12.5-100	<0.0001
BP (mean ± DS) Minimum - maximum	39.04±14.13 0-100	73.22±21.64 31-100	<0.0001
GH (mean ± DS) Minimum - maximum	41.43±12.55 0-100	67.7±16.95 25-97	<0.0001
VT (mean ± DS) Minimum - maximum	45.88±14.56 6.25-93.75	63.30±18.41 25-93.75	<0.0001
SF (mean ± DS) Minimum - maximum	63.78±17.67 0-100	84.27±20.34 25-100	<0.0001
RE (mean ± DS) Minimum - maximum	50.63±17.24 0-100	87.99±17.31 33.3-100	<0.0001
MH (mean ± DS) Minimum - maximum	54.27±12.23 10-95	73.0±14.98 40-100	<0.0001
PCS (mean ± DS) Minimum - maximum	36.12±5.60 20.63-61.11	52.86±8.0 25.1-60.63	<0.0001
MCS (mean ± DS) Minimum - maximum	41.13±7.42 23.46-68.0	50.31±7.28 30.7-62.68	<0.0001

By using the multiple linear regression analysis, we noticed that the quality of life assessment areas were correlated with different comorbidities. To the independent variables, age and gender were added in order to see if they affect the dependent variables, the quality of life domains (PF, RP, BP,GH, VT, SF, RE, MH, MCS and PCS).

The coefficients affecting the regression equation are shown in table V. These determine the connection between the two types of variables under assessment: the dependent variables (the assessement fields of the questionnaire) and the independent ones (age, gender and hypertension associated comorbidities). The table also includes the coefficients expressing the quality of the regression model (R^2 - squared correlation coefficient, $R^2_{adj.}$ - squared correction coefficient (adjusted for degrees of freedom − i.e. for number of variables and observations), SD - standard deviation, F - Fisher test value, p - significance level).

The multiple linear regression models were obtained using the backward method. This method consists in placing all the independent

variables in an initial model and then taking out the ones that have p-values greater than 0.05 at the Student *t* test. The first variable taken out is the one with the highest p-value at the Student *t* test. This procedure stops when all the independent variable of the model have p-values less than 0.05.

Table V

Results of multiple regression analysis model

Patients' characteristics and comorbidities (the independent variables)	Coefficients of regression equations for the dependent variables									
	PF	RP	BP	GH	VT	SF	RE	MH	PCS	MCS
Consistency	54.54	51.36	46.68	26.51	9.27	28.87	41.14	31.22	44.83	24.22
Age	-0.23	x	x	0.38	0.61	0.61	0.49	0.54	-0.08	0.33
Sex	x	x	x	x	5.33	x	-7.04	x	x	x
Coronary disease	x	x	-4.46	-4.92	x	x	-9.49	-4.43	x	x
History of myocardic infarction	x	x	x	x	x	18.63	x	x	x	x
Degenerative changes of valves	-10.85	-14.31	x	x	x	x	x	-19.26	x	x
Heart rhythm disturbances	x	x	x	x	-10.98	x	-9.41	-9.58	x	-5.27
Heart failure	-19.7	-17.65	-6.97	-13.66	-15.98	-7.36	-26.99	-14.53	-4.38	-8.7
Left ventricular hypertrophy	10.89	x	x	7.9	15.63	x	13.35	11.27	x	4.97
Valve prosthesis	-19.97	-15.44	-21.93	x	-15.11	-14.1	x	-12.76	-6.17	x
Dyslipidemia	6.87	7.06	x	x	x	5.98	x	x	2.34	x
Diabetes	-12.26	-11.01	-7.55	-12.8	x	-13.05	-6.07	x	-4.38	x
Obesity	x	x	x	10.85	11.39	14.04	24.71	x	x	5.13
Strokes	x	x	x	x	x	x	x	x	x	x
Peripheral circulatory disorders	x	12.59	9.54	x	x	x	10.24	x	2.8	3.65
Pulmonary infarction	x	-24.95	x	x	x	-32	x	-21.89	x	x
Asthma / Chronic obstructive disease / Sleep apnea	-8.31	-14.21	x	-10.4	x	x	x	7.68	-5.73	4.89
Chronic renal failure	x	x	27.72	x	x	-19.3	-23.62	x	5.22	-7.82
Steatohepatitis	x	x	x	18.1	12.61	28.52	x	x	x	x
Anemia	-52.5	-48.24	-36.22	-18.78	-38.19	-20.39	-48.75	-19.81	-14.6	-10.74
Thyroid pathology	x	x	-14.72	x	x	x	-35.55	-11.07	x	-10.74
Spondylosis	x	x	-14.72	x	x	x	-35.55	-11.07	x	-10.26
Gastrointestinal pathology (gastric / Duoden ulcer, gastritis)	12.52	x	14.61	9.84	x	x	x	x	7.06	-3.73
R^2	0.309	0.296	0.259	0.238	0.252	0.216	0.38	0.286	0.345	0.294
R^2_{adj}	0.235	0.227	0.195	0.154	0.17	0.13	0.305	0.198	0.273	0.208
SD	22.87	24.45	22.45	18.52	19.62	25.89	23.62	17.81	7.41	9.71
F	4.879	4.439	4.053	4.35	3.064	2.37	5.02	3.47	4.81	3.41
p	0.0001	0.0001	0.0001	0.0001	0.002	0.013	0.0001	0.001	0.0001	0.001

Hypertension is a disease with a long asymptomatic state or with nonspecific symptoms, and therefore patients are not diagnosed in the early stages of the disease. Diagnosis is frequently established in a more advanced stage of the disease or during a routine medical examination.

Hypertensive patients hospitalized in cardiology clinics for monitoring and / or adjusting of the initial treatment are often diagnosed with other associated diseases. These comorbidities may influence the evolution of both, hypertension as well as patients' daily activities [3,13,14].

The main objective of the present study was to demonstrate correlations between comorbidities associated with hypertensive disease and areas that characterize the quality of life assessment SF-36v2 questionnaire. The study also aimed to highlight the way each part of the questionnaire is influenced by comparison with the existing levels in a control group of healthy individuals similar in age to the study group.

The use of a general measure of assessment for the patient's "well-being" such as the SF-36 questionnaire is advantageous in comparison with other assessment tools specific to each type of pathology, since questions reflect important issues for the patient, even if this reflection represents an overall and subjective assessment; quality of life determinants can be assessed for the individual and can then be extrapolated to society. These general questionnaires are useful for monitoring subjects with many pathologies, an aspect frequently encountered especially within the elderly population and can be applied also to the control group represented by the general population with no pathology [2, 16, 30, 32].

The analysis of comorbidities associated to hypertension showed that the highest incidence belongs to the coronary heart disease (73.18%), followed by heart failure (39.11%) and metabolic disorders: dyslipidemia (46.37%) and diabetes (19.83%). These complications are due to a lower compliance with the drug treatment previously prescribed, or a late diagnosis of the hypertensive disease.

The average length of time since the diagnosis of hypertension until the actual assessment was approximately 10 years, with a minimum of 1 year and a maximum of 15 years. The youngest patients with a history of hypertension included in the study were in the fifth decade of life, meaning that they were diagnosed with hypertension at young ages (30-40 years).

The lack of treatment for hypertension lead to complications over time, that will significantly impact both the patient's professional as well as social activity [10, 11, 13, 14].

Assessment of the questionnaire showed that, for the group of patients under review, the values did not differ according to gender if

compared to other similar studies [1, 22, 24] where the impact on the quality of life is different in men *versus* women. There are scarce published data in the literature regarding the quality of life indices in hypertensive men compared to women. The differences ascertained between genders could be explained by the more severe cardio-vascular diseases (by-pass surgery, unstable angina, myocardial infarction), with a more serious symptomatology. Our study comprised hypertensive patients without the abovementioned cardiac diseases. Also, the questionnaire is general, not gender specific.

As patient age increases, these values diminish for domains assessing physical activity and remain constant or slightly increased for areas assessing the individual's social function. This shows that the social work of professionally active patients is affected by comorbidities. Data confirms the influence of age on the areas of questionnaires evaluating the physical function [5, 8, 9, 16].

The correlation between the number of comorbidities with the number of drugs taken has shown a small but reliable connection, although it would have been expected a much stronger one.

It was also found that the number of comorbidities did not significantly affect any area of assessment of the quality of life, but the number of drugs significantly influenced these areas. It might explain the negative perception that patients have about the large number of co-prescribed drugs and / or formulations administered in daily divided doses and the low adherence to the antihypertensive treatment.

Patients who have associated coronary artery disease show negative correlations in terms of physical pain and general health assessment. But the patient's disease has an impact on his/her emotional state, especially if the disease has a poor prognosis (e.g. unstable angina with risk of myocardial infarction and death), aspects that are found in similar publications [7, 10].

It was found that for patients who had a history of myocardial infarction, valvular heart disease, heart rhythm disturbances, but who were subsequently stabilized, only the psychosocial component was influenced (the vitality and the emotional part). Perhaps the patient follows the treatment and the periodical evaluations, being aware of their importance for pathology stabilization and its favorable progress, although literature is contradictory in this respect [5].

A pathology that affects all quality of life assessment areas, both physical and emotional, is heart failure. In the study group, the percentage of patients diagnosed with heart failure is major. This large number of patients with heart failure may be due to the late diagnosis of hypertension.

Its unfavorable prognosis is associated with a negative correlation of all areas assessing the mental function and the social activity (vitality, social function, emotional state, mental health) that correlates with the overall assessment: MCS. Left ventricular hypertrophy shows no negative influences in any area, probably due to the impossibility of associating it with a specific symptom. The data are consistent with other similar items showing that predictors of heart failure do not affect quality of life assessment areas [4, 11, 17, 20, 21, 28].

Among pathologies that compile the metabolic syndrome (dyslipidemia, diabetes and obesity), diabetes has a negative impact on most areas. This is probably due to the insufficient monitoring of the treatment, the frequent occurrence of acute complications (e.g. keto-acidosis diabetic coma), or of chronic ones (diabetic retinopathy, diabetic foot, etc.) which invalidates the patient, both physically and mentally. The data obtained in other similar articles are contradictory [5, 7]. The discrepancies could be explained by the differences in the monitoring algorithm, the compliance to the treatment of the studied patients or the patients knowledge regarding this disease.

Obesity affects only the psychosocial aspects included in the questionnaire.

Pulmonary pathology influences the physical function and correlates less with the emotional one. Literature does not consider this variable, but in patient records the pathology was mentioned, therefore it has been included in the list of co-morbidities [25].

A pathology which is often overlooked in the assessment of patients with cardiovascular disease, although it has a negative impact on the evolution of the disease, is anemia. It was found that this affects negatively and significantly all areas of evaluation, the results being statistically significant.

Thyroid pathology negatively influences the psychological role, which is consistent with literature data [12].

Hepatic pathology affects general health, the social function and the patient's vitality, all correlating with the generated symptoms.
The present analysis did not determine significant correlations for transitory ischemic stroke and digestive pathology compared with other publications [7]. This might be due either to the insufficient number of cases analyzed or because pathology after treatment has improved and the patient considered it insignificant.

Because it is a very laborious process, which takes time, it is desirable to have a multidisciplinary team (doctors, clinical pharmacists,

psychologists) who can analyze the data from the questionnaire and then implement the changes necessaries for a better management of the disease and for the good and well-being of the patient.

The analysis reported in the present study is affected by a number of limitations.

The number of patients in the study group is relatively small.

It was difficult to assess patients in dynamics, because they have not returned to control after three months. Thus, there was no possibility to evaluate the patient in terms of compliance with the treatment and the possible side effects of medication.

Another limitation was that the regression analysis had an adjusted R2 value between 0.130 and 0.305, which means that there are factors which were not taken into consideration and which might have been influenced the outcome, even though the statistical significance was reached ($p < 0.01$) for all fields.

Conclusions

Conditions showing a poor prognosis (myocardial infarction, unstable angina, cardiac arrhythmias, valve replacement surgery) have a negative impact on the emotional component of the life quality assessment questionnaire. Other conditions such as heart failure, diabetes, asthma, anemia, adversely affect the patient's physical function.

Most of the pathologies analyzed influence the psycho-social component, which means that more attention should be paid to the impact of the disease on the emotional state of the patient, with personal and social implications.

Cases when the MH domain (mental health) is affected should be identified in order for the patients to receive proper medical care.

It is necessary to identify, assess and correct the negative factors concerning medication (many pharmacological agents, number of daily doses, adverse effects) for the patient's symptomatic pathology and psycho-social background in order to determine the improvement of individual quality of life evaluation indices.

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