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Evaluation of health behavior in patients with systemic sclerosis

Ocena zachowań zdrowotnych u pacjentów z twardziną układową

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S u m m a r y

Introduction. Systemic sclerosis (SSc) is a chronic progressing disease of connective tissue, characterized by damage to blood vessels, immunological disorders and excessive cumulation of extra cellular matrix components in the skin and internal organs. In spite of intense clinical studies, causative treatment of SSc is impossible, and the therapy modifying the course of disease turns out to be ineffective. That is why the role of health behaviors in maintaining and strengthening one's health in the group of SSc is so important.

Aim. The aim of the study was to investigate health behaviors in SSc patients and determining the relationship between the above-listed factors and the intensity of skin and organic lesions.

Material and methods. The study included 80 patients with SSc treated in the Chair and Department of Dermatology, Venereology and Paediatric Dermatology and in the Chair and Department of Rheumatology of the Medical University of Lublin as well as the control group, matched in terms of sociodemographic variables. In this paper diagnostic survey, which in the research part contained questions concerning socio-demographic data, clinical and assessment of health behaviors of patients with SSc. Health Behavior Inventory (IZZ) was used to evaluate health behaviors.

Results. The author's own studies revealed that the general index of health-related types of behavior in the group of patients with SSc was significantly higher than in the control group (p < 0.001). Such a dependence was found in all the examined domains.

Conclusions. Systemic sclerosis patients had a significantly higher rate of health-oriented behaviors than controls, suggesting that health threats mobilized patients for healthy behaviors.

S t r e s z c z e n i e

Wstęp. Twardzina układowa (SSc) to przewlekła, postępująca choroba tkanki łącznej, która charakteryzuje się uszkodzeniem naczyń, zaburzeniami immunologicznymi i nadmierną kumulacją składników macierzy pozakomórkowej w skórze i narządach wewnętrznych. Pomimo intensywnych badań klinicznych leczenie przyczynowe twardziny układowej nie jest możliwe, a terapia modyfikująca przebieg choroby okazuje się nieskuteczna. Dlatego tak ważna jest rola zachowań zdrowotnych w utrzymaniu i umacnianiu własnego zdrowia w grupie chorych na SSc.

Cel pracy. Celem pracy było zbadanie zachowań zdrowotnych u chorych na SSc oraz określenie zależności pomiędzy wymienionymi czynnikami a nasileniem zmian skórnych i narządowych.

Materiał i metody. Badaniami objęto 80 pacjentów z rozpoznaną SSc, leczonych w Katedrze i Klinice Dermatologii, Wenerologii i Dermatologii Dziecięcej oraz w Katedrze i Klinice Reumatologii Uniwersytetu Medycznego w Lublinie, a także grupę kontrolną, dobraną odpowiednio pod względem zmiennych socjodemograficznych. W pracy zastosowano: sondaż diagnostyczny, który w części badawczej zawierał pytania dotyczące danych socjodemograficznych, badanie kliniczne i ocenę zachowań zdrowotnych pacjentów z SSc. Do oceny zachowań zdrowotnych wykorzystano Inwentarz Zachowań Zdrowotnych (IZZ).

Wyniki. Badania własne wykazały, że ogólny wskaźnik zachowań zdrowotnych w grupie chorych na SSc był istotnie wyższy niż w grupie kontrolnej (p < 0,001). Zależność taką stwierdzono w zakresie wszystkich badanych domen.

Wnioski. Chorzy na twardzinę układową wykazywali istotnie wyższy wskaźnik zachowań zdrowotnych aniżeli osoby z grupy kontrolnej, co wskazuje, że zagrożenie zdrowia mobilizowało pacjentów do zachowań prozdrowotnych.

INTRODUCTION

Recognition of the key role of health behaviors in maintaining and strengthening health was an important change that took place in people's minds in the second half of the twentieth century. The fact that seven of the top 10 causes of death are related to behavioral actors has increased the need for research in the field (1). For this reason, an important role in promoting health is attributed to raising public awareness of health and the factors influencing it, enabling people to control their own health and to strengthen the health of the individual and the environment. Health-oriented activities include habitual health behaviors, as well as targeted health activities. Health habits are the result of socializing processes and cultural influences. They are associated with the hygiene of everyday life, eating habits, physical activity, relaxation. On the other hand, targeted health activities are initiated in specific situations, related to promotional or preventive activities, and include human behavior in disease (2, 3).

Taking positive health behaviors is correlated, among others, with the evaluation of health, and this in turn affects the health motives resulting from the level of interest in one's own health. Those who credit health highly, have a greater involvement in health-promoting behaviors, e.g. following a specific diet, smoking cessation, preventive examinations. People appreciate their health in situations of health threat and possibility of losing it (4-7).

AIM

The aim of the study was to answer the following research questions:

1. Do systemic sclerosis (SSc) patients differ significantly in evaluating their health behaviors from healthy individuals?
2. Does the clinical condition (thickness of skin fold, presence of calcinosis, acroosteolysis, ulcers and scars, scleroderma, microangiopathy, interstitial lung disease, heart disease, active phase of disease) have a significant impact on the health behavior of patients with systemic sclerosis?

MATERIAL AND METHODS

The study included 80 patients with systemic sclerosis (70 women and 10 men) treated in the Chair and Department of Dermatology, Venereology and Paediatric Dermatology and in the Chair and Department of Rheumatology of the Medical University of Lublin as well as the control group, matched in terms of sociodemographic variables (71 women and 9 men re-spectively). All participants in the study were informed about its validity, the method of conducting it and signed an informed consent. The mean age of patients was 58.11 (SD = 11.55) and of the control group 55.70 years (SD = 14.49). The mean duration of illness in patients was 11.3 years. The SSc group did not differ significantly from the control group in terms of age, place of residence, type of work performed, marital status.

The study was conducted in accordance with a protocol approved by the Bioethics Commission for Surveillance of Clinical Studies at the Medical University of Lublin (KE-0254/123/2010).

The subjects from the study group underwent medical examinations. Particular attention was paid to the presence of: ulcers, scars, calcinosis and acroosteolysis. Modified Rodnan Skin Score was used to assess the severity of skin lesions (8). Changes in microcirculation were assessed by capillaroscopy, in lungs – by pulmonary function tests and high resolution chest computer tomography (HRCT klp). The esophageal lesions were assessed by contrast radiography of the upper gastrointestinal tract, using a barium sulphate suspension. Cardiac evaluation was based on electrocardiography (ECG) and echocardiography. There were performed routine laboratory tests, and immunological evaluations of serum antinuclear antibodies (ANA), ESR, CRP, and C3 and C4 complement components.

Socio-demographic data was determined on the basis of a survey by Katarzyna Kozłowicz.

The Health Behavior Inventory (IZZ) questionnaire contained 24 statements describing different types of behavior related to health, divided into 4 categories of health behaviors: proper eating habits, preventive behaviors, health practices, positive mental attitudes. Proper eating habits take into account firstly the type of consumed food (e.g. whole meal bread, vegetables, fruits). The statements describing preventive behavior concerned the observance of health recommendations, obtaining information on health and disease. On the other hand, health practices included daily habits of sleeping, recreation and physical activity. Positive mental attitudes include the range of health behaviors such as psychological factors, the avoidance of excessive emotions, stress, tensions, and depressing situations (9).

The Health Behavior Inventory is designed for testing healthy and sick adults. Used together with other tools, it can help in programming preventive measures, determining the directions of behavior modification and monitoring of changes in professional practices (9).

The respondents marked how often they performed health related activities and evaluated each of these behaviors in the inventory of the five-point scale: 1 – almost never, 2 – rarely, 3 – from time to time, 4 – often, 5 – almost always.

The numbers marked by the respondents were counted towards the overall index of health behaviors intensity. Its value ranged from 24 to 120 points. The higher the score, the greater was the intensity in declared health behaviors. The overall index, converted to standardized units based on the table, was interpreted according to the characteristics characterizing the sten score scale (9). Results within 1-4 sten, were treated as low, and within 7-10 sten as high, corresponding to about 33% of the lowest scores, and also the same of the highest scores in the scale. The results of 5-6 sten were treated as mediocre. In addition, the intensity of the four categories of health behaviors was separately calculated – the index was the average score in each category, i.e. the sum of points divided by 6 (9).

The results were analyzed statistically using STATISTICA 10.0 PL software. The normality of distribution of the individual variables was tested using Lilliefors' test (a version of the Kolmogorov-Smirnov test) as well as the Shapiro-Wilk test.

Student's t-test was used to compare interval variables between pairs of independent groups.

The Mann-Whitney U test was used to compare interval variables between two independent groups when the variables did not have a normal distribution.

Spearman's Rho was used to calculate the correlations between the selected variables.

RESULTS

Table 1 shows the results of health behaviors assessed by IZZ questionnaire in patients with systemic sclerosis in comparison to healthy subjects (Student's t-test).

Tab. 1. Evaluation of health behaviors examined by IZZ questionnaire in SSc patients and control group

IZZ scales	Study group		Control group		t	p
	M	SD	M	SD		
Health Behavior Index	87.275	7.957	72.673	12.210	9.250	0.001
Positive mental attitude	19.838	3.595	14.752	6.352	6.393	0.001
Prophylactic behavior	23.175	2.175	17.436	4.807	9.902	0.001
Proper eating habits	20.475	2.667	23.119	4.327	-4.790	0.001
Healthy practices	23.788	2.422	17.366	4.671	11.161	0.001

The study confirms statistically significant differences in all health behaviors: positive mental attitudes, preventive behaviors, proper eating habits, and healthy practices among the group of patients and the controls. Persons with systemic sclerosis were significantly more likely than those from the control group to exhibit the above mentioned health behaviors.

Table 2 shows the results of the health behaviors assessment in the study group depending on gender (the Mann-Whitney U test).

Tab. 2. Evaluation of health behaviors in the study group by gender

IZZ scales	Women	Men	U	p
	median	median		
Health Behavior Index	88.5	84.0	200.5	0.028
Positive mental attitude	20.0	16.0	214.5	0.048
Prophylactic behavior	23.0	22.0	209.0	0.040
Proper eating habits	20.0	20.5	307.0	ns
Healthy practices	24.0	22.5	169.5	0.007

ns – not significant

The results showed that the overall index of health behaviors (IZZ) in the group of patients with systemic sclerosis in women was significantly higher than in the male group. Women more often than men with systemic sclerosis show prophylactic behaviors, healthy practices, and more positive mental attitudes.

The table 3 contains evaluation of selected parameters of health behavior in the studied group depending on the age (Spearman's R).

Tab. 3. Evaluation of selected parameters in SSc patients by age

IZZ scales	Spearman R	p
Health Behavior Index	-0.60	ns
Positive mental attitude	-0.246	0.028
Prophylactic behavior	-0.023	ns
Proper eating habits	0.008	ns
Healthy practices	-0.086	ns

ns – not significant

A statistically significant negative correlation was found between the age of patients with systemic sclerosis and a positive mental attitude. These results indicate that the older patients were, the less frequently they avoided stressful situations, tension or negative emotions.

Table 4 contains an evaluation of the health behavior of SSc patients according to the severity of skin lesions (mRSS) (Spearman's R).

Tab. 4. Evaluation of selected parameters in SSc patients depending on the thickness of the skin fold

IZZ scales	Spearman R	p
Health Behavior Index	-0.132	ns
Positive mental attitude	-0.080	ns
Prophylactic behavior	-0.008	ns
Proper eating habits	-0.329	0.015
Healthy practices	-0.048	ns

ns – not significant

The severity of skin lesions in patients was negatively correlated with proper dietary habits, which means that the more severe the skin lesions, the less frequently used proper diet by the patients.

Table 5 shows a comparison of health behaviors depending on the presence of calcinosis (Mann-Whitney U test).

Tab. 5. Comparison of results obtained in the IZZ questionnaire by patients with and without calcinosis in soft tissues

IZZ scales	With calcinosis	Without calcinosis	U	p
	median	median		
Health Behavior Index	94.5	89.0	106.0	ns
Positive mental attitude	22.0	20.5	106.0	ns
Prophylactic behavior	24.5	24.0	117.5	ns
Proper eating habits	19.5	20.0	124.0	ns
Healthy practices	26.5	25.0	70.5	0.041

ns – not significant

SSc patients with soft tissue calcinosis are more likely to use health practices than those without calcinosis.

Table 6 presents the results of health behaviors in SSc patients in relation on heart disease (Mann-Whitney U test).

Tab. 6. Comparison of results obtained by patients in IZZ questionnaire depending on the presence of heart disease

IZZ scales	With heart disease	Without heart disease	U	p
	median	median		
Health Behavior Index	88.0	94.5	233.5	ns
Positive mental attitude	19.5	22.0	238.0	ns
Prophylactic behavior	23.0	25.0	194.0	0.016
Proper eating habits	20.0	21.0	293.5	ns
Healthy practices	25.0	25.0	320.5	ns

ns – not significant

Patients with systemic sclerosis who had abnormalities in heart function significantly less frequently used prophylactic measures compared to those without confirmed heart disease.

DISCUSSION

The results of the statistical analyzes allowed for answering the research questions formulated in the paper. They confirm that patients with systemic sclerosis are more likely than healthy people to follow a healthy diet, exercise proper eating habits, follow health recommendations with regard to sleep, rest, exercise. They also seek information on health and disease, and more often avoid situations that cause stress, tension and negative emotions.

Women with systemic sclerosis significantly more often than men have proper habits concerning sleep, physical activity, comply with health recommendations, seek for information on health and disease, and more likely avoid situations that could be stressful, cause tension and pessimism. The more favorable health behaviors of women than men could be attributed to the social roles they play, forcing them to take better care of their health.

The study also found that the older the SSc patients were, the less frequently they avoided stressful situations, tension, negative emotions. The more positive mental attitude of patients was associated significantly with younger age. Also significant relationships were confirmed between some health behaviors and the clinical status of patients with systemic sclerosis. Patients having calcinosis, more often followed proper health practices concerning sleep, recreation and physical activity than those without calcinosis. Patients with heart disease less often than persons without these changes observed prophylactic indications, health recommendations, and less likely sought information on health and disease.

The available literature does not include reports that would assess the health behaviors index in patients with systemic sclerosis. Thus there is a greater need to pay attention to manifesting correct health behaviors, correct habits of physical activity, rest, diet and the ability to cope with stress by patients with such a debilitating, invalidating disease as systemic sclerosis.

CONCLUSIONS

1. Systemic sclerosis patients had a significantly higher rate of health-oriented behaviors than controls, suggesting that health threats mobilized patients for healthy behaviors.
2. Women with systemic sclerosis more often than sick males manifested proper dietary habits, rest and physical activity habits, more frequently followed medical advice, and avoided situations of stress and negative emotions.
3. The younger age of patients with scleroderma was associated with a more positive mental attitude.
4. Patients with present calcinosis more frequently used proper health practices for physical activity and rest.
5. Patients with heart disease less frequently followed prophylactic indications and sought information about their state of health.

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