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Factors associated with adherence to guideline-directed medical therapy (GDMT) among US patients with heart failure with reduced ejection fraction (HFrEF)

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Background

- Poor adherence to GDMT leaves patients with HFrEF at persistent risk of clinical decline
- This study assessed adherence to GDMT categories and identified characteristics associated with adherence among US patients with HFrEF

Methods

- Patients with HFrEF who had ≥2 fills of GDMT (ie, ACEi/ARB, ARNi, MRA, beta-blocker, SGLT2i) between January 2021 and December 2022 were identified using Optum's de-identified Clinformatics® Data Mart database
- The patient population was described and a multivariable logistic regression was used to evaluate associations between patient characteristics and adherence (ie, proportion of days covered ≥0.8) to individual categories of GDMT, historical triple therapy (ie, ACEi/ARB/ARNi, MRA, beta-blocker), and quadruple therapy (ie ARNi, MRA, beta-blocker, SGLT2i)
- The model adjusted for age, sex, race/ethnicity, insurance type, census region, education level, household income, and history of myocardial infarction, peripheral vascular disease, cerebrovascular disease, dementia, liver disease, diabetes, and chronic kidney failure

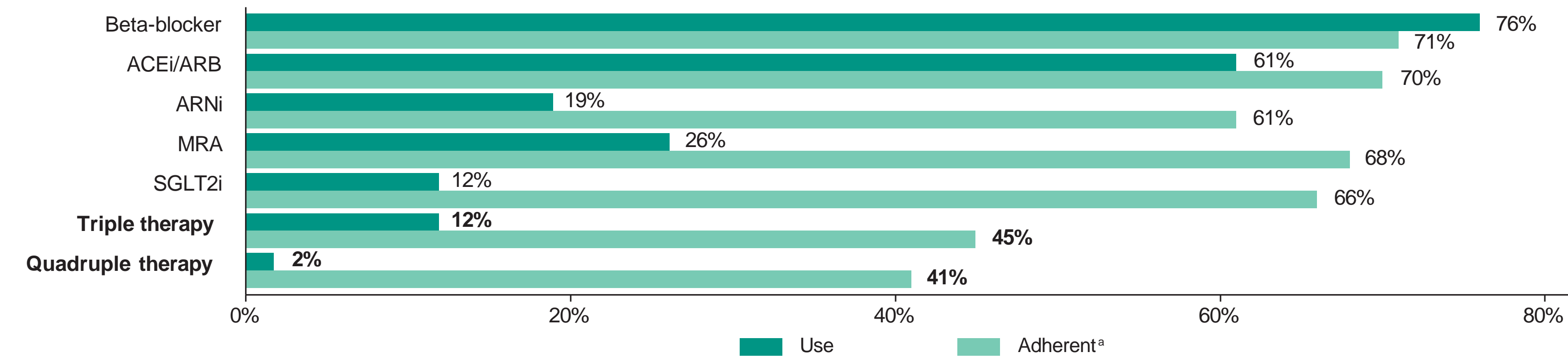
Results

Patient characteristics

Characteristic	Overall N=107,8491	Triple therapy n=13,304	Quadruple therapy n=2478
Age, years, median (IQR)	70 (63, 78)	67 (61, 75)	64 (56, 71)
Male sex	62%	64%	67%
Race/ethnicity			
Asian/missing	10%	10%	11%
Black	14%	14%	17%
Hispanic	9%	7%	9%
White	67%	68%	63%
Insurance through Medicare	81%	76%	68%
Division			
Midwest	23%	28%	27%
Northeast	19%	11%	13%
South	46%	41%	44%
West	12%	20%	16%
Education level			
High school diploma or less	31%	29%	29%
At least some college	61%	63%	63%
Household income range ($)			
<40,000	33%	31%	29%
40,000-70,000	29%	29%	26%
≥70,000	30%	32%	36%
Myocardial infarction	33%	33%	29%
Peripheral vascular disease	37%	42%	43%
Cerebrovascular disease	25%	18%	15%
Dementia	6%	3%	2%
Liver disease	12%	10%	10%
Diabetes	41%	34%	47%
Chronic kidney disease	9%	7%	6%

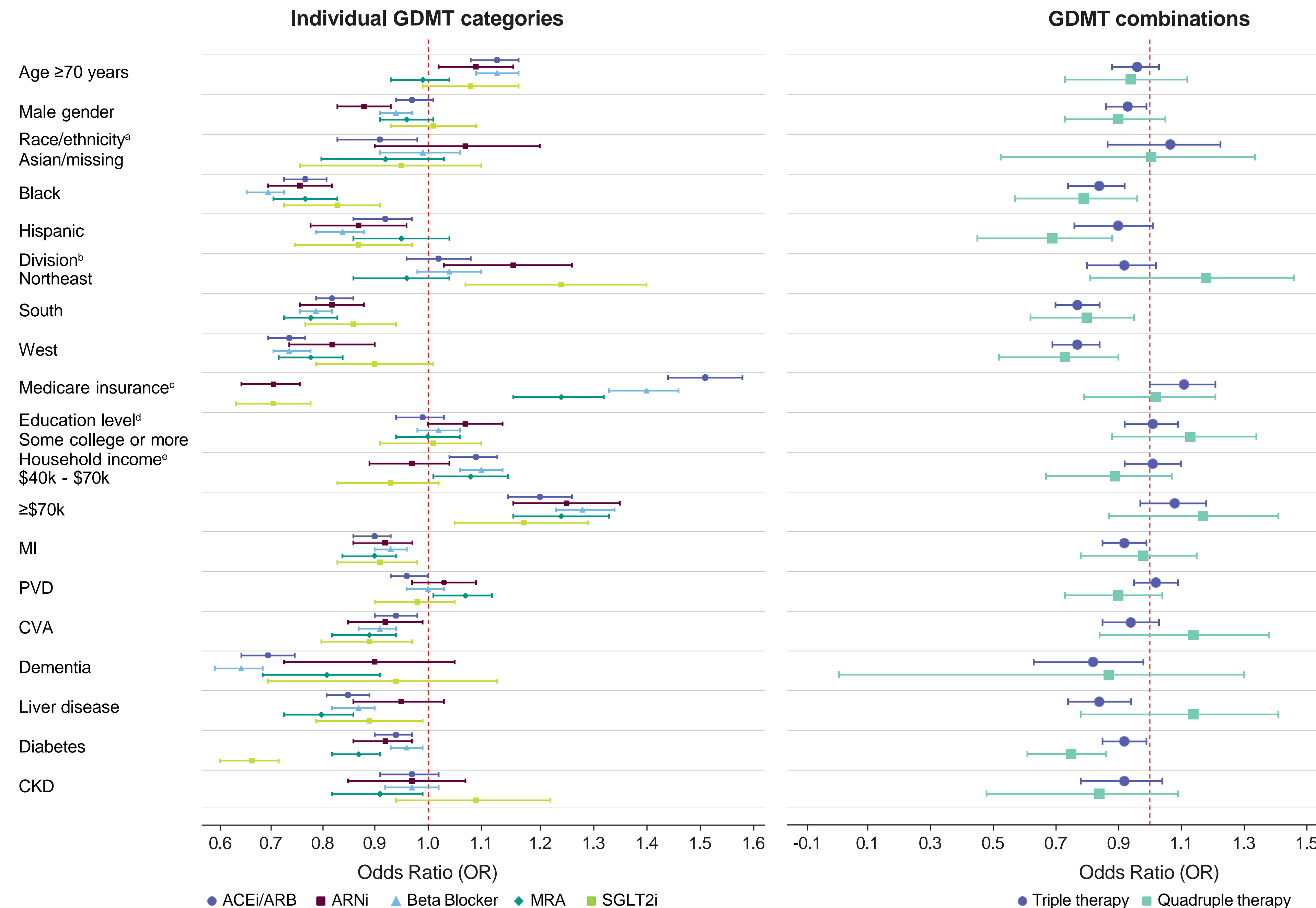
Results

GDMT utilization



[a]Among patients using the medication

Factors associated with adherence to GDMT categories



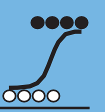
[a]ref: White; [b]ref: Midwest; [c]ref: commercial insurance; [d]≤high school diploma; [e]ref: <$70k

ACEi, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blockers; ARNi, angiotensin receptor/neprilysin inhibitor; CVA, cerebral vascular accident; CKD, chronic kidney disease; GDMT, guideline-directed medical therapy; MI, myocardial infarction; MRA, mineralocorticoid receptor antagonist; PVD, peripheral vascular disease; RAAS, renin-angiotensin-aldosterone system; SGLT2i, sodium-glucose cotransporter 2 inhibitor.

Of the 107,849 patients, most were older, male, white, and resided in the South with a household income of <$40,000/year. The most common comorbidities were a history of diabetes and peripheral vascular disease.

GDMT use was highest for beta-blockers (76%) and lowest for ARNi (19%) and SGLT2i (12%). Under 15% and <3% of patients received triple or quadruple therapy, respectively.

Adherence was highest to beta-blockers (71%) and ACEi/ARB (70%) and lowest to ARNi (61%). 41% - 45% of patients were adherent to triple and quadruple therapy, respectively.



Factors consistently associated with adherence to individual and combination GDMTs were race, region and history of diabetes. Medicare insurance had the strongest association with adherence to individual GDMTs.

Limitations

- Medications were assumed to be taken as prescribed
- Residual confounding could impact the true association between covariates in model and adherence
- There was a shorter follow-up for patients in the current study who initiated quadruple therapy after the 2022 ACC/AHA/HFSA guideline update
- PDC is a conservative measure of adherence

Conclusions

- Results show heterogeneity in GDMT use in this US population of patients with HFrEF, with lowest use among newer GDMT medication categories (ie, ARNI and SGLT2i)
- Adherence was lowest for MRAs and newer GDMT medication categories. Also, utilization of triple and quadruple therapy was low, and adherence to these were sub-optimal
- Factors consistently associated with adherence to individual and combination GDMTs were race, region and history of diabetes; Medicare insurance had the strongest association with adherence to individual GDMT categories
- Identification of patient characteristics associated with adherence to GDMT, including quadruple therapy, stress the need for tailored HFrEF-management strategies to help improve outcomes in this patient population with high unmet need

Financial disclosure

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