

PERSONALITY FACTORS IN INTERMITTENT CLAUDICATION RELATED TO THE OUTCOME OF SELF-CARE PROGRAM

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ABSTRACT. The relationship between personality factors in intermittent claudication and the patient's compliance with the therapeutic regimen was studied. Fifty-three patients with intermittent claudication were clinically examined, interviewed and tested with the Wechsler Intelligence Test, the Rorschach Test and the Ceasarec-Marke Inventory. The patients were given self-care program with four recommendations. After half a year, the clinical examinations and interviews were repeated. The results showed that the compliance with self-care program was relatively poor. Hostility, aggressiveness and affect-lability were obstacles to compliance. Obsessive-compulsive and dependent patients as well as those with strong guilt feelings followed the regimen best.

Key words: compliance, self-care, intermittent claudication.

In the traditional medical model, the practitioner is given a legitimate right to require obedience on the part of the patient since following orders is considered to be in the patient's own interest. Therefore, the accurate assessment of patients' actual co-operation and compliance has often been neglected and practitioners often exaggerate their estimates of patients' compliance (5).

At the conscious level people look upon health positively and illness negatively. However, the behaviors involved in maintaining somatic wellbeing are not always rational. It has been shown that objectively defined "disease factors" are relatively unimportant as determinants of compliance. There is no correlation between the objectively measured severity of the disease and the duration of symptoms and the patient's co-operation with the treatment, but the patient's co-operation has been shown to be dependent on how the patient perceives the somatic symptoms (5).

This emphasizes the importance of personality factors of the patient in the compliance. Although a patient's compliance cannot be scrutinized solely as a function of the patient's personality, it is, however, a property that arises in the interaction

between a patient and medical staff; the knowledge about the personality helps to understand this interaction.

Personality assessment related to the compliance has mainly concentrated on the social norms, beliefs and conscious health attitudes of the patients. The "real" personality factors have been neglected and usually no hypothesis about the way how the personality is expected to operate has been adopted.

The aim of the present study was to examine the personality characteristics involved in compliance with treatment regimens of patients with intermittent claudication.

The natural course of atherosclerotic peripheral arterial disease is not usually an unremitting path leading from intermittent claudication to rest, pain, and from there to amputation. More often it is characterized either by stable intermittent claudication or by improvement of symptoms (16). Cessation of smoking (19) and physical training (6) have proved to produce symptomatic relief. Consequently, these factors are the base of a conservative therapeutic regimen for patients with intermittent claudication.

The psychological approach adopted in the present study was based on the hypothesis that illness may develop a crisis which evokes emotional reactions, and requires psychic energy and adaptability. The psychic problems may hinder compliance with the treatment, especially when the patient's activities are an important part of the treatment plan (15).

SUBJECTS

A total of 78 patients with intermittent claudication were initially included in the study. These patients were consecutively treated during a period of one year in the Fourth Department of Surgery at Helsinki University Central Hospital. Of those 78 patients, 53 patients (42 men and 11 women) completed the study. Twenty-five patients

dropped out, twenty-two of them because of other severe diseases, and 3 for unknown reasons. The 22 patients afflicted with other diseases were dropped because they had no choice whether to comply or not. The three patients who interrupted, were not included in the analysis because they did not complete the second interview. The mean age of the subjects who completed the study was 59.1 years (range 41–69) years and the duration of intermittent claudication was 3.8 years (range 3.2–3.9 years).

METHODS

(a) Clinical examination

Clinical examination was combined with a non-invasive evaluation in a vascular laboratory using a treadmill exercise test prior to beginning the study and was repeated after it. Recovery rates were evaluated by means of a walking tolerance test consisting of the following parameters: walking distance to the onset of pain, the maximum walking distance, as well as the site and nature of restricted pain.

(b) Psychological methods

The psychological examination consisted of (a) a structured interview evaluating the psychosocial situation of the patient, psychic and somatic well-being reported by the patient and motivation to undergo the present treatment, (b) the Wechsler Intelligence Test (subtests on Information, Similarities, Completion of Pictures and Block Design), (c) the Rorschach Inkblot test measuring the psychic energy and adaptability, maladaptive emotional reactions and psychic conflicts (13), and (d) Ceasarec-Marke Inventory (3) to evaluate the psychic adaptability, the structure of motivation, needs and values of the patient.

(c) Self-care program

A self-care program was given in written form and was verbally explained by a doctor. It consisted of the following regimens:

1. Smokers were strongly advised to stop smoking.

2. A physiotherapist gave a training program of two or three sessions on an outpatient basis. Different kinds of dynamic exercises of the leg muscles were performed. The patients were asked to continue this program at home twice a day.

3. The patients were asked to take walks at least twice a day in addition to their normal daily activities, and always at least to the onset of claudication pain.

4. The patients were generally advised to increase daily physical activities.

After being instructed in the self-care program the patients were encouraged to continue on their own initiative without further support. Six months later the patients were interviewed by the same psychologist and the implementation was repeated.

RESULTS

A. Compliance with the self-care program

1. *Cessation of smoking.* Four patients had never smoked and 11 patients had ceased smoking before

Table I. Compliance with recommendations of the self-care program in the 53 patients with intermittent claudication

Amount of activities	Daily walks	Leg exercises	Other physical activities
Few (0–19 times a month)	22 (42%)	22 (42%)	33 (62%)
Average (20–39 times a month)	24 (45%)	27 (50%)	15 (28%)
Many (more than 40 times a month)	7 (13%)	4 (8%)	5 (9%)

the study. Of the 38 patients still smoking at the time of entering the study, 24% (9) ceased smoking after advice while 76% (29) continued. Of those continuing only 18% decreased their consumption.

2. *Leg exercises.* Four patients (8%) did their compulsory twice daily leg exercises. On average the patients did their program 20.6 days per month (Table I).

3. *Number of walks.* Only seven (13%) patients had followed the advice and walked to the onset of pain twice a day (Table I).

4. *Other physical activities.* The order to increase physical activity was not obeyed very well by the patients. Only five (9%) patients said that they had markedly increased their daily physical activity (Table I).

The results of correlation analysis showed that there were no mutual correlations between different variables measuring compliance, and that the patients did not carry out the whole self-care program but followed the one regimen that they found most convenient. Approximately 60% of the patients complied satisfactorily with at least one of the regimens.

B. Personality characteristics related to compliance with the regimen

As there was no "total" compliance, e.g. compliance with the whole self-care program, there was also no personality constellation related to compliance on the whole. A personality cluster explaining compliance was attempted to discover with the aid of regression analysis, but no such cluster was to be found. Different personality characteristics were related to different sections of the self-care program.

The correlation analysis showed that obsessive-

Table II. Correlations (Spearman's *r*) between the compliance with the self-care program and personality variables in the 53 patients with intermittent claudication

1 = number of walks, 2 = leg exercises, 3 = other physical activities, 4 = cessation of smoking

	Variables of self-care program			
	1	2	3	4
Obsessive-compulsive signs	.380**	.310*	.310*	.449**
Hostility	-.290*	-.430**	-.290*	-.340*
Anxiety	.310*	-	-	-
Feelings of guilt	-	.320*	-	-
Need for dependence	.370*	-	-	-
Family support	-	.350*	-	-
Depression	.310*	-	-	-

* $p < 0.05$. ** $p < 0.01$.

compulsive symptoms, evaluated on the bases of the Rorschach test (17), and hostility, also evaluated by the Rorschach test (9), were related to all separate compliance dimensions. Obsessive-compulsive features were positively correlated with compliance and hostility was negatively correlated (Table II).

Intelligence also had some relationship to compliance. Low intelligence correlated with rejecting the existence of both the symptoms ($r = 0.470^{**}$) and the disease itself ($r = 0.520^{***}$).

1. *Cessation of smoking.* Among the compliance dimensions, the inability to cease smoking was the factor most strongly dependent on personality. The correlation analysis showed that it could be explained with the personality cluster consisting of the following variables: affect-labile personality (11), anxiety (7) and hostility (9) as expressed in the Rorschach test, aggressiveness, irritability, accentuated need to be self-governed and independence of generally accepted behavior norms as expressed in Ceasarec-Marke Inventory (3) (Table III).

2. *Leg exercises.* Carrying out the daily leg exercises was to a high degree dependent on the attitudes of other family members. The patients exercised more if the family members understood its significance and gave them support. In the opposite case, patients, especially older men who refused to do the exercises, said that they felt ashamed if somebody saw them "doing gymnastics" (Table II). In addition, there was a positive correlation between doing leg exercises and the Gui variable in the Ceasarec-Marke Inventory. A high Gui value indicates strong guilt feelings and superego-conflicts (3) (Table II).

3. *Number of walks.* Number of walks correlated

to the variable Suc in the Ceasarec-Marke Inventory; "Suc" indicating a dependence on the authority (3). The number of walks was also positively correlated with anxiety (7), expressed in the Rorschach test, and depression, expressed in the interview (Table II).

4. *Other physical activities.* Despite the fact that the same advice was given to all the patients, the evaluation of the compliance with particular parts of the regimen was highly subjective. Some patients reported all activities in daily life while some patients reported only extra physical exercises. Therefore, accuracy was needed in scoring. "Daily physical activities" had no correlation with personality dimensions, perhaps owing to the heterogeneity of the content of this variable.

The interview brought to light interesting information about the problem of compliance. One aspect worth mentioning was the significance of the advance expectations of the patients. If the patient expected to undergo surgery, the conservative

Table III. Correlations (Spearman's *r*) between the inability to cease smoking and personality variables in the 38 patients with intermittent claudication

	Inability to cease smoking
Affect-lability	.470**
Anxiety	.310*
Hostility	.350*
Aggressiveness	.310*
Irritability	.320*
Need of independence	.430**

* $p < 0.05$. ** $p < 0.01$.

treatment, especially the self-care program, when he had to cure himself, made the patient, despite the information given to him, feel neglected, or, still worse, feel that he was a victim of some medical experiment. This sense of "victimization" resulted in the refusal to co-operate.

DISCUSSION

The results of the present study are in accordance with previous research (10, 18) which shows that compliance with one simple regimen is relatively good, but it decreases quickly if the patients have to follow a program of long duration which has many recommendations concerning major life-style changes.

Psychic variables found to be related to compliance can be divided into three groups. They are: (a) variables indicating hostility and tendency to opposition, (b) variables indicating affect-labile personality and (c) those indicating neuroticism.

It has been demonstrated in many previous studies that hostility, aggressiveness and exaggerated need for independence lead to maladaptive self-determination, and make the patient resistant to all treatment (1, 8).

Affect-labile personality and low intelligence were found to be related to noncompliance, as in previous research (4, 12).

It has been demonstrated that a patient with an obsessive-compulsive personality is a "good" patient and is co-operative in self-care (4). However, noncompliant patients have often been characterized as neurotic (2). The results of the present study showed that neurotic symptoms such as obsessive-compulsive traits, feelings of guilt, dependency, anxiety and depression were all positively correlated with compliance. However, it has been suggested, that the compliance of the neurotic patient does not demonstrate a sense of rational responsibility. Rather, scrupulous compliance with the regimen often offers the patient a chance to control his anxiety. Then, compliance is maladaptive because it requires an enormous amount of time and energy and is a burden on the patient's family (5).

Previous studies have indicated that there is a high correlation between "fulfillment of expectation" and patient's compliance with treatment (14). The discrepancy between expectations and their fulfillment has been called a process of negotiation

(5). When the patient expects a specific treatment, such as an operation, but the surgeon proposes a different solution, such as physical training, the patient views the solution as irrelevant and reacts by not complying.

Attributing patient noncompliance to a patient's personality does not represent an attempt to shift the blame for noncompliance onto the patient, but understanding the compliance-related psychic problems helps the coping with them.

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