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Healthcare Resource Utilization and Economic Burden due to Atrial Fibrillation in Patients with Symptomatic Obstructive Hypertrophic Cardiomyopathy: Real-World Analysis of 2016–2021 Claims Data

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BACKGROUND

- Atrial fibrillation (AF) is common among patients with symptomatic obstructive hypertrophic cardiomyopathy (soHCM), but the impact of AF on healthcare resource utilization (HCRU) and healthcare charges is not well studied.

OBJECTIVES

- To assess HCRU and charges (per-person per-year [PPPY], in US$) for patients with vs without comorbid AF.

METHODS

- Symphony medical and pharmacy claims data were assessed from 2016 to 2021 to identify (by ICD-10 code) adult patients with soHCM in the USA.
- We defined symptomatic as fatigue, chest pain, syncope, dyspnea, heart failure, or palpitations within 3 months of index date.
- Patients were required to be receiving soHCM pharmacotherapy (beta-blockers, calcium channel blockers, or disopyramide) or to have had a procedure for soHCM (septal reduction therapy, pacemaker, or implantable cardioverter defibrillator).
- Patients were grouped based on AF diagnosis:
  - **Prevalent AF:** diagnosis of AF in the period from 12 months prior to index treatment date to 1 month post index treatment date.
  - **Incident AF:** diagnosis of AF in the period from 1 month post index treatment date to the end of follow-up.
  - **No AF:** no AF diagnosis in the period from 12 months prior to index treatment date to the end of follow-up.
- Unadjusted all-cause HCRU and charges (PPPY, in US$) were reported for the following categories: hospitalizations; outpatient (OP), emergency room, and urgent care visits; and pharmacy use.
  - Incremental costs were evaluated for patients before and after diagnosis of AF.

Table 1. Baseline characteristics

n (%)[a]	All patients (N=22,216)	Prevalent AF (N=6677)	Incident AF (N=2879)	No AF (N=12,660)
Female	12,834 (57.8)	3591 (53.8)	1632 (56.7)	7611 (60.1)
Age, years				
Median (IQR)	66 (56–75)	69 (60–76)	67 (57–76)	63 (53–73)
18–34	885 (4.0)	96 (1.4)	74 (2.6)	715 (5.6)
35–44	1282 (5.8)	226 (3.4)	120 (4.2)	936 (7.4)
45–54	2886 (13.0)	656 (9.8)	351 (12.2)	1879 (14.8)
55–64	5349 (24.1)	1475 (22.1)	710 (24.7)	3164 (25.0)
65+	11,814 (53.2)	4224 (63.3)	1624 (56.4)	5966 (47.1)
Region in the US				
Northeast	5538 (24.9)	1531 (22.9)	698 (24.2)	3309 (26.1)
North Central	5936 (26.7)	1833 (27.5)	746 (25.9)	3357 (26.5)
South	7972 (35.9)	2474 (37.1)	1073 (37.3)	4425 (35.0)
West	2715 (12.2)	820 (12.3)	359 (12.5)	1536 (12.1)
Unknown	55 (0.2)	19 (0.3)	3 (0.1)	33 (0.3)
Insurance type				
Cash	731 (3.3)	173 (2.6)	91 (3.2)	467 (3.7)
Commercial	2917 (13.1)	1088 (16.3)	303 (10.5)	1526 (12.1)
Employer group	1921 (8.6)	469 (7.0)	250 (8.7)	1202 (9.5)
Medicaid	2710 (12.2)	621 (9.3)	336 (11.7)	1753 (13.8)
Medicare	9647 (43.4)	3293 (49.3)	1364 (47.4)	4990 (39.4)
PBM	1642 (7.4)	384 (5.8)	190 (6.6)	1068 (8.4)
Unspecified	2501 (11.3)	606 (9.1)	333 (11.6)	1562 (12.3)
Other[b]	147 (0.7)	43 (0.7)	12 (0.4)	92 (0.7)

[a] Unless otherwise indicated.
[b] Other includes government, processors, third party administrator, and workers compensation.
AF, atrial fibrillation; PBM, Pharmacy Benefit Manager.

Table 2. HCRU and charges

	All patients (N=22,216)	Prevalent AF (N=6677)	Incident AF (N=2879)	No AF (N=12,660)	*P* value
All-cause total charges, $ PPPY (95% CI)	$54,450 ($52,208–$56,788)	$63,937 ($59,803–$68,356)	$66,619 ($59,702–$74,336)	$46,686 ($43,901–$48,648)	<0.0001
All-cause hospitalizations					
Patients with ≥1 hospitalization, n (%)	10,492 (47.2)	3906 (58.5)	1970 (68.4)	4616 (36.5)	<0.0001
Hospitalizations, PPPY (95% CI)	0.55 (0.54–0.57)	0.77 (0.74–0.80)	0.79 (0.74–0.83)	0.38 (0.36–0.39)	<0.0001
Charges, $ PPPY (95% CI)	$4,175 ($4,022–$4,333)	$5,840 ($5,497–$6,204)	$6,212 ($5,728–$6,736)	$2,744 ($2,596–$2,901)	<0.0001
Length of stay per hospitalization, mean (95% CI), days	5.21 (5.11–5.33)	5.54 (5.37–5.72)	5.36 (5.13–5.60)	4.8 (4.63–4.99)	<0.0001
All-cause OP visits					
Patients with ≥1 OP visit, n (%)	21,463 (96.6)	6506 (97.4)	2857 (99.2)	12,100 (95.6)	
OP visits, PPPY (95% CI)	3.04 (2.97–3.12)	3.52 (3.36–3.68)	3.29 (3.13–3.46)	2.73 (2.64–2.83)	<0.0001
Charges, $ PPPY (95% CI)	$39,752 ($37,597–$42,031)	$45,120 ($41,178–$49,439)	$47,390 ($40,862–$54,960)	$35,175 ($32,490–$38,083)	<0.0001
All-cause ER visits					
Patients with ≥1 ER visit, n (%)	10,418 (46.9)	3468 (51.9)	1724 (59.9)	5226 (41.3)	
ER visits, PPPY (95% CI)	0.79 (0.77–0.82)	0.94 (0.89–1.00)	0.97 (0.89–1.05)	0.67 (0.64–0.71)	<0.0001
Charges, $ PPPY (95% CI)	$1,657 ($1,588–$1,728)	$1,970 ($1,839–$2,110)	$2,055 ($1,860–$2,269)	$1,397 ($1,313–$1,487)	<0.0001
All-cause UC visits					
Patients with ≥1 UC visit, n (%)	19,371 (87.2)	5775 (86.5)	2652 (92.1)	10,944 (86.4)	
UC visits, PPPY (95% CI)	4.92 (4.85–4.99)	5.32 (5.19–5.45)	5.56 (5.37–5.76)	4.56 (4.48–4.65)	<0.0001
Charges, $ PPPY (95% CI)	$1,222 ($1,202–$1,243)	$1,313 ($1,272–$1,355)	$1,380 ($1,322–$1,440)	$1,137 ($1,111–$1,163)	<0.0001
All-cause market pharmacy					
Patients with ≥1 pharmacy record, n (%)	21,188 (95.4)	6217 (93.1)	2783 (96.7)	12,188 (96.3)	
Pharmacy records, PPPY (95% CI)	11.76 (11.63–11.88)	12.96 (12.71–13.22)	12.56 (12.22–12.90)	10.93 (10.78–11.09)	<0.0001
Costs, $ PPPY (95% CI)	$425 ($412–$439)	$517 ($489–$547)	$412 ($380–$448)	$379 ($363–$396)	<0.0001

P values compare across the Prevalent, Incident, and No AF groups.
ER, emergency room; UC, urgent care.

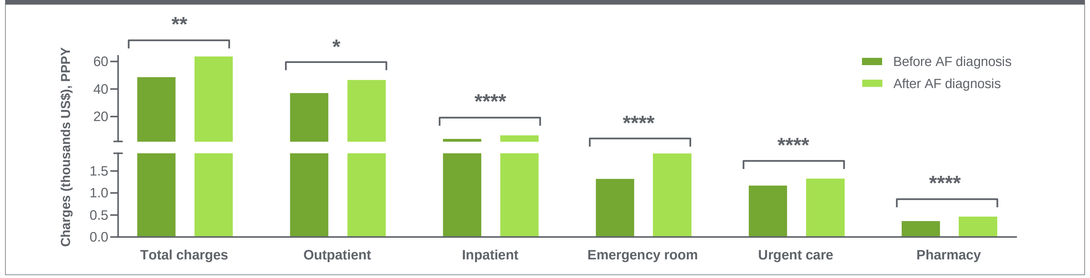
RESULTS

- Of 22,216 patients with soHCM, 6667 (30.1%) had prevalent AF and 2879 (13.0%) incident AF (**Table 1**).
- For patients with prevalent vs incident vs no AF, median age was 69 years vs 67 years vs 63 years (*P*<0.0001), and 53.8% vs 56.7% vs 60.1% (*P*<0.0001) were female.
- Patients with incident AF had greater total charges compared with prevalent AF and no AF ($66,619 vs $63,937 vs $46,686 PPPY; *P*<0.0001) (**Table 2**).
- Patients with prevalent AF had more OP visits compared with incident AF and no AF (3.52 vs 3.29 vs 2.73 PPPY; *P*<0.0001).
- Compared with prevalent AF and no AF, patients with incident AF had more hospitalizations (0.79 vs 0.77 vs 0.38; *P*<0.0001) and associated charges ($6,212 vs $5,840 vs $2,744 PPPY; *P*<0.0001).
- Across all categories, charges were greater after diagnosis of any AF (**Figure 1**).

Limitations

- These analyses are not adjusted for age, sex, or other comorbidities.

Figure 1. All-cause healthcare charges for patients before and after diagnosis of AF



* *P*<0.05; ** *P*<0.01; **** *P*<0.0001.

CONCLUSIONS

- In this large, US-based cohort of patients with soHCM, comorbid AF was associated with significantly greater HCRU and charges.
  - Incremental HCRU and charges were greatest among patients with incident AF.
- These data emphasize an area of unmet need for new treatments to prevent, or reduce the economic burden of, AF.

Disclosures

This study was funded by Cytokinetics, Incorporated. **MB**, **SBH**, **DJ**, **SSh**, and **RS:** Employees of and own stock in Cytokinetics, Incorporated. **SSe**, **JCS**, **EP**, **RP**, **XL**, and **JVF:** No conflicts of interest to declare.

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Abbreviations

AF, atrial fibrillation; HCRU, healthcare resource utilization; OP, outpatient; PPPY, per-person per-year; soHCM, symptomatic obstructive hypertrophic cardiomyopathy.

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