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Prescribing Patterns of Mineralocorticoid Receptor Antagonists in Post-Myocardial Infarction Patients at a Tertiary Hospital in Saudi Arabia

Alseraye Sarah[1]*, Waled Maha[2] and Bahmaid Reem[1]

[1]*Pharmaceutical Care, Cardiology Clinical Pharmacy Department, King Fahad Medical City, Riyadh, Saudi Arabia.*

[2]*College of Pharmacy, Jazan University, Jizan, Saudi Arabia.*

***Correspondence:**
Sarah Alseraye, Pharmaceutical Care, Cardiology Clinical Pharmacy Department, King Fahad Medical City, Riyadh, Saudi Arabia, E-mail: saraser1608@gmail.com.

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ABSTRACT

Background: *Evidence showed better clinical outcomes with Mineralocorticoid Receptor Antagonists (MRAs) use in post-myocardial infarction (MI) patients. There is underutilization of Spironolactone in heart failure (HF) settings in Saudi Arabia, necessitating the need to evaluate our practice in prescribing MRAs for post-MI patients. Therefore, our study aimed to assess the rate of compliance with the guideline recommendation to initiate MRAs in patients post-MI who have an Ejection Fraction (EF) of 40% or less and symptomatic HF or diabetes.*

Methodology: *A retrospective observational study was conducted at King Fahad Medical City. All adult patients who underwent cardiac catheterization from 2021 to 2023 were screened for eligibility through their medical records.*

Results: *A total of 1830 patients were screened, among those, 347 patients were included and eligible for spironolactone therapy. The mean age was 57.4 ± 12.6 years, and 83.90% of them were males. Among those 347 patients, 70.6% were diagnosed to have ST-segment Elevation MI (STEMI) with a mean EF of 21.8 ± 15.2 %. From the included patients, 232 (66.9%) had symptomatic HF and 251 (72.3%) had diabetes. Most of the included patients were on Renin Angiotensin Aldosterone inhibitors (RAASI) and Beta blockers (BB); 316 (91.1%) and 343 (98.8%) respectively. Our results showed that Spironolactone was initiated in only 168 (48.4%) patients from all MRAs eligible patients. From those, Spironolactone was started early in 121 (72.0%) patients. Spironolactone monitoring parameters were done in 135 (80.4%), 42 (25.0%), 25 (14.9%), and 24 (14.3%) within one week, week 4, week 8, and week 12 of spironolactone initiation, respectively.*

Conclusion: *MRAs use in eligible patients post-MI is underutilized, highlighting an urgent need to improve adherence to the guideline recommendations in order to improve the clinical outcomes. Further investigations are warranted to identify barriers affecting MRAs initiation and monitoring from prescribers' perspectives.*

Keywords

Mineralocorticoid Receptor Antagonists, Spironolactone Utilization, Guideline Compliance.

Abbreviation

MI: Myocardial Infarction, LV: Left ventricular, HF: Heart failure, EF: Ejection fraction, RAAS: Renin Angiotensin Aldosterone System, MRAs: Mineralocorticoid Receptor Antagonists, BP: Blood pressure, STEMI: ST Elevation Myocardial Infarction, ACE: Angiotensin Converting Enzyme, NYHA: New Yourk Heart Association, ACC: American College of Cardiology, AHA: American Heart Association, ACS: Acute Coronary Syndrome, MACE: Major Atherosclerotic Cardiac Events, ESC: European Society of Cardiology, HEARTS: Heart Function Assessment Registry Trial in Saudi Arabia, ARBs: Angiotensin Receptor Blockers, MRN: Medical Record Number, BB: Beta Blockers,

SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure.

Background

According to the Global Burden of Diseases, Injuries, and Risk Factors Study that was done in 2017, death due to cardiovascular diseases was the largest estimated number within non-communicable diseases [1]. Myocardial Infarction (MI) in particular, represents a critical and life-threatening manifestation of coronary artery disease [2]. Globally, the prevalence of MI is reported to be 3.8% among individuals under 60 years of age and 9.5% among those aged 60 years and above [3]. Left ventricular (LV) dysfunction, a common complication of MI, is associated with adverse clinical outcomes and is observed in approximately one in four patients hospitalized with MI, irrespective of the presence of heart failure (HF) symptoms [4,5]. The risk of 1-year mortality in patients with ejection fraction (EF) ≤ 35% was 29.0% compared with 13.0% in patients with EF ≥ 55% [5].

Aldosterone, the final mediator of the Renin Angiotensin Aldosterone System (RAAS), is a mineralocorticoid hormone that has the ability to regulate sodium (Na+) and potassium (K+) transport in a variety of epithelial locations and is a potent mediator of cardiac remodelling in LV dysfunction through the promotion of tissue fibrosis [6,7]. Elevated aldosterone levels have been associated with poorer clinical outcomes in patients hospitalized with myocardial infarction (MI), including increased mortality [8]. The association between mortality and elevated aldosterone levels is independent of patient age, heart failure, and reperfusion status [8]. Furthermore, High Adosterone level was associated with a higher incidence of congestive heart failure, ventricular arrhythmias, reinfarction, and all adverse events in patients with MI [9]. Consequently, targeting aldosterone to reduce its levels has emerged as a therapeutic strategy aimed at improving long-term outcomes following MI [9].

Spironolactone and eplerenone are Mineralocorticoid Receptor Antagonists (MRAs) that not only reduce blood pressure (BP) but also exert beneficial effects on pathological, structural, and functional changes in the heart, kidney, and various vascular beds [7]. Both agents are associated with a dose-related increase in serum potassium levels [7]. However, unlike spironolactone, the metabolites of eplerenone are inactive, and its shorter half-life explains the less common association with hyperkalemia. Moreover, the mineralocorticoid receptor selectivity of eplerenone offers major advantages in terms of frequency of all other potential adverse events, such as gynecomastia and impotence, which were comparable in eplerenone and placebo groups in the EPHESUS trial [7,10,11].

In the landmark EPHESUS trial, Eplerenone 25 mg per day up titrated to a maximum of 50 mg per day after 4 weeks when added to optimal treatment for eligible patients (creatinine ≤2.5 mg/dL in men and ≤2.0 mg/dL in women, potassium ≤5.0 mEq/L) 3 to 14 days after acute MI in patients with EF less than 40 and having symptoms of heart failure or diabetes resulted in additional reductions in overall mortality and the rate of death from cardiovascular causes or hospitalization for cardiovascular events [11]. During a mean follow-up of 16 months, 14.4% of eplerenone group died compared to 16.7% in the placebo group (relative risk, 0.85; P=0.008) The end point of death from cardiovascular causes or hospitalization for cardiovascular events was reached by 26.7 % in the eplerenone group compared to 30% in the placebo group (relative risk, 0.87; P=0.002). In addition, there was a relative reduction of 15% in the risk of hospitalization for heart failure with eplerenone [11]. The benefits observed were more pronounced in patients with early initiation of eplerenone when compared with a later initiation. Earlier eplerenone initiation (<7 days) reduced the risk of all-cause mortality by 31% (P=0.001), reduced the risks of cardiovascular hospitalization and cardiovascular mortality by 24% (P<0.0001), and reduced sudden cardiac death by 34% (P<0.0001). In contrast, later eplerenone initiation had no significant effect on clinical outcomes [12]. Whereas in the REMINDER trial that included patients with ST Elevation Myocardial Infarction (STEMI) but without known history of HF, in whom around 13% were diabetics to assess the impact of eplerenone on cardiovascular outcomes when initiated within 24 hours of symptom onset, eplerenone resulted in reductions in natriuretic peptides but without any mortality benefit [13].

Interestingly, in the ALBATROSS trial, which aimed to assess the benefit of an early MRA regimen in acute MI irrespective of the presence of HF or LV dysfunction, spironolactone given for six months did not decrease mortality compared to standard of care post-MI when HF is largely not present. However, there was a reduction in deaths in the subgroup of patients who presented with STEMI receiving the MRA regimen [14]. In RALES trial, Spironolactone when added to standard therapy that includes Angiotensin Converting Enzyme (ACE) inhibitor and a loop diuretic to heart failure patients with reduced EF of less than 35% and New Yourk Heart Association (NYHA) class III or IV resulted in morbidity and mortality benefit. The starting dose of Spironolactone was 25 mg and was titrated to 50 mg after eight weeks if the patient showed heart failure progression symptoms without evidence of hyperkalemia [15].

Based on the results of EPHESUS trial, the American College of Cardiology (ACC) /American Heart Association (AHA) Guideline recommends adding MRAs in patients with Acute Coronary Syndrome (ACS) without contraindications who have an EF <0.40 with HF symptoms and/or diabetes mellitus to reduce all-cause death and Major Atherosclerotic Cardiac Events (MACE) with Class I B recommendation [16]. Also, the 2023 European Society of Cardiology (ESC) Guidelines for the management of acute coronary syndromes recommend adding MRAs in ACS patients with an LV EF ≤40% and HF or diabetes with a class I A recommendation [17].

Although, despite the clear benefit and the strong recommendation of using MRAs in eligible patients with HF and MI, real-life registry studies demonstrate that MRA therapy is underused [18,19]. The Heart Function Assessment Registry Trial in Saudi Arabia (HEARTS) is a prospective multicenter national study

done on patients with acute heart failure or high-risk chronic heart failure that included data from 18 hospitals in different regions of Saudi Arabia between 2009 and 2010, with follow-up until 2013. An analysis done that included only patients hospitalized with Acute HF due to Acute MI and who had an EF of 40% or less showed that only 37.7% of MRAs eligible patients were prescribed MRAs (Spironolactone) upon hospital discharge [18]. In addition, a retrospective cross-sectional study conducted at King Abdulaziz Medical City in Saudi Arabia of patients diagnosed with HF aimed to assess the utilization of spironolactone in indicated HF patients found that spironolactone was underutilized. Around 62% of patients who were not on spironolactone were eligible for it, and the underutilization was significantly affected by EF before spironolactone, serum creatinine, ACEI, Angiotensin Receptor Blockers (ARBs), furosemide, statin, and stroke [20].

The underutilization of Spironolactone in heart failure settings in Saudi Arabia is necessitating the need to evaluate our practice in prescribing MRAs for MI-eligible patients. Therefore, the aim of this study was to assess the rate of compliance with the guideline recommendation to initiate MRAs in post-MI patients and to evaluate the rate of compliance with MRAs' safety monitoring parameters.

Methodology

Study Design and Population

A Retrospective Chart review observational study was conducted at King Fahad Medical City, a tertiary care hospital in Saudi Arabia. Included all adult patients aged 18 years or older who underwent cardiac catheterization from January 2021 to the end of December 2023. Medical records were reviewed to identify eligible patients based on predefined inclusion and exclusion criteria. Inclusion criteria encompassed Patients diagnosed with MI (STEMI and Non-STEMI) with an EF of 40% or less and who have either diabetes or Symptomatic HF (presence of pulmonary rales, chest radiography showing pulmonary venous congestion, or the presence of a third heart sound) or both. Biochemical eligibility for MRA therapy required a serum potassium level below 5 mmol/L and serum creatinine levels not exceeding 2.5 mg/dL in males and 2.0 mg/dL in females.

Patients who had been previously treated with MRAs for indications other than MI, as well as those without a confirmed MI diagnosis, were excluded from the study. The Institutional Review Board (IRB) approval was obtained from King Fahad Medical City. IRB Log Number 24-143

Study Procedure

All patients who underwent cardiac catheterization during a defined study period were identified. A total of 2195 patients were identified in 2023, 2083 patients in 2022, and 1926 patients in 2021. After filtering the data to include only patients with MI (STEMI or Non-STEMI) diagnosis, we had 645 patients in 2023, 793 patients in 2022, and 751 patients in 2021. The three data sets were then combined into one data set that includes a total of 2189 patients. Duplicate was removed by removing patients with the same Medical Record Number (MRN). The final data set included a total of 1830 patients. After applying our inclusion and exclusion criteria, 1,483 were excluded, and a total of 347 patients were eligible and included in the analysis (Figure 1). Data collection sheet provided in supplementary material II.

Outcomes

The primary outcome was to assess the rate of compliance with prescribing spironolactone in eligible patients post-MI. The secondary outcomes were to evaluate the timing of initiating MRAs post-MI, the rate of compliance with Safety monitoring parameters, and the rate of compliance with dose titration to the target dose. Detailed outcome measures are provided in Supplementary Material III.

Statistical Analysis

Data analysis was done by an internal statistician using SPSS 22 software. Descriptive statistics and percentages were used.

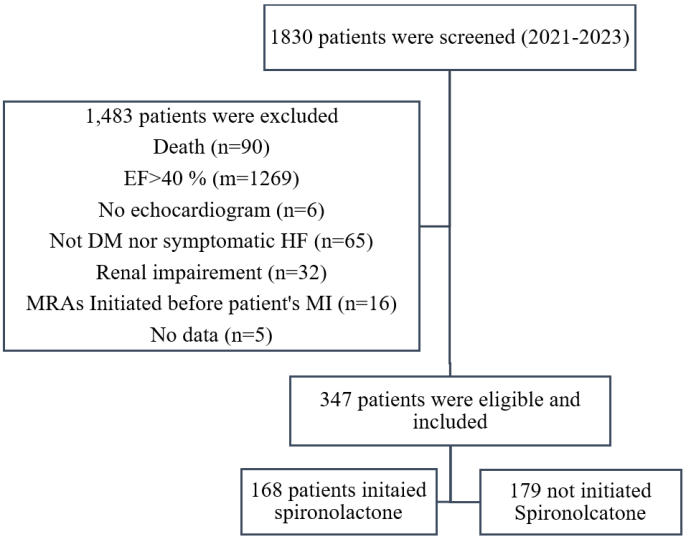

Figure 1: Flow chart for patient selection.
EF: Indicates Ejection Fraction; DM: Diabetes; HF: Heart Failure; MRAs: Mineralocorticoid Receptor Antagonists; MI: Myocardial Infarction.

Results

Among 1,830 patients screened, 347 were deemed eligible and were enrolled for spironolactone treatment (Figure 1). Included patients had a mean age of 57.4 ± 12.6 years, and 83.9% were male. 70.6% of patients had a STEMI diagnosis, and the mean EF was 21.8 ± 15.2%. Moreover, 66.9% of the included patients presented with heart failure symptoms (HF), and 72.3% were diabetics (Table1). Most of the included patients were on RAAS inhibitors and Beta blockers (BB); 316 (91.1%) and 343 (98.8%), respectively (Table 1).

Table 1: Baseline Characteristics of all included patients with MI and eligible for MRAs.

Demographic Characteristics (N=347)			
Characteristic	**Description**	**N (%)**	**Mean ± SD**
Age			57.4 ± 12.6
Sex	Female	56 (16.1%)	
	Male	291 (83.9%)	
Smoking status	Current smoker	139 (40.1%)	
	Non-smoker	184 (53.0%)	
	Ex-smoker	24 (6.9%)	
EF			21.8 ± 15.2
SBP			119.3 ± 19.4
DBP			74.2 ± 29.6
HgA1c			8.2 ± 2.5
Symptoms of HF †		232 (66.9%)	
Hx of DM		251 (72.3%)	
Hx of HTN		196 (56.5%)	
Hx of CKD		19 (5.5%)	
Hx of HF		32 (9.2%)	
Type of ACS	STEMI	245 (70.6%)	
	Non-STEMI	102 (29.4%)	
BB		343 (98.8%)	
RAASI ‡		316 (91.1%)	
Loop diuretics		260 (74.9%)	
Inotropic support/Vasopressors		79 (22.8%)	

†: Presence of pulmonary rales, chest radiography showing pulmonary venous congestion, or the presence of a third heart sound

‡: Angiotensin Converting Enzyme Inhibitors or Angiotensin Receptor Blockers

SD indicate Standard Deviation; EF, Ejection Fraction; SBP, Systolic Blood Pressure; DBP, Diastolic Blood Pressure; HgA1c, Hemoglobin A1C, HF, Heart Failure; Hx: History; DM, Diabetes; HTN, Hypertension; CKD, Chronic Kidney Disease; ACS, Acute Coronary Syndrome; STEMI, ST Elevation Myocardial Infarction; BB, Beta Blockers; RAASI, Renin Angiotensin Aldosterone System Inhibitors.

Despite their eligibility for mineralocorticoid receptor antagonists (MRAs), only 168 patients (48.4%) were initiated on spironolactone. Of those, 121 patients (72%) initiated early (Table 2, Figure 2). Spironolactone monitoring parameters among those who started spironolactone were done in 135 patients (80.4%) during the first week of therapy, dropping to 42 (25.0%) at week 4, 25 (14.9%) at week 8, and 24 (14.3%) at week 12 (Table 2, Figure 3).

Subgroup analysis revealed that patients on spironolactone had lower mean EF (19.5 vs. 24.1) and lower systolic blood pressure (SBP) (116.8 vs. 121.6 mmHg) compared with patients not on the drug. Additionally, the Spironolactone initiated group had more cases with symptomatic HF (77.4% vs. 57%). The use of RAAS inhibitors, inotropes/vasopressors, and diuretics was also higher in the spironolactone group (Table 3). Another subgroup analysis comparing early and late spironolactone initiation demonstrated that early initiators were monitored more during the first week of treatment (Table 4).

Table 2: Descriptive statistics for primary and secondary outcomes (N=347).

Characteristic	**Description**	**N (%)**
Spironolactone initiation		
Patients Initiated Spironolactone		168 (48.4%)
Time of initiation	Early (within 7 days of MI)	121 (72.0%)
	Late (After 7 days of MI)	47 (28.0%)
Starting dose	12.5mg	111 (66.1%)
	25mg	57 (33.9%)
	50mg	0 (0.0%)
Dose increased after 1 month		12 (7.1%)
Dose reached 50mg		0 (0.0%)
Spironolactone Monitoring Parameter †		
Done within 1 week	Yes	135 (80.4%)
Done in week 4	Yes	42 (25.0%)
Done in week 8	Yes	25 (14.9%)
Done in week 12	Yes	24 (14.3%)

†: Monitoring of Blood Pressure, serum creatinine, and serum potassium

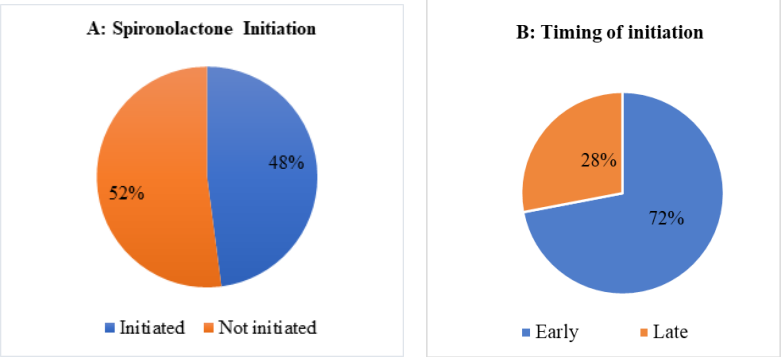

Figure 2: Rate of Compliance with Spironolactone Initiation.

A: Percentage of patients-initiated Spironolactone versus those not initiated on Spironolactone among all MRAs eligible patients.

B: Percentage of patients started spironolactone early within seven days versus those who started spironolactone later among Spironolactone-initiated patients.

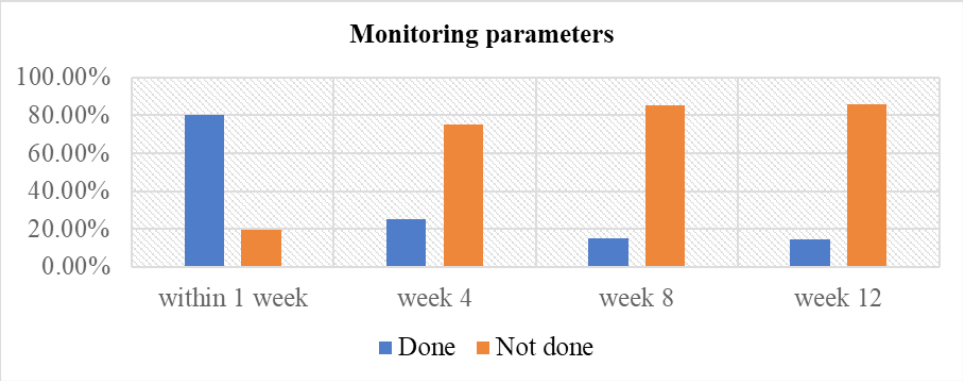

Figure 3: Rate of compliance with Spironolactone monitoring parameters, which include monitoring of Blood Pressure, serum creatinine, and serum potassium.

Table 3: Subgroup analysis for Spironolactone initiated vs non-initiated patients.

Characteristic	Description	Spironolactone-initiated [N=168 (48.4%)]	Non-initiated [N=179 (51.6%)]	p-value
		Mean ± SD N (%)	Mean ± SD N (%)	
Age (year)		57.7 ± 12.8	57.3 ± 12.5	0.767
Sex	Female	29 (17.3%)	27 (15.1%)	0.582
	Male	139 (82.7%)	152 (84.9%)	
BMI (Kg/m^2)		28.2 ± 5.4	28.8 ± 5.3	0.323
Smoking	Current smoker	72 (42.9%)	67 (37.4%)	0.542
	Non-smoker	84 (50.0%)	100 (55.9%)	
	Ex-smoker	12 (7.1%)	12 (6.7%)	
EF		19.5 ± 14.7	24.1 ± 15.4	0.005
SBP		116.8 ± 20.7	121.6 ± 17.9	0.021
DBP		73.4 ± 39.8	74.9 ± 14.4	0.642
HgA1C		8.2 ± 2.5	8.1 ± 2.5	0.888
Symptoms of HF	Yes	130 (77.4%)	102 (57.0%)	<0.001
	No	38 (22.6%)	77 (43.0%)	
Hx of DM	Yes	122 (72.6%)	129 (72.1%)	0.909
	No	46 (27.4%)	50 (27.9%)	
Hx of HTN	Yes	97 (57.7%)	99 (55.3%)	0.648
	No	71 (42.3%)	80 (44.7%)	
Hx of CKD	Yes	9 (5.4%)	10 (5.6%)	0.925
	No	159 (94.6%)	169 (94.4%)	
Hx of HF	Yes	14 (8.4%)	18 (10.1%)	0.592
	No	153 (91.6%)	161 (89.9%)	
Type of ACS	STEMI	119 (70.8%)	126 (70.4%)	0.928
	Non-STEMI	49 (29.2%)	53 (29.6%)	
BB	Yes	168 (100.0%)	175 (97.8%)	0.051
	No	0 (0.0%)	4 (2.2%)	
RAASI	Yes	159 (94.6%)	157 (87.7%)	0.024
	No	9 (5.4%)	22 (12.3%)	
Loop diuretics	Yes	147 (87.5%)	113 (63.1%)	<0.001
	No	21 (12.5%)	66 (36.9%)	
Inotropic support/Vasopressors	Yes	51 (30.4%)	28 (15.6%)	0.001
	No	117 (69.6%)	151 (84.4%)	

SD: indicate Standard Deviation; EF: Ejection Fraction; SBP: Systolic Blood Pressure; DBP: Diastolic Blood Pressure; HgA1c: Hemoglobin A1C, HF: Heart Failure; Hx: History; DM: Diabetes; HTN: Hypertension; CKD: Chronic Kidney Disease; ACS: Acute Coronary Syndrome; STEMI: ST Elevation Myocardial Infarction; BB: Beta Blockers; RAASI: Renin Angiotensin Aldosterone System Inhibitors.

Table 4: Subgroup analysis for Spironolactone time of initiating in the Spironolactone cases (N=168).

Characteristic	Description	Early [N=121 (72.0%)]	Late [N=47 (28.0%)]	p-value
		Mean ± SD N (%)	Mean ± SD N (%)	
Age (year)		57.8 ± 13.4	57.4 ± 11.4	0.875
Sex	Female	21 (17.4%)	8 (17.0%)	0.959
	Male	100 (82.6%)	39 (83.0%)	
BMI (Kg/m^2)		28 ± 5.6	28.9 ± 5.1	0.294
Smoking	Current smoker	51 (42.1%)	21 (44.7%)	0.838
	Non-smoker	62 (51.2%)	22 (46.8%)	
	Ex-smoker	8 (6.6%)	4 (8.5%)	
EF		19.2 ± 14.7	20.1 ± 15	0.731
SBP		117.4 ± 22.5	115.2 ± 15.3	0.533
DBP		75 ± 46.1	69.1 ± 14.3	0.391
HgA1C		8.1 ± 2.4	8.5 ± 2.7	0.319
Symptoms of HF	Yes	93 (76.9%)	37 (78.7%)	0.795
	No	28 (23.1%)	10 (21.3%)	
Hx of DM	Yes	85 (70.2%)	37 (78.7%)	0.269
	No	36 (29.8%)	10 (21.3%)	
Hx of HTN	Yes	65 (53.7%)	32 (68.1%)	0.091
	No	56 (46.3%)	15 (31.9%)	
Hx of CKD	Yes	7 (5.8%)	2 (4.3%)	>0.999
	No	114 (94.2%)	45 (95.7%)	
Hx of HF	Yes	7 (5.8%)	7 (14.9%)	0.068
	No	113 (94.2%)	40 (85.1%)	
Type of ACS	STEMI	87 (71.9%)	32 (68.1%)	0.625
	Non-STEMI	34 (28.1%)	15 (31.9%)	
BB	Yes	121 (100.0%)	47 (100.0%)	
	No	0 (0.0%)	0 (0.0%)	
RAASI	Yes	116 (95.9%)	43 (91.5%)	0.268
	No	5 (4.1%)	4 (8.5%)	
Loop diuretics	Yes	103 (85.1%)	44 (93.6%)	0.135
	No	18 (14.9%)	3 (6.4%)	
Inotropic support/Vasopressors	Yes	33 (27.3%)	18 (38.3%)	0.163
	No	88 (72.7%)	29 (61.7%)	
Starting dose	12.5mg	75 (62.0%)	36 (76.6%)	0.102
	25mg	46 (38.0%)	11 (23.4%)	
	50mg	0 (0.0%)	0 (0.0%)	
Dose increased after 1 month	Yes	9 (7.4%)	3 (6.4%)	>0.999
	No	112 (92.6%)	44 (93.6%)	
Dose reached 50mg	Yes	0 (0.0%)	0 (0.0%)	
	No	121 (100.0%)	47 (100.0%)	
Monitoring parameters				
Done within 1 week	Yes	108 (89.3%)	27 (57.4%)	<0.001
	No	13 (10.7%)	20 (42.6%)	
Done in week 4	Yes	26 (21.5%)	16 (34.0%)	0.092
	No	95 (78.5%)	31 (66.0%)	
Done in week 8	Yes	16 (13.2%)	9 (19.1%)	0.333
	No	105 (86.8%)	38 (80.9%)	
Done in week 12	Yes	17 (14.0%)	7 (14.9%)	0.888

SD indicate Standard Deviation; EF, Ejection Fraction; SBP, Systolic Blood Pressure; DBP, Diastolic Blood Pressure; HgA1c, Hemoglobin A1C, HF, Heart Failure; Hx: History; DM, Diabetes; HTN, Hypertension; CKD, Chronic Kidney Disease; ACS, Acute Coronary Syndrome; STEMI, ST Elevation Myocardial Infarction; BB, Beta Blockers; RAASI, Renin Angiotensin Aldosterone System Inhibitors.

Discussion

This study reported the underutilization of MRAs in post-MI patients, as only 48.4% of eligible patients were prescribed spironolactone. A similar trend was observed in the HEARTS registry, where spironolactone was initiated only among 37.7% of patients with Acute HF due to Acute MI and systolic dysfunction [18]. Similarly, in a single-center study that was done among HF patients in Saudi Arabia, around 62% of MRAs' eligible patients were not on spironolactone [20]. Furthermore, in the current study, Spironolactone was initiated early within seven days in 72% of patients who started spironolactone post-MI, aligning with the EPHESUS trial findings, which reported that the benefits were more pronounced in patients with early initiation of eplerenone when compared with a later initiation [12]. In addition, the study results demonstrated that having low EF, low systolic blood pressure, the presence of symptomatic HF, using RAAS inhibitors, diuretics and vasopressors or inotropic supports were factors influenced spironolactone prescribing, which can be explained by the clearer diagnosis of heart failure and the greater disease severity in these patients, which prompted clinicians to initiate spironolactone therapy.

The study is limited by describing the rate of compliance with MRA initiation without exploring the underlying factors and barriers of spironolactone initiation, optimization, and monitoring. Moreover, the study did not examine the clinical benefits and utility of spironolactone in this population. Spironolactone was used as the MRA for eligible patients post-MI because it was the available drug in the study center, even though favorable outcomes of the EPHESUS trial in ACS patients were based on eplerenone rather than spironolactone [12]. However, the guidelines recommend MRAs as a pharmacological class of medications, not an individual drug. Furthermore, spironolactone was evaluated in the RALSE trial of heart failure and demonstrated comparable clinical benefits to Eplerenone [15].

Conclusion

MRA use in eligible post-MI patients is underutilized, highlighting an urgent need to improve adherence to the guideline recommendations to improve clinical outcomes. Further investigations are warranted to identify barriers affecting MRAs initiation and monitoring from prescribers' perspectives.

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