RWD41

Worsening heart failure events after GDMT: What contemporary utilization of GDMT among patients with HFrEF looks like in a US database

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Background

- Patients with worsening heart failure (WHF) have increased risk of future WHF events and death
- In clinical trials, guideline-directed medical therapy (GDMT) reduces this risk, but few patients in the real world receive optimal GDMT
- This study aimed to quantify the effect of WHF on subsequent WHF events and all-cause death after initiating GDMT

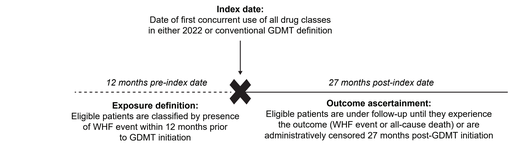
Methods

- We compare the risk of all-cause death or WHF events[a] by history of WHF across 2 cohorts of patients using Optum's de-identified Clinformatics® Data Mart Database based on HF prescription fills for components of GDMT between January 2020 and March 2022
  - The **2022 GDMT Cohort** included patients with concurrent prescription fills of ARNi, MRA, beta-blocker, SGLT2i
  - The **Conventional GDMT Cohort** included patients with concurrent prescription fills of ACEi/ARB and beta-blocker

[a]WHF events are heart failure hospitalization or IV diuretic administration

ARNi, Angiotensin Receptor blocker Neprilysin Inhibitor; MRA, Mineralcorticoid Receptor Antagonist; SGLT2i, Sodium Glucose Cotransporter 2 Inhibitor; ACEi, Angiotensin Converting Enzyme Inhibitor; ARB, Angiotensin Receptor Blocker

Figure 1. Study design



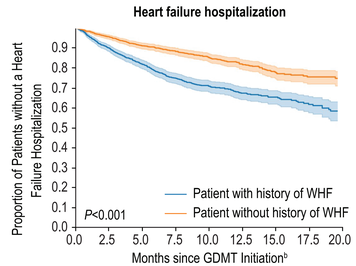
Results:

Table 1. Characteristics of 2,775 patients with HFrEF on 2022 GDMT by history of WHF at GDMT initiation (January 2020 to March 2022)

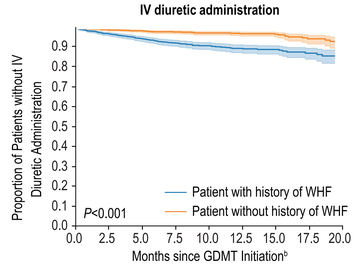
	History of WHF (N=1,312 47%)	No history of WHF (N=1,463 53%)	*P*-value
Age, years, mean (SD)	66.5 (11.88)	66.3 (11.21)	0.65
Female sex[a]	437 (33.3%)	471 (32.2%)	0.55
Race/Ethnicity			
White	781 (59.5%)	870 (59.5%)	
Black	283 (21.6%)	279 (19.1%)	
Asian	29 (2.2%)	52 (3.6%)	<0.001
Hispanic	128 (9.8%)	143 (9.8%)	
Missing/Unknown	91 (6.9%)	119 (8.1%)	
History of chronic kidney disease	554 (42.2%)	510 (34.9%)	<0.001
History of diabetes mellitus	905 (69.0%)	941 (64.3%)	0.01
History of hypertension	1,228 (93.6%)	1,352 (92.4%)	0.25
History of coronary artery disease	1,101 (83.9%)	1,143 (78.1%)	<0.001
History of COPD	239 (18.2%)	202 (13.8%)	<0.01
Outcomes			
Event rates[b]			
All-cause death	176	106	<0.001
HF hospitalizations	395	179	<0.001
IV diuretic administration	87	40	<0.001
Cumulative incidence[b]			
HF hospitalizations	577	268	<0.001
IV diuretic administration	157	63	<0.001

[a]1 observation missing
[b]per 1,000 patient-years

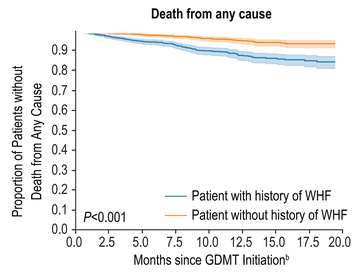
Figure 2. Time to HF hospitalization, IV diuretic administration, or all-cause death among 2,775 patients with HFrEF, by history of WHF at 2022 GDMT initiation (January 2020 to March 2022)



aHR (95% CI): 2.0 (1.7, 2.3)[a]



aHR (95% CI): 3.4 (2.3, 4.9)[a]



aHR (95% CI): 2.8 (2.0, 4.0)[a]

[a]Adjusted for age, sex, race, and history of coronary artery disease, chronic kidney disease, diabetes mellitus, hypertension, and COPD

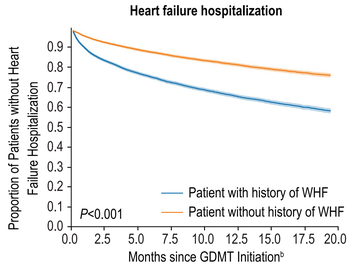
Follow-up time (months)[b]:
History of WHF: mean (SD); 7.6 (5.9), median (IQR); 6.3 (2.8, 11.9)
No History of WHF: mean (SD); 8.0 (6.0), median (IQR); 6.9 (2.9, 11.9)

Table 2. Characteristics of 26,517 patients with HFrEF on conventional GDMT by history of WHF at GDMT initiation (January 2020 to March 2022)

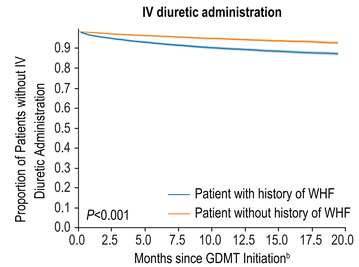
	History of WHF (N=13,558 51%)	No history of WHF (N=12,959 49%)	*P*-value
Age, years, mean (SD)	72.3 (12.02)	73.0 (11.32)	<0.001
Female sex[a]	5,766 (42.5%)	5,134 (39.6%)	<0.001
Race/ethnicity			
White	9,104 (67.1%)	8,716 (67.3%)	
Black	1,982 (14.6%)	1,833 (14.1%)	
Asian	277 (2.0%)	293 (2.3%)	<0.001
Hispanic	1,280 (9.4%)	1,361 (10.5%)	
Missing/Unknown	915 (6.7%)	756 (5.8%)	
History of chronic kidney disease	5,461 (40.3%)	5,295 (40.9%)	0.34
History of diabetes mellitus	7,011 (51.7%)	6,934 (53.5%)	<0.01
History of hypertension	12,452 (91.8%)	12,164 (93.9%)	<0.001
History of coronary artery disease	9,736 (71.8%)	8,993 (69.4%)	<0.001
History of COPD	2,242 (16.5%)	2,373 (18.3%)	<0.001
Outcomes			
Event rates[b]			
All-cause death	109	38	<0.001
HF hospitalizations	404	194	<0.001
IV diuretic administration	106	29	<0.001
Cumulative incidence[b]			
HF hospitalizations	622	258	<0.001
IV diuretic administration	241	44	<0.001

[a]1 observation missing
[b]per 1,000 patient years

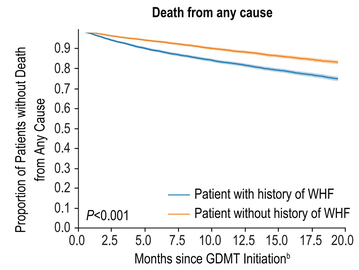
Figure 3. Time to HF hospitalization, IV diuretic administration, or all-cause death among 26,517 patients with HFrEF, by history of WHF at conventional GDMT initiation (January 2020 to March 2022)



aHR (95% CI): 2.1 (2.0, 2.2)[a]



aHR (95% CI): 2.1 (1.9, 2.3)[a]



aHR (95% CI): 1.7 (1.6, 1.9)[a]

[a]Adjusted for age, sex, race, and history of coronary artery disease, chronic kidney disease, diabetes mellitus, hypertension, and COPD

Follow-up time (months)[b]:
History of WHF: mean (SD); 11.0 (7.7), median (IQR); 10.1 (4.1, 16.7)
No History of WHF: mean (SD); 12.0 (7.6), median (IQR); 11.6 (5.4, 17.8)

Limitations

- Adherence may be different than pharmacy prescription data
- Claims data may be missing, misclassified, and/or inaccurate
- Patients may not be representative of overall US HFrEF population

Conclusions

- Risk of subsequent WHF events and death was higher in patients with history of WHF regardless of the intensity of GDMT
- Further evaluation of patients with a history of WHF is needed to better understand and modify the risks associated with WHF
- Results underscore the need for additional therapies and optimized care, even among patients on current GDMT

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