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Empowering patients to self-control and self-management of anticoagulant therapy

Upodmiotowienie pacjentów w kwestii samokontroli i samodzielnego leczenia przeciwzakrzepowego

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STRESZCZENIE

UPODMIOTOWIENIE PACJENTÓW W KWESTII SAMOKONTROLI I SAMODZIELNEGO LECZENIA PRZECIWZAKRZEPOWEGO

Wprowadzenie. Upodmiotowienie to proces, który pozwala pacjentowi na samokontrolę i samodzielne przeprowadzanie leczenia przeciwzakrzepowego, pozwalającego równocześnie na wywarcie wpływu na proces i wyniki jego leczenia.
Cel pracy. Ocena poziomu upodmiotowienia pacjenta podczas leczenia przeciwzakrzepowego przed i po przebytym szkoleniu.
Materiał i metody. Do badania włączono 46 pacjentów z zespołem antyfosfolipidowym leczonych w poradni przeciwzakrzepowej szpitala ogólnego, 37 pacjentów zostało następnie włączonych do szkolenia. Dane zostały uzyskane za pomocą kwestionariusza przed i po przebytym szkoleniu.
Wyniki i wnioski. Badania wykazały, że pacjenci po szkoleniu statystycznie są znacząco bardziej upodmiotowieni i osiągają wyższy poziom upodmiotowienia. Upodmiotowieni pacjenci sami podejmują decyzje dotyczące swojego stanu zdrowia, mają lepsze relacje z pracownikami służby zdrowia, postępują zgodnie z ich instrukcjami i biorą większą odpowiedzialność za swoje zdrowie, zmniejszając w ten sposób potrzebę hospitalizacji i pilnej opieki.

Słowa kluczowe: upodmiotowienie, kategorie upodmiotowienia, edukacja, pacjent, zespół antyfosfolipidowy

ABSTRACT

EMPOWERING PATIENTS TO SELF-CONTROL AND SELF-MANAGEMENT OF ANTICOAGULANT THERAPY

Introduction. Empowerment is a process that allows patients to perform self-control and self-management of anticoagulant therapy, while allowing them to influence the process and the outcomes of their treatment.
Aim. Assessment of the level of empowerment of patients on anticoagulant treatment before and after the education.
Material and methods. A quantitative study with structured instrument was used. The number of 46 patients with antiphospholipid syndrome treated in the anticoagulation clinic at the general hospital participated in the study, and 37 patients were subsequently enrolled in the training. Data were collected to determine their level of empowerment.
Results and conclusion. We divided the patients into four categories of empowerment. We found that after education, patients had statistically significant higher levels of empowerment. After the education, all 37 patients were classified into the fourth category, indicating high patient participation. Empowered patients make their own decisions about their health, they have a better relationship with health professionals, they follow instructions, take greater responsibility for their health, and reduce the need for hospitalisations and urgent care.

Key words: empowerment, empowerment categories, education, patient, antiphospholipid syndrome

INTRODUCTION

Empowerment is a concept that has been used in recent decades in development policies, science, education, social work, management, civic initiatives, and health [1]. It is a process in which patients understand their role when healthcare providers share their knowledge and skills in performing tasks and encourage patients to participate [2], acquire knowledge and skills for the treatment of the disease, and build an attitude and self-awareness about the importance of changing unfavourable behavioural patterns in order to improve the quality of life with the disease [3]. It is a multi-stage model in which the patient acquires the ability of control and self-efficacy [4]. In the empowerment process, the roles of healthcare professional and patient are redefined as the patient becomes increasingly independent [5].

Angelmar and Berman [6] list four conditions that must be present for patients to take an active role in medical treatment. These conditions are: understanding their role, acquiring knowledge to work with healthcare providers, developing skills, and living in a supportive environment. In the Development and Testing of a Short Form of Patient Activation Measure study, Hibbard et al. [7] find that the process of empowering patients depends on the patient's knowledge, ability, trust, and behaviour. Depending on the level of activation, patients take on the following roles: *inactive patients* – patients do not take an active role in health care, they have negative emotions, *approach of patients to activity* – patients lack knowledge and confidence, but understand their state of health, *activation of patients* – patients have knowledge but lack self-confidence, a willingness to be involved occurs, *high patient involvement* – the patient has taken on a new way of life, has certain goals, self-confidence, actively communicates with the medical staff, takes a critical and rational approach to the instructions of the medical staff.

The empowerment process gives patients the power to develop the skills to be able to solve problems on their own and make their own decisions [8]. The process of empowerment is significantly influenced by the patient's environment, his/her working conditions, education and other socio-economic factors. The influence of socio-economic determinants is also important in connection with coping with the disease, as these can have a stimulating or inhibitory effect [9].

Anticoagulant therapy in patients diagnosed with antiphospholipid syndrome is performed by an anticoagulant clinic or a primary care physician at the primary level. Prothrombin time is measured as a percentage of the INR (International Normalised Ratio), which is the ratio of the coagulation time of normalised blood to the patient's blood. The INR value determines the dose of anticoagulant. Patients increasingly measure INR on their own from a drop of capillary blood using a portable device (Point of care testing-POC) [10]. The INR value is reported to the chosen doctor so that the dose can be adjusted in accordance with the result. However, some patients may also gradually switch to self-management of treatment; the daily dose of anticoagulant is calculated from the measured INR in accordance with a special algorithm [10,11]. In the described method of self-management of anticoagulant therapy, the chosen doctor is contacted less often and only in the event of exacerbation and for regular check-ups.

Patients must be sufficiently confident and committed to treatment, have good eyesight, motor skills and appropriate education regarding anticoagulant therapy to perform self-control and self-management of anticoagulant therapy. Patient education is very important because this is the only way patients will participate in the treatment and it will be more successful for them [12]. Self-control and self-management as an alternative form of treatment can only be performed by an empowered patient, who is required to cover the costs of purchasing the device and accessories in Slovenia. In some countries (Germany, Austria, Switzerland, Denmark), self-monitoring and self-management are already established therapeutic methods in various diagnoses (e.g., atrial fibrillation, artificial heart valves, venous thrombosis, antiphospholipid syndrome).

With the study conducted among patients with antiphospholipid syndrome, treated in the anticoagulation clinic of the Celje General Hospital Slovenia, we wanted to determine whether the level of empowerment of patients for anticoagulant treatment increases after education.

METHODS

We used a quantitative research approach, a description method and a survey technique. We used a structured instrument in the form of a questionnaire to conduct the research, which we designed on the basis of a literature review [7,13,14]. We classified the questions into content sets. The first set included demographic data on respondents (gender, age, level of education, employment, marital status, location residence), questions from the second set referred to knowledge of anticoagulant therapy, the third set of questions referred to ensuring safe and effective anticoagulant therapy, and the fourth set of questions referred to possible complications and response measures. The questionnaire consisted of 30 closed-ended questions and 30 statements. Agreement level with the above statements was included in the study and expressed in the form of a five-point Likert scale.

A non-randomised pattern was used in the study. The research included 46 patients diagnosed with antiphospholipid syndrome who are treated in the anticoagulation clinic at the Celje General Hospital Slovenia, regardless of gender, age and duration of anticoagulation treatment. Patients completed the questionnaire (pre-test) while waiting for an examination. The completed survey was submitted via a dedicated box which was placed in the waiting room.

By analysing the obtained data, we determined their level of empowerment. To improve the level of empowerment, we have developed a new education model based on the linear model (analysis of needs, education planning, education implementation, and evaluation) using different education methods (oral explanation, conversation, demonstration, practical work, and learning experience

Tab. 1. emographic data of patients included in the first and second measurement of empowerment

		Measurement time			
		1st measurement (n = 46)		2nd measurement (n = 37)	
		n	%	n	%
Sex	Men	26	56.5%	23	62.2%
	Women	18	39.1%	14	37.8%
	No answer	2	4.3%	0	0.0%
Age	From 15 to 20 years	0	0.0%	0	0.0%
	From 21 to 30 years	0	0.0%	0	0.0%
	From 31 to 40 years	3	6.5%	3	8.1%
	From 41 to 50 years	13	28.3%	12	32.4%
	From 51 to 60 years	16	34.8%	14	37.8%
	From 61 to 70 years	14	30.4%	8	21.6%
	From 71 to 80 years	0	0.0%	0	0.0%
	Over 80 years	0	0.0%	0	0.0%
Education	No education	0	0.0%	0	0.0%
	Primary education	5	10.9%	4	10.8%
	Vocational education	10	21.7%	5	13.5%
	Secondary professional education	14	30.4%	11	29.7%
	Short-cycle education	6	13.0%	7	18.9%
	Higher education	2	4.3%	2	5.4%
	University education	6	13.0%	5	13.5%
	Postgraduate education	3	6.5%	3	8.1%
Employment /status	Employed	24	52.2%	23	62.2%
	Unemployed	6	13.0%	3	8.1%
	Retired	15	32.6%	10	27.0%
	Student	0	0.0%	0	0.0%
	Disabled	0	0.0%	1	2.7%
	No answer	1	2.2%	0	0.0%
Marital status	Married	40	87.0%	28	75.7%
	Widower	0	0.0%	0	0.0%
	Single	5	10.9%	6	16.2%
	Cohabitation	1	2.2%	3	8.1%
	No answer	0	0.0%	0	0.0%
Place of residence	In the city	7	15.2%	7	18.9%
	In the suburbs	10	21.7%	7	18.9%
	In the countryside	29	63.0%	23	62.2%
	No answer	0	0.0%	0	0.0%
Distance to the anticoagulation clinic	Up to 10 km	17	37.0%	15	40.5%
	11 - 20 km	14	30.4%	9	24.3%
	More than 20 km	15	32.6%	13	35.1%

methods). After training the same instrument was used (post-test) on a sample of 37 patients (Tab. 1).

In the first and second measurements, more men participated in the study than women, most were aged 51-60, with secondary vocational education, employed, married, residing in the countryside and up to 10 kilometres away from the anticoagulation clinic. More detailed demographic data can be seen in Table 1.

The results were evaluated as statistically significant at $p < 0.05$. A statistically significant difference in the number of empowered patients was also tested with appropriate statistical tests: the hi-square test, the Mann Whitney U test and McNemar's test.

We obtained written consent from the Ethics Commission at the Celje General Hospital to carry out the research. We provided respondents with confidentiality, security, the right to a full explanation, anonymity and privacy.

RESULTS

In accordance with Hibbard et al. [13], we divided the patients into the following categories of empowerment: inactive patients, patient's approach to activity, patient activation, high patient involvement. The rating scale (from 0 to 18 possible points) was divided into 4 equal categories. Patients who scored up to 4.5 points (up to 25% of correct answers) were placed in the first category (inactive patients), those who achieved 4.6 to 9 points (between 26% and 50% of correct answers) in the second category (patient's approach to activity), those with 9.1 up to and including 13.2 points (between 51% and 75% of correct answers) were placed in the third category (patient activation) and those with 13.6 points and more (between 76 and 100% of correct answers) were placed in the fourth category (high patient involvement).

The results of the Mann Whitney U test confirmed a statistically significant difference between the groups ($p = 0.000$), the average number of points achieved in the first measurement (n = 46; before education) was 14.53 points; in the second measurement (n = 37; after education) it was statistically significantly higher and amounted to 16.80 points (Tab. 2).

Tab. 2. Empowerment - average number of points collected according to the level of knowledge of patients participating in the first and second measurements

	FIRST MEASUREMENT (n = 46)	FIRST MEASUREMENT (n = 37)	MANN WHITNEY U (P VALUE)
n	46	37	**299.000 (0.000)**
Minimum	8.05	14.00	
Maximum	17.56	18.00	
Arithmetic mean	**14.53**	**16.80**	
Standard deviation	2.17	1.13	

Legend: n = number of respondents, p = statistical significance / characteristic

At the time of the second measurement, the distribution of patients with antiphospholipid syndrome into categories is the highest after the completed education. Prior to the education, none of the 46 patients achieved the maximum number of possible points in the first measurement (18 points), and no one was included in the first category (inactive patient). When it comes to 2.2% of patients, they were classified in the second category, and 30.4% in the third category. The majority, 67.4% of patients, was classified in the fourth category (high patient involvement), meaning that from 76% to 100% of participants provided correct answers. After the education, all 37 patients were placed in the fourth category. The differences between the first and second measurements are statistically significant (p = 0.000) (Tab. 3).

Tab. 3. Empowerment - the number of patients placed in each category

		Only GH Celje - secondary level				Chi square statistics or Likelihood ratio (p value)
		Measurement				
		First measurement (PM) (n = 46)		Second measurement (DM) (n = 37)		
		n	%	n	%	
Empowerment - categories						
Category 1 Category 2 Category 3 Category 4	up to 25%	0	0.0%	0	0.0%	**20.347 (0.000)**
	from 26 to 50%	1	2.2%	0	0.0%	
	from 51 to 75 %	14	30.4%	0	0.0%	
	76% or more	31	67.4%	37	100.0%	
	Total	46	100.0%	37	100.0%	

Legend: n = number of patients, p = statistical significance / characteristic

For an additional comparison, we prepared a dichotomous distribution of respondents who participated in both phases of the survey (n = 37), specifically, the first category included all those who achieved up to 75% of all points in empowerment questions, and those who scored more than 75% of all points in the second category. We used McNemar's test to check whether there was a statistically significant difference between the two measurements in the distribution of respondents in both categories, which we also confirmed. In the first measurement phase, there were 12 respondents in the category of up to 75%, and 25 respondents in the category of more than 75%. In the second measurement phase, all patients achieved a score of more than 75% (p <0.01) (Tab. 4).

Tab. 4. Empowerment - testing of differences in the empowerment level of patients who participated in the education

	Empowerment		Empowerment - categories measurement 2		p value McNemar test
	n	%	n	%	
Up to 75 %	12	32.4	0	0.0	0.000
Over 75%	25	67.6	37	100.0	
Total	37	100.0	37	100.0	

Legend: n = number of patients, p = statistical significance / characteristic

DISCUSSION

Research has shown that patients are statistically significantly more empowered after education and achieve a higher level of empowerment than before education. Prior to the training, more than 30% of patients classified in the third category. These are patients who have knowledge but no self-confidence, there is a willingness to become involved – *patient activation* [7]. The majority, 68% of patients, classified in the fourth category. No one was placed in the first category, about 2% of patients were placed in the second category. After the education, all 37 patients were placed in the fourth category, which represents *high patient involvement*. Such patients are able to adopt a new way of life, have specific goals and self-confidence. They can take a critical and rational approach to the instructions of medical staff [7] and are capable of self-control and self-management. None of the patients achieved the maximum number of available points (18 points) before the education, the minimum number of points was 8.05 before the education and 14.0 points after the education.

Knowledge is a key element in the process of patient empowerment in nursing [15] and is important for critical thinking and independent decision making [16], for disease control [17], to improve their knowledge, skills and confidence, and to improve their control over their own situation [18].

In Namibia, MacLachlan et al. [19] conducted education of patients to empower them for their own care and treatment, and found that education and training increased their communication skills, improved their ability to overcome complex psychosocial barriers such as fear, and improved patient self-efficacy. In a study conducted by Huang et al. [20] in which 108 patients were included, the researchers also found that patients, who were included in the education program, showed significantly higher levels of empowerment, and a higher level of competence and efficiency of self-care than those, who were not included in the educational process. Mataji Amirrood et al. [21] attempted to determine the level of empowerment in 90 overweight women with pre-test and post-test. After a 6-hour training, the authors found statistically significant improved eating behaviour which increased from 7.4 to 9.95 (p <0.001), while the level of disease control ability increased from 23.8% to 97.61%. Kim and You [22] also found with pre-test and post-test that the level of self-care in a group of 25 patients, who were included in the empowerment education program after kidney transplantation, increased.

In a pilot study involving 93 patients, Lane et al. [23] examined the patient's knowledge and perception of atrial fibrillation and their anticoagulant treatment before and after a short educational process. They found that their knowledge of the target INR area and factors that may affect the INR level significantly improved after the training.

Research that focused on examining the effects on empowerment levels in diabetic patients has shown that education has improved knowledge, understanding of the disease, maintaining knowledge [24-26], attitude towards

the disease [27], results of self – efficacy in disease control [25,27-29], ability for self-sufficiency or self-control [25-28], quality of life [28] and that the emotional distress of patients was reduced [26].

Asimakopoulou et al. [3], Small et al. [4] and Dolinar [9] believe that patients with a chronic illness acquire knowledge, skills and experience for managing their illness, develop independent decision-making skills and take responsibility for their health through the empowerment process.

Demir, Ozsaker and Ozcan [30] recommend that the patient is treated individually and holistically. Hawes [31] also considers that effective education regarding anticoagulant therapy involves personal interaction with a qualified educator to ensure that the patient understands the risks, the precautions to be taken and the need for regular monitoring. Teaching should be tailored to each patient in order to provide them with written resources and use the appropriate teaching method. The combination of educational methods improves their knowledge and thus the level of empowerment.

Demir et al. [30] state that it is necessary to motivate the patient to actively participate in the empowerment process, in which they acquire new knowledge and skills for disease management. Angelmar and Berman [6] find that motivation empowers the patient to achieve more effective health outcomes. The educator must encourage the patient to change from dependence to autonomy, from passive acceptance to active role, from patient subjectivity to objectivity [5]. With empowerment, the patient becomes responsible in the process of medical treatment (gaining strength), and the medical staff remains responsible for the appropriate medical treatment. The decision is then passed on to the patient [32].

Richter et al. [33] have shown with their research that patients are independent and well-empowered, but often do not know how to apply their knowledge in everyday life, despite knowing the signs and symptoms of their disease. Good empowerment and knowledge of their disease help patients to find it easier to become involved in the process of treatment and co-determination of their health. Empowerment contributes to independent health control and encourages patients to take responsibility for their own health.

The limitations of our research are in the small sample, the size of which is understandable as the number of patients on anticoagulant treatment is finite, and in the implementation of education involving only patients of one health institution. However, the results of the research are a good indicator of the success of the conducted education.

CONCLUSIONS

Our research and also the findings of other authors confirm that education must be targeted if we want patients to be empowered to self-control and self-management of anticoagulant therapy, which can be done anywhere and anytime. In this case, patients are not dependent on physicians or the healthcare system, but can manage treatment at home. However, patients still have option of communicating with healthcare professionals who ensure their safety. Through self-control and self-management, patients contribute to reducing the healthcare costs. If we want to achieve higher levels of patient empowerment, we need to be more systematic in our approach to the process of education. The providers of the education were a physician (specialist in internal medicine) and a registered nurse. A practical example of implementing the entire self-control procedure was demonstrated by an experienced patient who is already performing self-control in his/her home environment. In addition to oral instructions and recommendations, patients also received written instructions for safe and effective anticoagulant treatment. With this type of education, we have achieved a level of empowerment that allows patients to make informed decisions about their illness and cure, and allows them to be more critical and reasonable of the advice given by medical staff.

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