Real-life implementation of guidelines for heart failure management

Iwona Gorczyca-Głowacka[1], Agnieszka Mastalerz-Migas[2], Małgorzata Lelonek[3]

[1]Collegium Medicum, Jan Kochanowski University in Kielce, Kielce, Poland
[2]Department of Family Medicine, Wroclaw Medical University, Wrocław, Poland
[3]Department of Noninvasive Cardiology, Medical University of Lodz, Łódź, Poland

Correspondence to:
Iwona Gorczyca-Głowacka, MD, PhD,
Collegium Medicum, Jan Kochanowski University in Kielce,
IX Wieków Kielc 19A,
25–317 Kielce, Poland,
phone: +48 604 407 956,
e-mail:
iwona.gorczyca@interia.pl

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INTRODUCTION

In 2020 there were more than 740 000 patients with heart failure (HF) in Poland, and half of them suffered from heart failure with reduced ejection fraction (HFrEF) [1]. Four major therapeutic classes of drugs have been shown to reduce mortality in HFrEF patients: angiotensin-converting enzyme inhibitors (ACEi) or angiotensin receptor-neprilysin inhibitors (ARNi), beta-blockers, mineralocorticoid receptor antagonists (MRA), and sodium-glucose cotransporter 2 inhibitors (SGLT2i) [2, 3]. The 2021 European Society of Cardiology (ESC) HF guidelines departed from the traditional approach to HF treatment and suggested that the four pillars of treatment should be prescribed to all HFrEF patients simultaneously [2]. More recently, in the American College of Cardiology/American Heart Association/Heart Failure Society of America (ACC/AHA/HFSA) guidelines, similar recommendation was included [3]. This study aimed to assess the implementation of the current guidelines in pharmacotherapy of HFrEF patients.

METHODS

This survey was an investigator-initiated survey initially designed and drafted by the Heart Failure Association of the Polish Cardiac Society. The survey was addressed to physicians caring for HFrEF patients, including cardiologists and physicians of other specialties. After validation, the survey was published on the website platform and shared via the group mailing list of the Heart Failure Association and Polish Society of Family Medicine. Physicians completed the online survey (Supplementary material, *Table S1*). The questions concerned their specialization, workplace characteristics, and pharmacotherapy used in HFrEF patients. Three main points for the proper implementation of the ESC guidelines have been identified:

- initiation of therapy with four classes of drugs (ACEi/ARNi, beta-blockers, MRA, SGLT2i),
- introduction of SGLT2i therapy in almost every patient,
- use of ARNi in almost every patient.

Statistical analysis

Pearson's χ^2 test of independence was used to compare the groups. *P*-values <0.05 were considered statistically significant. The calculations were done with the use of the STATISTICA PL 13.3 statistical package.

RESULTS AND DISCUSSION

The analysis was conducted in a group of 117 physicians, including 64 cardiologists (54.7%), 19 internal medicine physicians (16.2%), 30 general practice physicians (25.6%), and 4 physicians of other specializations (3.5%). It showed that in the study group, the following percentage of physicians implemented the studied elements of pharmacotherapy for HFrEF patients:

- initiation of therapy with four classes of drugs (ACEi/ARNi, beta-blockers, MRA, SGLT2i) — 64.1%,
- introduction of SGLT2i therapy in almost every patient — 53.8%;
- use of ARNi in almost every patient — 17.1% (Table 1).

In all groups, the majority were cardiologists, in the group of physicians choosing ARNi in almost every patient, cardiologists

Table 1. Comparison of respondent characteristics and HFrEF treatment between cardiologists and non-cardiologists

Characteristics	All n = 117	Cardiologists n = 64	Non-cardiologists n = 53	*P*-value
Number of patients with heart failure consulted per week				
<10	41 (35)	11 (17.2)	30 (56.6)	<0.0001
10–25	59 (50.4)	39 (60.9)	20 (37.7)	
26–50	13 (11.1)	11 (17.2)	2 (3.8)	
>50	4 (3.4)	3 (4.7)	1 (1.9)	
General principles of HFrEF treatment				
In accordance with post-hospital recommendations and aiming at dose optimization	24 (20.5)	5 (7.8)	19 (35.8)	<0.0001
In accordance with post-hospital recommendations and without aiming at dose optimization	9 (7.7)	2 (3.1)	7 (13.2)	
Initiating therapy with four classes of drugs	75 (64.1)	56 (87.5)	19 (35.8)	
No experience with new drugs	9 (7.7)	1 (1.6)	8 (15)	
Treatment of HFrEF in stable outpatients				
Without a change in current treatment	15 (12.8)	0 (0.0)	15 (28.3)	<0.0001
With changes in current treatment	82 (70.1)	54 (84.4)	28 (52.8)	
The decision to modify the treatment depends on test results	20 (17.1)	10 (15.6)	10 (18.9)	
General principles of SGLT2i therapy				
Used in almost every patient	63 (53.8)	47 (73.4)	16 (30.2)	<0.0001
More commonly used in patients with diabetes mellitus	26 (22.2)	5 (7.8)	21 (39.6)	
Used as a subsequent therapy after beta-blockers, ACEi/ARNi, MRA	20 (17.2)	9 (14.1)	11 (20.8)	
Used as a subsequent therapy after beta-blockers, ACEi/ARNi	8 (6.8)	3 (4.7)	5 (9.4)	
General rules for ARNi use				
Used in almost every patient	20 (17.1)	20 (31.2)	0 (0.0)	<0.0001
Used in fewer than one patient in three	76 (64.9)	30 (46.9)	46 (86.8)	
More commonly used in the outpatient center	2 (1.7)	2 (3.1)	0 (0.0)	
More commonly used in the hospital	19 (16.2)	12 (18.8)	7 (13.2)	
Reasons for non-use or infrequent use of ARNi				
Price barrier	65 (55.6)	28 (43.1)	37 (69.8)	0.0001
The need to monitor therapy	7 (6)	1 (1.6)	6 (11.3)	
Fear of discontinuing ACE-I for 36 hours	3 (2.6)	1 (1.6)	2 (3.8)	
Informing each patient about such therapy	42 (35.9)	34 (53.1)	8 (15.1)	

Abbreviations: ACEi, angiotensin-converting enzyme inhibitor; ARNi, angiotensin receptor-neprilysin inhibitor; HFrEF, heart failure with reduced ejection fraction; SGLT2i, sodium-glucose cotransporter 2 inhibitors`

accounted for as many as 95% of the respondents. The cardiologists worked more often in academic centers (39% vs. 11.3%, $P = 0.0005$) than non-cardiologists. Most cardiologists (82.8%) had consultations with more than 10 HFrEF patients per week compared to non-cardiologists (43.4%, $P < 0.0001$). Initiation of the therapy with four main classes of drugs (ACEi/ARNi, beta-blocker, MRA, SGLT2i) was declared by 87.5% of cardiologists and 35.8% of non-cardiologists ($P < 0.0001$). The use of SGLT2i in almost every HFrEF patient was reported by 73.4% of cardiologists and 30.2% of non-cardiologists ($P < 0.0001$). The use of ARNi in almost every patient was declared by 31.2% of cardiologists and by no non-cardiologists ($P < 0.0001$). A comparison of respondents' workplace and HFrEF management between cardiologists and non-cardiologists is presented in Supplementary material, *Table S1*.

The main findings of the survey are: (1) most physicians initiated HFrEF therapy with four major therapeutic classes; (2) new groups of drugs in HFrEF are implemented to varying degrees; (3) cardiologists implemented the ESC guidelines to a greater extent than non-cardiologists.

Treatment of HFrEF is an undeniable real success of modern medicine. There are treatments of confirmed effectiveness in HFrEF patients, including recently ACEI/ARNi, β-blockers, MRA, and SGLT2i, which reduce mortality and morbidity, and, therefore, are recommended as evidence-based treatments by the ESC and ACC/AHA/HFSA [2, 3]. Administering all four medications in appropriate doses may be a panacea for HFrEF patients; however, it has not been prevalent in everyday clinical practice because patients either receive doses that are lower than recommended, or they are undertreated by receiving too few groups of the drugs [4]. In the presented study, 64.1% of physicians declared prescribing all four groups of drugs in HFrEF patients, but we did not assess whether it was done synchronously or sequentially. In a study including 615 cardiologists, Fauvel et al. [5] showed that the number one drug prescribed for the sequential approach was ACEi/ARNi (74%), the second was beta-blockers (55%), MRA came as the third (52%), and SGLT2i (53%) was the fourth. Eighty-four percent of respondents perceived simultaneous administration of all four classes of medications as feasible during initial hospitalization, and 58% recognized dose optimization to be less important than introducing a new class [5]. In the presented study, we showed that new classes of drugs — ARNi and SGLT2i — are implemented in HFrEF patients with varying

frequency. SGLT2i added to ACEi/ARNi, beta-blocker, and MRA have been shown to reduce the risk of cardiovascular death and HF severity in HFrEF patients. However, 6% of the surveyed physicians had no experience with using SGLT2i in HFrEF patients. Treatment of chronic HFrEF patients with sacubitril/valsartan is safe and associated with significant clinical and objective improvement [6]. Taking into account the current state of knowledge, according to the opinion of experts from the Heart Failure Association of the Polish Cardiac Society, ARNi should be the preferred drug over ACEi/ARB in HFrEF patients [7]. This is confirmed by the recommendations contained in the latest 2022 AHA/ACC/HFSA guidelines. However, the widespread unavailability of the drug due to the lack of reimbursement is the greatest obstacle to initiating treatment with ARNi in HFrEF patients. In the presented study, only 17.1% of respondents prescribed ARNi in almost every HFrEF patient, and for 55.6% of physicians, the main barrier to introducing this therapy was its price. It is not surprising that the implementation of cardiac societies' guidelines is better in the group of cardiologists; however, training of non-cardiologists should be intensified because most HFrEF outpatients are treated by non-cardiologists.

We acknowledge several limitations. First, only HFrEF patients were included in the study, and no treatment intolerance or comorbidities were taken into account. Nevertheless, this complies with the previously proposed expert opinion strategy. Second, the presented study is a pilot study, hence the small number of respondents. Third, another limitation of the study is the incomplete participation of physicians invited to the study.

In conclusion, this survey is the first to provide real-life Polish data on the pharmacotherapy of HFrEF patients. Most physicians treating HFrEF patients adhere to two pillars of HFrEF treatment — they initiate therapy with four main classes of drugs and include SGLT2i in almost every patient. The use of pharmacotherapy in all patients with chronic cardiovascular diseases in accordance with the guidelines is not possible, if only because of contraindications to the use of given drugs. However, it is important to ensure that the guidelines are implemented in the largest possible number of patients. In addition, Polish doctors can use expert opinions of the Heart Failure Association of the Polish Cardiac Society, which facilitate guideline implementation [6–8].

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

Article information

Conflict of interest: IGG received fees for lectures: Bayer, Boehringer Ingelheim, Krka, Novo Nordisk, and Promed. AMM received fees for lectures: Astra Zeneca, Bayer, Boehringer Ingelheim, and Promed. ML received fees for lectures: Astra Zeneca, Bausch Health, Bayer, Boehringer Ingelheim, Novartis, and Servier.

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REFERENCES

1. Maps of Health Needs. System and Implementation Analysis Database Platform. Epidemiology. Available online: https://basiw.mz.gov.pl/mapy-informacje/mapa-2022-2026/analizy/epidemiologia/. Accessed: January 03, 2023.
2. Sindone A, Doehner W, Manito N, et al. Clinical practice update on heart failure 2019: pharmacotherapy, procedures, devices and patient management. An expert consensus meeting report of the Heart Failure Association of the European Society of Cardiology. Eur J Heart Fail. 2019; 21(10): 1169–1186, doi: 10.1002/ejhf.1531, indexed in Pubmed: 31129923.
3. Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation. 2022; 145: e895–e1032, doi: 10.1016/j.cardfail.2022.02.010, indexed in Pubmed: 35378257.
4. Shen Li, Jhund PS, Docherty KF, et al. Dementia-related adverse events in PARADIGM-HF and other trials in heart failure with reduced ejection fraction. Eur J Heart Fail. 2017; 19(1): 129–137, doi: 10.1002/ejhf.687, indexed in Pubmed: 27868321.
5. Fauvel C, Bonnet G, Mullens W, et al. Sequencing and titrating approach of therapy in heart failure with reduced ejection fraction following the 2021 European Society of Cardiology guidelines: an international cardiology survey. Eur J Heart Fail. 2023; 25(2): 213–222, doi: 10.1002/ejhf.2743, indexed in Pubmed: 36404398.
6. Lelonek M, Grabowski M, Kasprzak JD, et al. An expert opinion of the Heart Failure Association of the Polish Cardiac Society on the 2021 European Society of Cardiology guidelines for the diagnosis and treatment of acute and chronic heart failure: Heart failure guidelines from a national perspective. Kardiol Pol. 2022; 80(2): 239–246, doi: 10.33963/KP.a2022.0021, indexed in Pubmed: 35076082.
7. Lelonek M, Wiśniowska-Śmiałek S, Rubiś P, et al. Sacubitril/valsartan for heart failure with reduced ejection fraction: A first real-life observational study in Poland. Adv Clin Exp Med. 2021; 30(1): 67–75, doi: 10.17219/acem/128230, indexed in Pubmed: 33529509.
8. Nessler J, Siniarski A, Leszek P, et al. Expert opinion of the Heart Failure Working Group of the Polish Cardiac Society on the use of dapagliflozin in the treatment of heart failure with reduced ejection fraction. Kardiol Pol. 2021; 79(3): 363–370, doi: 10.33963/KP.15859, indexed in Pubmed: 33687868.