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Impact of readiness for discharge from the hospital on the implementation of the therapeutic plan

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ABSTRACT

Introduction. Adherence to therapeutic recommendations regarding pharmacotherapy and lifestyle modification reduces the risk of complications in patients after myocardial infarction. The assessment of readiness for discharge allows to get knowledge about patient's preparation for functioning at home. The aim of the study is to assess the relationship between the readiness for discharge of patients after myocardial infarction and adherence to pharmacotherapy based of the analysis of prescription filling.

Material and methods. The study is a single-center, prospective, observational cohort clinical trial with a one-year follow-up period. The study population include 225 patients (26.7% women and 73.3% men) aged 30–91years (62.9 ± 11.9). The RHD-MIS (Readiness for Hospital Discharge after Myocardial Infarction Scale) was used to assess the readiness for discharge. Adherence to medication has been studied in relation to ACE inhibitors, P2Y12 receptor inhibitors and statins.

Results. Patients with a high overall RHD MIS score compared to those with an average result were more likely to have any breaks in therapy, $p = 0.01$ (breaks < 30 days, $p = 0.03$ and breaks ≥ 30 days, $p = 0.005$) for either drug. Patients declaring that their disease is not serious have significantly lower adherence to P2Y12 receptor inhibitor (28 ± 27% vs 72 ± 38%, $p = 0.047$) and statins (36 ± 41% vs 76 ± 33% $p = 0.024$) in the 1st quarter after discharge and to statins (23 ± 18% vs 65 ± 32% $p = 0.014$) during whole one-year follow-up.

Conclusion. The readiness for discharge from the hospital assessed with the RHD-MIS does not clearly affect the implementation of the therapeutic plan in the long-term follow-up in patients after myocardial infarction. Data suggesting a negative impact of some aspects of readiness for discharge on adherence to treatment require further, in-depth research.

Key words: readiness for discharge from the hospital, myocardial infarction, adherence to treatment

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Introduction

Cardiovascular diseases are still one of the leading causes of death [1, 2]. The implementation of the therapeutic plan regarding pharmacotherapy and lifestyle modification in patients after myocardial infarction reduces risk of death, reinfarction and stroke [3–5].

A meta-analysis of twenty studies by Naderii et al. showed that adherence to pharmacotherapy in patients with chronic coronary disease varies between 50 and 66% [6]. To improve adherence in patients after myocardial infarction, understanding of the nature of disease and applied therapy is necessary.

Education of patients and preparation for functioning at home is a standard procedure during hospitalization for acute coronary syndrome [7–9]. To evaluate the effectiveness of these interventions assessment of the readiness for discharge is necessary [10]. To our best knowledge, the impact of readiness for discharge on the level and dynamics of changes in patient adherence to therapeutic plan after myocardial infarction has not been studied so far.

The aim of the study is to assess the relationship between the readiness for discharge of patients after myocardial infarction and adherence to pharmacotherapy based of the analysis of prescription filling.

*Both authors equally contributed and should be recognized as first authors.

Material and methods

The study was planned in accordance with the principles of ethics contained in the Helsinki Declaration and carried out on the basis of the consent of the Bioethics Committee of the L. Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, No. KB 312/2015 of April 21, 2015. The study is a single-center, prospective, observational, cohort clinical trial with a one-year follow-up period. The presented data were collected as a part of the research project “Impact of educational intervention on adherence to therapeutic recommendations”. Some results of this project have already been published [11–14].

The observation included patients admitted to the Department of Cardiology and Internal Diseases, Jurasz University Hospital in Bydgoszcz, between May 2015 and July 2016 due to acute myocardial infarction treated with percutaneous coronary intervention (PCI).

The following inclusion criteria were applied: age > 18 years, pharmacotherapy consisting of: ACEI (ramipril or perindopril), P2Y12 receptor inhibitor (clopidogrel) and statins (atorvastatin or simvastatin or rosuvastatin). The exclusion criteria were defined as: contraindications to any of the analysed medications (ACEI, P2Y12 receptor inhibitor or statin), presence of comorbidities forcing temporary or permanent discontinuation of any of the analysed medications, predicted lifespan of less than one year, impaired contact with the patient precluding their active participation in educational interventions. All study participants gave their informed written consent before study enrolment.

All study participants received in-hospital educational interventions on ischemic heart disease, focusing on its symptoms and management including recommended lifestyle modifications and the principles of pharmacotherapy. The readiness for discharge from the hospital was assessed using a validated questionnaire Readiness for Hospital Discharge after Myocardial Infarction Scale (RHD-MIS) [15]. The RHDS-MIS consists of 23 questions included in three subscales assessing subjective (assessed by the patient) and objective (assessed by medical personnel) knowledge about the disease and patient expectations. Additionally, the questionnaire contains non-scored questions regarding the patient's opinion on the readiness for discharge. The patient can answer each of the questions: a- yes, b- I think yes c- I don't know d- no. For each given answer, the respondent receives from 0 to 3 points. The maximum overall score is 69 points (21 points for subjective, 21 for objective knowledge, and 27 points for patient expectation). Depending on the obtained result, the level of readiness for discharge is defined as low, medium or high, both in terms of the overall

result and individual subscales. Patient opinions are a non-scored part of the RHD MIS questionnaire, but may be helpful in planning care and the extent of educational intervention required. The patient can answer “yes”, “probably yes”, “no” and “not sure” to each of the questions.

Adherence, defined as the availability of prescribed drugs, was assessed on the basis of prescription filling data provided by the National Health Fund (NHF) for reimbursed drugs. Medications non-reimbursed by the NHF (e.g. beta blockers) were not included into the analysis.

The relationship between the results of the RHD MIS and adherence to medication was searched. The adherence < 80% were considered an insufficient level of implementation of the therapeutic plan, while ≥ 80% as satisfactory [16, 17]. Based on one-year follow-up, the analysis was performed for each drug group separately and for all three groups together. In order to assess the variability of adherence, the observation period was divided into quarters (Q1, Q2, Q3, Q4).

Study population

The study population comprise 225 patients (26.7% women and 73.3% men) aged 30–91 years (62.9 ± 11.9). Due to incomplete data regarding study medications (lack of data regarding non-reimbursed drugs), the final analysis comprised 210 patients (93.3% of all study participants) receiving ACEI, 194 (86.2%) treated with a P2Y12 receptor inhibitor, and 222 (98.7%) patients on statin. Due to these limitations, a complete analysis for all three groups of study medication was carried out in 180 patients (80.0% of study participants). Shortening of follow-up due to patient death (8 cases—3.6% of the study population) was taken into account during results evaluation. The characteristics of the study group are presented in Table 1.

Statistical analysis

The statistical analysis was carried out using the Statistica 13.0 package (TIBCO Software Inc, California, USA). Continuous variables were presented as means with standard deviations. The Shapiro-Wilk test demonstrated non-normal distribution of the investigated continuous variables. Therefore, non-parametric tests were used for statistical analysis. Comparisons between two groups were performed with the Mann-Whitney unpaired rank sum test. For comparisons between three or more groups, the Kruskal-Wallis one-way analysis of variance was used. Categorical variables were expressed as the number and the percentage. Categorical variables were compared using the χ^2 test. Results were considered significant at $p < 0.05$.

Table 1. Characteristics of the study group

Parameter	Variable	Total sample	
		n	%
Gender	Female	60	26.7
	Male	165	73.3
Age	< 65	129	57.3
	≥ 65	96	42.7
Employment status	Employed	93	41.3
	Unemployed	13	5.8
	Old age pensioner	91	40.4
	Disability Living Allowance recipient	28	12.4
Education	Primary	30	13.3
	Vocational	83	36.9
	Secondary	82	36.4
	Higher	30	13.3
Economic status	Very good	14	6.2
	Satisfactory	199	88.4
	Bad	12	5.3
	Very bad	0	0
Marital status	Unmarried	25	11.1
	Widowed	33	14.7
	Married	167	74.2
Place of residence*	City	117	52.0
	Town	44	19.6
	The country	64	28.4
History of CAD	Yes	102	45.3
	No	123	54.7
Prior MI	Yes	64	28.4
	No	161	71.6
Prior PTCA	Yes	82	36.4
	No	143	63.6
Prior CABG	Yes	34	15.1
	No	191	84.9
Hyperlipidaemia	Yes	151	67.6
	No	73	32.4
Diabetes	Yes	63	28.0
	No	157	71.0
Hypertension	Yes	165	73.3
	No	60	26.7.0
Smoking status (current)	Yes	85	37.8
	No	140	62.2

*City > 100,000 inhabitants; Town ≤ 100,000 inhabitants; CAD — coronary artery disease; MI — myocardial infarction; PTCA — percutaneous transluminal coronary angioplasty; CABG — coronary artery by-pass graft

Table 2. RHD MIS Proportion of patients with low, medium and high scores in individual subscales

Subscale	Low level		Medium level		High level	
	N	%	N	%	N	%
Subjective knowledge	57	25,33	58	25,78	110	48,89
Objective knowledge	59	26,22	113	50,22	53	23,56
Expectations	59	26,22	108	48,00	58	25,78
Overall score	63	28,00	88	39,11	74	32,89

Results

The level of readiness for discharge

The assessment of readiness for discharge based on the RHD-MIS gave a mean result of 50.93 ± 1.11 points, which is in the range of mean results, similarly to the results of the assessment in individual subscales; subjective knowledge: 17.74 ± 3.32 points, objective knowledge: 15.62 ± 3.42 points, expectations: 17.57 ± 6.93 points. (Tab. 2).

RHD MIS readiness for discharge and adherence

The analysis of the implementation of the therapeutic plan defined as adherence in terms of pharmacotherapy depending on the results achieved in RHD MIS did not give unequivocal results both in terms of the overall result and the results in individual subsections (Tab. 3). This applies to individual drug groups tested separately and to all groups together. Significant differences noted in individual quarters for individual drugs may, contrary to expectations, suggest worse adherence in patients who were better prepared for discharge from hospital

Adherence $\geq 80\%$ a RHD MIS

The results using the good adherence cut-off of $\geq 80\%$ substantially support the results of the analysis where adherence was treated as a continuous variable. Paradoxically, patients characterized by a better readiness to discharge consistently worse implemented the therapeutic plan (Tab. 4).

Patient opinions in relation to adherence

Despite the disproportion in the distribution of responses, there were significant differences in adherence with regard to the opinion A (Is your illness serious?). Patients who think that their disease is not serious have significantly lower adherence to P2Y12 receptor inhibitor in Q1 ($28 \pm 27\%$ vs $72 \pm 38\%$, $p = 0.0473$) and statins in Q1 ($36 \pm 41\%$ vs $76 \pm 33\%$ $p = 0.0242$) and in the annual analysis ($23 \pm 18\%$ vs $65 \pm 32\%$ $p = 0.0141$).

No significant differences were noticed depending on the responses to B's opinion (Do you think that despite the medication, you need to change your lifestyle to prevent illness recurrence?) as well as to the opinion C (Do you think that systematic medication reduces the risk of reinfarction?) Patients who declare that they can count on the help of their family or relatives in complying with therapeutic recommendations (opinion D) had lower adherence to P2Y12 receptor inhibitor during one-year follow-up ($60 \pm 34\%$ vs $74 \pm 30\%$ $p = 0,0266$). Patient declarations of opinions E (Do you think your return home is associated with additional hazards?) showed no relation with adherence.

RHD MIS in relation to average time of interruptions in therapy

The patients with a high expectation score compared to the rest of the follow-up population had significantly longer mean treatment interruptions only for the P2Y12 receptor inhibitor ($p = 0.0126$) (Tab. 5).

Discussion

Non-adherence to medical recommendations, especially those concerning the use of drugs, is considered a significant problem in patients after myocardial infarction. The non-adherence to treatment is associated with increased incidence of adverse clinical events as well as treatment costs [6, 18–23]. According to the data presented by Naderi et al., adherence of patients diagnosed with coronary artery disease during two years of follow-up is only 50–66% [6].

Assessing the patient's readiness to leave hospital can be helpful for identifying patients who require additional interventions from healthcare professionals to continue therapy at home. Covering the patient with effective education reduces the number of complications, rehospitalization, and significantly improves the patient's quality of life and sense of security [24–27]. The knowledge regarding disease itself, treatment methods, possible complications and lifestyle modifications is indispensable for good functioning in the chronic

Table 3. Adherence to treatment in subsequent quarters and one-year follow-up concerning the overall score and individual RHD MIS subscales

Drugs	Observation period	RHD MIS Subjective knowledge			RHD MIS Objective knowledge			RHD MIS Expectations			RHD MIS Overall score						
		Low level N = 57 [%]	Medium level N = 58 [%]	High level N = 110 [%]	P low level vs high level	Low level N = 59 [%]	Medium level N = 113 [%]	High level N = 53 [%]	p low level vs high level	Low level N = 59 [%]	Medium level N = 108 [%]	High level N = 58 [%]	p low level vs high level	Low level N = 63 [%]	Medium level N = 88 [%]	High level N = 74 [%]	p low level vs high level
ACEI	1st quarter	79 ± 29	71 ± 41	83 ± 3	0,3061	81 ± 31	78 ± 35	78 ± 33	0,6683	78 ± 35	79 ± 32	80 ± 34	0,8131	76 ± 35	81 ± 31	78 ± 35	0,8112
	2nd quarter	73 ± 36	65 ± 41	77 ± 35	0,4414	71 ± 38	73 ± 36	74 ± 39	0,4383	74 ± 36	73 ± 37	72 ± 39	0,9219	71 ± 37	74 ± 37	74 ± 38	0,5618
	3rd quarter	71 ± 35	57 ± 43	67 ± 39	0,6874	68 ± 38	64 ± 39	64 ± 41	0,9617	62 ± 42	70 ± 37	60 ± 39	0,7012	61 ± 42	72 ± 37	61 ± 39	0,9518
	4th quarter	61 ± 42	50 ± 43	50 ± 43	0,1363	56 ± 44	52 ± 42	51 ± 43	0,4285	57 ± 43	58 ± 43	39 ± 42	0,0150	56 ± 43	56 ± 43	45 ± 42	0,1051
P2Y12 receptor inhibitor	Annual analysis	71 ± 29	60 ± 37	69 ± 3	0,8373	69 ± 33	67 ± 32	67 ± 30	0,6456	68 ± 34	69 ± 31	63 ± 31	0,2041	66 ± 34	70 ± 31	65 ± 31	0,5353
	1st quarter	75 ± 35	72 ± 39	69 ± 39	0,4846	75 ± 33	68 ± 41	73 ± 37	0,8599	76 ± 36	70 ± 39	68 ± 38	0,4143	76 ± 34	72 ± 39	66 ± 40	0,2905
	2nd quarter	68 ± 42	67 ± 4	66 ± 39	0,3737	69 ± 41	63 ± 42	75 ± 35	0,7796	69 ± 41	65 ± 41	68 ± 38	0,3805	67 ± 41	69 ± 41	65 ± 39	0,4578
	3rd quarter	66 ± 40	60 ± 4	56 ± 41	0,1563	69 ± 38	57 ± 41	54 ± 40	0,0769	62 ± 42	64 ± 39	49 ± 39	0,0868	62 ± 41	63 ± 41	52 ± 38	0,1121
Statins	4th quarter	56 ± 43	53 ± 42	45 ± 43	0,1561	60 ± 42	46 ± 43	44 ± 42	0,0976	55 ± 41	53 ± 43	37 ± 41	0,0217	55 ± 42	54 ± 44	39 ± 41	0,0397
	Annual analysis	65 ± 36	62 ± 35	59 ± 33	0,1712	68 ± 33	58 ± 36	62 ± 31	0,2637	65 ± 37	62 ± 34	56 ± 31	0,0429	65 ± 36	64 ± 35	56 ± 32	0,0648
	1st quarter	72 ± 34	72 ± 35	78 ± 33	0,1493	79 ± 29	73 ± 37	75 ± 32	0,7077	74 ± 34	74 ± 35	78 ± 33	0,4509	73 ± 33	77 ± 33	75 ± 36	0,4436
	2nd quarter	67 ± 39	67 ± 4	74 ± 37	0,2226	76 ± 35	69 ± 40	67 ± 38	0,1518	72 ± 38	69 ± 39	72 ± 38	0,9395	68 ± 37	74 ± 38	69 ± 40	0,6587
ACEI + P2Y12 receptor inhibitor + statins	3rd quarter	62 ± 4	64 ± 41	62 ± 42	0,5938	71 ± 38	63 ± 40	53 ± 43	0,0234	64 ± 41	65 ± 41	58 ± 40	0,4730	63 ± 40	66 ± 41	59 ± 42	0,8107
	4th quarter	5 ± 42	58 ± 43	48 ± 42	0,6742	60 ± 40	51 ± 43	42 ± 41	0,0314	56 ± 40	55 ± 43	40 ± 42	0,0222	51 ± 39	56 ± 44	46 ± 42	0,3133
	Annual analysis	62 ± 32	64 ± 35	66 ± 31	0,5219	70 ± 31	64 ± 34	60 ± 30	0,0356	66 ± 32	65 ± 34	62 ± 30	0,3681	63 ± 31	67 ± 33	62 ± 32	0,8718
	1st quarter	76 ± 25	72 ± 31	76 ± 23	0,7701	79 ± 21	73 ± 28	75 ± 27	0,7820	76 ± 26	75 ± 26	74 ± 24	0,4802	75 ± 27	78 ± 25	71 ± 26	0,3443
ACEI + P2Y12 receptor inhibitor + statins	2nd quarter	70 ± 26	66 ± 32	72 ± 25	0,6679	71 ± 27	69 ± 27	71 ± 27	0,9613	71 ± 28	70 ± 26	68 ± 27	0,4294	68 ± 29	72 ± 26	68 ± 26	0,7753
	3 quarter	65 ± 28	6 ± 33	61 ± 3	0,4197	67 ± 30	62 ± 31	53 ± 28	0,0207	61 ± 31	67 ± 30	53 ± 28	0,1020	6 ± 32	67 ± 30	56 ± 28	0,3944
	4 quarter	55 ± 32	54 ± 36	47 ± 34	0,2081	57 ± 34	51 ± 35	42 ± 33	0,0518	55 ± 31	57 ± 34	35 ± 36	0,0039	52 ± 32	55 ± 35	42 ± 35	0,1081
	Annual analysis	66 ± 23	62 ± 30	64 ± 22	0,6925	68 ± 24	63 ± 25	61 ± 22	0,1085	66 ± 25	66 ± 25	58 ± 23	0,0918	64 ± 26	67 ± 25	60 ± 22	0,4425

Table 4. The proportion of patients with adherence <80% and ≥80% concerning the overall score and individual RHD MIS subscales

RHD MIS subscale	Level	ACEI			P2Y12 receptor inhibitor			Statin			ACEI _ P2Y12 receptor inhibitor + statins		
		Adherence < 80% N = 127 [%]	Adherence ≥ 80% N = 93 [%]	P	Adherence < 80% N = 124 [%]	Adherence ≥ 80% N = 70 [%]	P	Adherence < 80% N = 124 [%]	Adherence ≥ 80% N = 98 [%]	P	Adherence < 80% N = 127 [%]	Adherence ≥ 80% N = 53 [%]	P
Subjective knowledge	Low	23,9	26,9	0,8540	22,6	30,0	0 = 4562	26,6	23,5	0,4893	26,0	24,5	0,9688
	Medium	27,4	24,7		26,6	27,1		22,6	29,6		26,8	28,3	
	High	48,7	48,4		50,8	42,9		50,8	46,9		47,2	47,2	
Objective knowledge	Low	26,5	28,0	0,8746	25,0	32,9	0,4813	21,8	32,7	0,0178	25,2	37,7	0,1643
	Medium	47,9	49,5		52,4	48,6		47,6	52,0		50,4	47,2	
	High	25,6	22,6		22,6	18,6		30,6	15,3		24,4	15,1	
Expectations	Low	23,9	30,1	0,4552	23,4	37,1	0,0615	25,0	28,6	0,0841	27,6	32,1	0,1389
	Medium	47,0	47,3		47,6	45,7		43,5	53,1		43,3	52,8	
	High	29,1	22,6		29,0	17,1		31,5	18,4		29,1	15,1	
Overall score	Low	27,4	29,0	0,1126	26,6	35,7	0,0459	29,8	26,5	0,1714	29,9	30,2	0,1120
	Medium	35,0	46,2		36,3	44,3		33,9	45,9		37,0	50,9	
	High	37,6	24,7		37,1	20,0		36,3	27,6		33,1	18,9	

Table 5. The average duration of treatment interruptions concerning overall score and individual RHD MIS subscales

RHD MIS subscale	Level	ACEI [days]	p	P2Y12 receptor inhibitor [days]	p	Statins [days]	p	ACEI + P2Y12 receptor inhibitor + statins [days]	p
Subjective knowledge	Low	37,46 ± 37,45	0,5193	36,49 ± 44,44	0,7853	79,36 ± 86,42	0,6278	16,00 ± 23,39	0,4528
	Medium	50,23 ± 54,94		41,53 ± 54,62		71,19 ± 85,24		3,00 ± 0,00	
	High	41,30 ± 55,43		42,32 ± 46,38		67,25 ± 54,44		19,77 ± 16,90	
Objective knowledge	Low	37,00 ± 40,10	0,8670	47,39 ± 68,14	0,3754	64,16 ± 65,79	0,2676	9,50 ± 9,19	0,6711
	Medium	44,13 ± 58,22		34,43 ± 32,12		69,33 ± 72,87		21,38 ± 20,90	
	High	43,08 ± 44,00		46,66 ± 45,74		82,52 ± 76,07		13,00 ± 9,84	
Expectations	Low	53,46 ± 53,68	0,1468	23,60 ± 22,16	0,0126	71,49 ± 74,21	0,0593	16,00 ± 0,00	0,6836
	Medium	34,31 ± 37,54		42,87 ± 48,11		68,81 ± 81,10		14,85 ± 16,26	
	High	43,82 ± 63,97		53,44 ± 61,02		75,72 ± 51,04		21,80 ± 21,87	
Overall score	Low	52,96 ± 53,56	0,2461	27,83 ± 27,74	0,0817	75,83 ± 80,05	0,0531	20,66 ± 20,40	0,2299
	Medium	33,72 ± 38,88		48,17 ± 65,89		70,57 ± 79,90		8,33 ± 7,09	
	High	41,83 ± 57,93		43,65 ± 36,71		68,05 ± 51,98		20,28 ± 19,89	

phase of illness [7, 28]. Preparation for discharge, including education in the field of secondary prevention after a myocardial infarction, is a current standard of care. Nevertheless, the actions taken by medical professionals do not always respond to the patient's expectations [25, 29]. Weiss et al. Noticed a relationship between the low level of readiness for discharge declared by the patient and the subsequent difficulties in implementing therapeutic recommendations in the home environment [30].

To the best of our knowledge, this publication is the first such detailed analysis of the relationship between the readiness for discharge patients after myocardial infarction and the implementation of the therapeutic plan. Our observations did not show any clear relationships between the adherence to treatment with three basic groups of drugs and readiness to discharge from the hospital, assessed with the RHD MIS, both in terms of the overall score and the results of subscales. However, significant differences observed in some subscales with regard to individual drugs may, contrary to our expectations, suggest a worse implementation of the therapeutic plan in patients with higher knowledge (in relation to statins) or with lower needs for additional information (in relation to all drug groups in last quarter of follow-up). These surprising results require further in-depth research to explain this phenomenon. According to the previously published studies [24, 27, 30], better adherence to treatment should be expected in patients with a higher level of readiness for discharge. However, the extensive, multi-faceted assessment of readiness for

discharge that we used may reveal relations that were elusive with the use of other tools. Undoubtedly, our results clearly confirm that patient education should continue after discharge from the hospital [10, 32–37].

It is worth noting the differences between subjective and objective assessment of the patient's knowledge observed with RHD MIS. As many as 110 patients were satisfied with the level of their knowledge, while only 53 patients obtained a high score in the objective assessment of knowledge. Similarly, Weiss et al. [24] noticed a discrepancy in the assessment of readiness for discharge as judged by staff and patients. The low level of readiness for discharge observed by the nurse was associated with higher risk of complications and rehospitalization as compared with the patient's self-assessment [24]. Other studies have shown that patients' assessment of treatment priorities and cardiac rehabilitation may significantly differ from the healthcare professionals' opinion [38, 39]. Moreover, patients' beliefs regarding the disease also often differ from the rational assessment of specialists. This is crucial for the effectiveness of the therapy, because it is the patients' point of view that determines the way of coping with the disease, recovery expectations, reactions to subsequent symptoms of the disease, adherence to recommendations and commitment to rehabilitation [40, 41].

Of note, patients with a high score in terms of expectations (those, who declare not to expect additional information) had significantly worse adherence than patients with a low level in this subscale (declaring a willingness to expand their knowledge). Furthermore,

consistently with previous report, subjects who were not aware of the seriousness of the disease had lower adherence to treatment with P2Y12 receptor inhibitor [42]. The awareness of receiving support from the family was associated with lower adherence to treatment with P2Y12 receptor inhibitor. This finding is difficult to interpret, especially in view of reports suggesting that emotional family support as well as reminding medicine intake may help patients to implement their treatment plan [43–45].

In line with our observations, other reports also indicate the third and fourth quarters of treatment after myocardial infarction as the moment of adherence deterioration [6, 18, 37, 46–50]. The previously published studies identifying non-adherence determinants, did not include into account the readiness for discharge from the hospital [6, 18, 37, 46–54]. Further research is needed to explain the reasons for lower adherence in patients with higher RHD MIS scores, even if it only concerns some aspects of the assessment.

A limitation of this study is the fact that patients who received medications non-reimbursed by the National Health Fund were excluded from the analysis. Moreover, we do not have patients reports concerning the reasons for therapy discontinuation. On the other hand though, the strength of this study is its comprehensiveness of readiness for discharge from the hospital assessment and homogeneity of the study population.

Conclusions

The readiness for discharge from the hospital assessed with the RHD-MIS does not clearly affect the implementation of the therapeutic plan in the long-term follow-up in patients after myocardial infarction. Data suggesting a negative impact of some aspects of readiness for discharge on adherence to treatment require further, in-depth research.

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