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ORIGINAL RESEARCH

Concomitant Aficamten and Disopyramide in Symptomatic Obstructive Hypertrophic Cardiomyopathy

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ABSTRACT

BACKGROUND Disopyramide, used in obstructive hypertrophic cardiomyopathy (oHCM) for its negative inotropic properties mediated by its reduction in cytosolic calcium, has been recommended for decades as an option to relieve resistant obstruction. Aficamten is a selective cardiac myosin inhibitor that reduces hypercontractility directly by reducing myosin-actin interaction.

OBJECTIVES This study aims to investigate the safety and efficacy of concomitant use and withdrawal of disopyramide in patients with symptomatic oHCM receiving aficamten.

METHODS Patients with oHCM enrolled in REDWOOD-HCM Cohort 3 (open-label), SEQUOIA-HCM (placebo-controlled), and FOREST-HCM (open-label) were analyzed. The authors identified 4 groups, each with patients symptomatic despite background therapy with disopyramide who received: 1) disopyramide plus aficamten and subsequent aficamten withdrawal per protocol (Diso-Afi Withdrawal); 2) disopyramide plus placebo (Diso-Pbo); 3) aficamten plus disopyramide with subsequent disopyramide withdrawal (Afi-Diso Withdrawal); and 4) continued both disopyramide and aficamten (Diso+Afi Continuous). Assessments were performed at baseline, after aficamten or placebo add-on therapy, and after washout (except at week 24 for Diso+Afi Continuous group).

RESULTS Overall, 50 unique patients from 3 trials enrolled, resulting in 93 subjects (segments) across 4 groups: Diso-Afi Withdrawal (n = 29), Diso-Pbo (n = 20), Afi-Diso Withdrawal (n = 17), and Diso+Afi Continuous (n = 27); mean disopyramide dose was 331 ± 146 mg/d. The addition of aficamten to disopyramide alleviated left ventricular outflow tract (LVOT) obstruction (resting: change [Δ] in least squares mean −27.0 ± 3.6, Valsalva: Δ least squares mean −39.2 ± 5.0, both $P < 0.0001$), symptoms (≥1 NYHA functional class improvement: 77.8% [95% CI: 61.0-94.5]; $P < 0.0001$; Kansas City Cardiomyopathy Questionnaire-Clinical Summary Score: 12.3 ± 3.3 [$P < 0.001$]), and reduced N-terminal pro-B-type natriuretic peptide ratio: 0.35 [95% CI: 0.26-0.48]; $P < 0.0001$, and there was no significant change with placebo. Withdrawal of aficamten while on disopyramide resulted in return of LVOT obstruction, worsening of symptoms, and increase in NT-proBNP to baseline values. Conversely, withdrawal of disopyramide while on aficamten did not impact efficacy. There were no safety events associated with aficamten or disopyramide withdrawal, and no episodes of atrial fibrillation after disopyramide withdrawal.

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ABBREVIATIONS AND ACRONYMS

Afi = aficamten

CMI = cardiac myosin inhibitor

Diso = disopyramide

HCM = hypertrophic cardiomyopathy

hsTnI = high-sensitivity troponin I

KCCQ-CSS = Kansas City Cardiomyopathy Questionnaire-Clinical Summary Score

LVEF = left ventricular ejection fraction

LVOT = left ventricular outflow tract

NT-proBNP = N-terminal pro-B-type natriuretic peptide

oHCM = obstructive hypertrophic cardiomyopathy

Pbo = placebo

CONCLUSIONS In this cohort of patients with symptomatic oHCM with persistent LVOT obstruction, combination therapy with aficamten and disopyramide was safe and well tolerated but did not enhance clinical efficacy vs aficamten alone. For such oHCM patients, aficamten treatment may be considered with an option to discontinue disopyramide. (Dose-finding Study to Evaluate the Safety, Tolerability, PK, and PD of CK-3773274 in Adults With HCM [REDWOOD-HCM]; NCT04219826) (Aficamten vs Placebo in Adults With Symptomatic Obstructive Hypertrophic Cardiomyopathy [SEQUOIA-HCM]; NCT05186818) (Open-label Extension Study to Evaluate the Long-term Safety and Tolerability of Aficamten in Adults With HCM [FOREST-HCM]; NCT04848506) (JACC Heart Fail. 2025;■:102441)

Medical management of obstructive hypertrophic cardiomyopathy (oHCM) is rapidly evolving. Beta-blockers and nondihydropyridine calcium-channel blockers remain the first-line therapy in patients with symptomatic oHCM. The 2024 ACC (American College of Cardiology)/AHA (American Heart Association) treatment guidelines recommend disopyramide as one of the second-line therapies in patients with oHCM who remain symptomatic.[1] Leveraging its negative inotropic properties, the addition of disopyramide can effectively further lower left ventricular outflow tract (LVOT) gradients and improve limiting symptoms in some patients with oHCM, providing an important medical option for these patients. Disopyramide has a long track record having been used in this capacity for more than 4 decades,[2-6] leading to a Class I recommendation for it use in AHA/ACC and European guidelines. However, tachyphylaxis and anticholinergic side effects may limit its long-term use in some patients, as well as a small pro-arrhythmic risk that requires QT interval monitoring. Other second-line therapies recommended by the guidelines include cardiac myosin inhibitors (CMIs) and septal reduction therapies.[1]

Aficamten is a next-in-class CMI, which has been demonstrated to be safe and effective in SEQUOIA-HCM (Aficamten vs Placebo in Adults With Symptomatic Obstructive Hypertrophic Cardiomyopathy; NCT05186818) for the treatment of symptomatic oHCM.[7] Unlike beta-blockers, calcium-channel blockers, and disopyramide, aficamten directly targets the underlying pathologic hypercontractility at the sarcomere level and without known off-target effects. Aficamten has been evaluated in patients with oHCM and persistent symptoms despite receiving background standard of care medical therapy, including disopyramide (REDWOOD-HCM Cohort 3 [Dose-finding Study to Evaluate the Safety, Tolerability, PK, and PD of CK-3773274 in Adults With HCM] and SEQUOIA-HCM).[7,8] FOREST-HCM (Open-label Extension Study to Evaluate the Long-term Safety and Tolerability of Aficamten in Adults With HCM; NCT04848506) is a long-term extension study offered to patients completing a parent aficamten study and allows for the management of medical therapies (dose adjustment, continuation, or discontinuation) at the discretion of the local investigator.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the Author Center.

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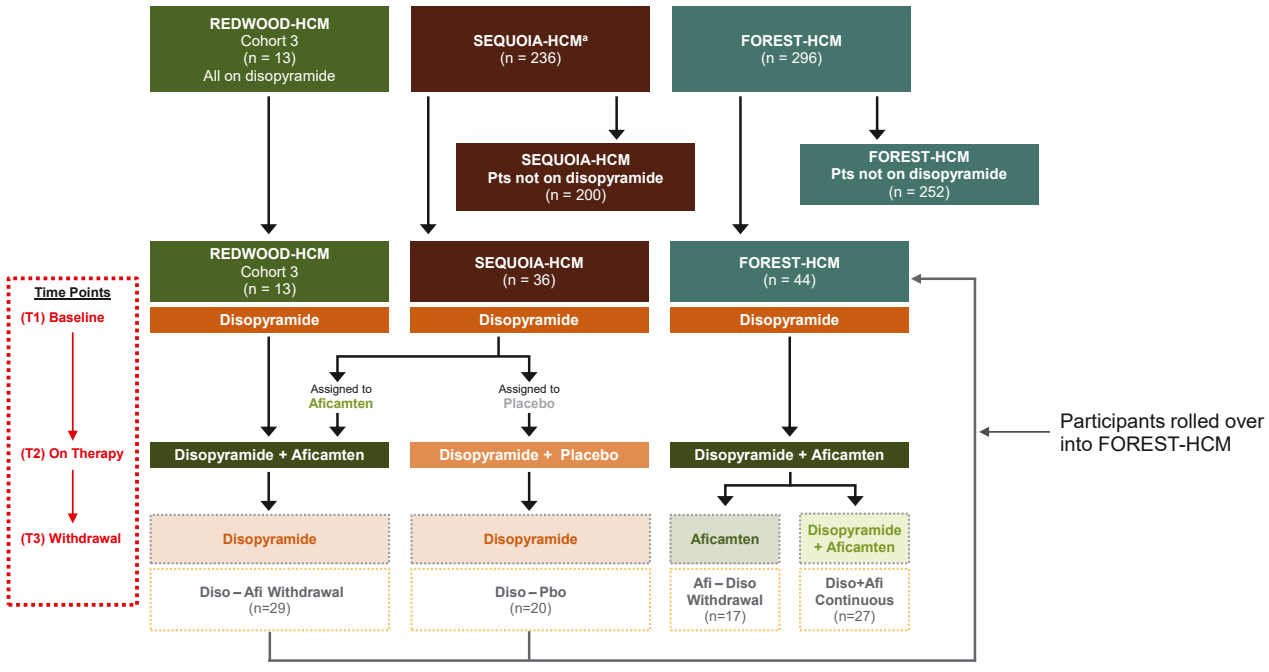
FIGURE 1 Study Schema and Patient Disposition



[a]Excluding patients enrolled in China (n = 46) who did not roll over into FOREST-HCM Assessments at each time point: clinical, NYHA functional class, KCCQ-CSS, LVEF, LVOT gradients, NT-proBNP, HsTnI, adverse events. Afi-Diso Withdrawal = concomitant aficamten and disopyramide therapy followed by withdrawal of disopyramide; Diso+Afi Continuous = concomitant aficamten and disopyramide therapy throughout study; Diso-Afi Withdrawal = concomitant disopyramide and aficamten therapy followed by withdrawal of aficamten; Diso-Pbo = concomitant disopyramide and placebo therapy; FOREST-HCM = Open-label Extension Study to Evaluate the Long-term Safety and Tolerability of Aficamten in Adults With HCM; HsTnI = high-sensitivity troponin I; KCCQ-CSS = Kansas City Cardiomyopathy Questionnaire–Clinical Summary Score; LVEF = left ventricular ejection fraction; LVOT = left ventricular outflow tract; NT-proBNP = N-terminal pro–B-type natriuretic peptide; Pts = patients.

EXPLORER-HCM (Clinical Study to Evaluate Mavacamten [MYK-461] in Adults With Symptomatic Obstructive Hypertrophic Cardiomyopathy; NCT03470545) evaluated the use of mavacamten, the first-in-class CMI, in patients with symptomatic oHCM, but excluded patients receiving disopyramide.[9] VALOR-HCM (A Study to Evaluate Mavacamten in Adults With Symptomatic Obstructive HCM Who Are Eligible for Septal Reduction Therapy; NCT04349072) evaluated the use of mavacamten in patients identified to be candidates for septal reduction therapies, and included a small group of patients receiving disopyramide; however, data specific to those patients have yet to be reported.[10] MAPLE-HCM (Phase 3 Trial to Evaluate the Efficacy and Safety of Aficamten Compared to Metoprolol Succinate in Adults With Symptomatic oHCM; NCT05767346), an ongoing head-to-head comparison study, is the first trial to evaluate the safety and efficacy of current standard of care (metoprolol) against a myosin inhibitor (aficamten); to date, there is not a similar trial for disopyramide.[11]

Through the prospective collection of high-density and clinically relevant data, the aficamten development program thus presents a unique opportunity to evaluate the relevant outcome measures for patients already receiving dual-background therapy with an atrioventricular nodal blocker (beta-blocker, calcium-channel blocker) and disopyramide. These data allow for analyses of important potential treatment scenarios that could be encountered in the clinical setting, including combination with aficamten as triple-therapy, withdrawal of disopyramide after starting therapy with aficamten, stopping aficamten while continuing disopyramide, and treatment with disopyramide without adding aficamten (placebo) (**Figure 1**). Importantly, the patients included in aficamten trials were selected on the basis of continued limiting symptoms caused by persistent LVOT obstruction at the time of enrollment and therefore may not represent those patients who demonstrate long-term and complete response with the addition of disopyramide only, as shown in a recent series.[4]

METHODS

Patients with persistent symptomatic oHCM (NYHA functional class ≥II; LVOT gradients of >30 mm Hg at rest and/or >50 mm Hg with Valsalva) who were receiving disopyramide in addition to either beta-blockers or calcium-channel blockers, all at doses at the discretion of their treating physicians, and enrolled in REDWOOD-HCM Cohort 3 (open-label, NCT04219826), SEQUOIA-HCM (placebo-controlled, NCT05186818), or FOREST-HCM (open-label, NCT04848506) were included in this analysis. Patients had to meet the specific eligibility criteria for each trial to qualify. Additional criteria for inclusion in the analysis included the availability of serial clinical, echocardiographic, electrocardiographic, and biomarker assessments during the conduct of each trial (see definitions of the time points later). Each study was approved at each participating site by a local or a central institutional review board, all patients provided written informed consent, and the studies were performed in accordance with the provisions of the Declaration of Helsinki and the International Conference on Harmonization of Good Clinical Practice guidelines.

REDWOOD-HCM COHORT 3 TRIAL. The design and main results of the REDWOOD-HCM trial have been previously published.[12] Briefly, patients with symptomatic oHCM with persistent significant LVOT obstruction (resting gradient ≥30 mm Hg or Valsalva ≥50 mm Hg) despite chronic disopyramide treatment were enrolled in this open-label 10-week trial of aficamten. Patients were evaluated at baseline and weeks 2, 4, 6, and 10 while on aficamten, and at week 12 after withdrawal of aficamten, whereas disopyramide was continued throughout. At the end of the treatment period, patients discontinued aficamten per protocol without a taper.

SEQUOIA-HCM TRIAL. The design and main results of the SEQUOIA-HCM trial were previously published.[7] Briefly, patients with symptomatic oHCM with persistent significant LVOT obstruction (resting gradient ≥30 mm Hg and Valsalva ≥50 mm Hg) on stable background medical therapy individually optimized per local practice for oHCM (beta-blocker, calcium-channel blocker, and/or disopyramide) before enrollment, and with impaired peak oxygen consumption (≤90% of age- and sex-predicted) were randomized to aficamten or placebo for 24 weeks in a double-blind fashion. Patients were evaluated at baseline; weeks 2, 4, 6, and 8; and every 4 weeks thereafter through 24 weeks of treatment. At the end of the treatment period, patients discontinued aficamten per protocol without a taper. Patients were also assessed 4 weeks after aficamten or placebo washout. Background medical therapy was stable and continued throughout the trial.

FOREST-HCM TRIAL. Patients who completed an aficamten parent study (eg, REDWOOD-HCM or SEQUOIA-HCM) were invited to participate in this long-term open-label extension study. Patients were required to be on stable background medical therapy before enrollment, including those taking disopyramide. FOREST-HCM was designed to mirror real-world practice where the local site investigators choose aficamten doses based on the echocardiogram-based algorithm provided in the study protocol. Withdrawal of background medical therapy (including disopyramide) was permitted at the investigators' discretion once patients were receiving a stable dose of aficamten for at least 4 weeks.[13] The manner in which disopyramide was discontinued was left up to the investigator's discretion as clinically indicated and tolerated by the patient. All patients were evaluated at baseline and during the titration phase (weeks 2, 4, and 6) and maintenance period (week ≥12).

DEFINITION OF 4 GROUPS. Patients enrolled in the aforementioned trials comprised the 4 groups identified by treatment with disopyramide (Diso), aficamten (Afi), and/or placebo (Pbo) (Figure 1):

1) Diso-Afi Withdrawal: Patients on disopyramide enrolled in REDWOOD-HCM Cohort 3 and in SEQUOIA-HCM who received aficamten during that study and underwent withdrawal of aficamten during the per-protocol washout period.
2) Diso-Pbo: Patients on disopyramide enrolled in SEQUOIA-HCM who were randomized to the placebo arm.
3) Afi-Diso Withdrawal: Patients enrolled in FOREST-HCM on disopyramide at baseline who received aficamten for at least 24 weeks, had assessments on disopyramide, aficamten plus disopyramide, and post-disopyramide withdrawal.
4) Diso+Afi Continuous: Patients enrolled in FOREST-HCM on disopyramide at baseline, began treatment with aficamten, and continued to receive both treatments throughout. In this group, the week 24 per-protocol visit was chosen as the final assessment time point.

ASSESSMENTS AND TIME POINTS. At each time point, patients underwent comprehensive evaluations including symptoms (NYHA functional class and Kansas City Cardiomyopathy Questionnaire-Clinical Summary Score [KCCQ-CSS]), electrocardiogram,

echocardiogram (left ventricular ejection fraction [LVEF] and LVOT gradient), biomarkers (N-terminal pro-B-type natriuretic peptide [NT-proBNP], high-sensitivity troponin I [hsTnI]), and safety assessments). Site-assessed LVEF and LVOT gradients were used for the analyses. Three main time points (T) were generated for these assessments (Figure 1): (T1) baseline (disopyramide only), or day 1 in each respective trial; (T2) after an add-on therapy was completed (either aficamten or placebo); and (T3) after withdrawal of the treatment (aficamten, disopyramide, or placebo), except in the Diso+Afi Continuous group, where no withdrawal was conducted and the week 24 visit was used.

STATISTICAL ANALYSIS. Baseline characteristics were summarized and reported for each group. Statistical comparisons at baseline were not performed given patients were enrolled in clinical trials using similar entry criteria. Continuous variables were reported as mean ± SD or median (Q1-Q3), whereas categorical variables were presented as counts and percentages. NT-proBNP and hsTnI were summarized using geometric mean and geometric percent coefficient of variation (Geo CV%). Within and across group comparisons for continuous variables were conducted using a mixed model repeated measures that included model terms of baseline value, time point, group, baseline value by time point, and time point by group. For NT-proBNP and hsTnI levels, the proportional change was calculated as the ratio of the value with add-on therapy relative to the baseline value, and the value at withdrawal relative to that with add-on therapy. The log-transformed proportional change was analyzed using mixed model repeated measures. Adjustments for multiple comparisons were not performed. Statistical analysis was conducted using SAS Enterprise Guide (version 8.3; SAS Institute).

RESULTS

In REDWOOD-HCM Cohort 3, all 13 subjects (100%) were on disopyramide at baseline, whereas 36 subjects (15.2%, out of 236 in SEQUOIA-HCM excluding patients enrolled in China because they did not roll-over to FOREST-HCM) and 44 subjects (14.8% in FOREST-HCM) were on disopyramide. A total of 50 unique patients met the eligibility criteria for this analysis, resulting in 93 patients (study segments) enrolled across the 3 studies, and were included in the 4 groups as follows: Diso-Afi Withdrawal (n = 29), Diso-Pbo (n = 20), Afi-Diso Withdrawal (n = 17), and Diso+Afi Continuous (n = 27) (Figure 1). Overall, mean age ranged from 58 to 63 years, 46% of patients were female, and 88% were White. Additional baseline characteristics are shown in Table 1. The mean daily dose of disopyramide was 331 ± 146 mg. All 50 patients were receiving disopyramide at baseline, and 1 patient started disopyramide between the parent study and enrollment in FOREST-HCM. In addition to disopyramide therapy, 45 (90%) patients were receiving a beta-blocker, and 6 (12%) were on a calcium-channel blocker. Patients had symptomatic oHCM, with 19 (38%) having severe symptoms (NYHA functional class III), consistent with their ongoing disease burden while on HCM background medical therapy. On electrocardiography, QRS interval duration and QT interval were prolonged. The LVEF demonstrated relative hypercontractility (mean LVEF ranged from 68% to 70%) and there was severe obstruction (mean resting LVOT gradient ranged from 50 to 64 mm Hg; and mean Valsalva LVOT gradient from 87 to 94 mm Hg) in each of the 4 groups. NT-proBNP and hsTnI were abnormally elevated (Table 1).

EFFECT OF ADDING AFICAMTEN VS PLACEBO TO DISOPYRAMIDE THERAPY AND SUBSEQUENT AFICAMTEN WITHDRAWAL. The addition of aficamten to disopyramide therapy resulted in significant improvements in LVOT gradients at rest (ΔLSM: −27.0 ± 3.6 mm Hg; $P < 0.0001$) and with Valsalva maneuver (ΔLSM: −39.2 ± 5.0 mm Hg; $P < 0.0001$) and without relevant reduction in LVEF (ΔLSM: −2.0% ± 1.0%; $P = 0.052$) (Table 2, Central Illustration A to C). In addition, ≥1 NYHA functional class improvement occurred in 77.8% (95% CI: 61.0-94.5; $P < 0.0001$), and KCCQ-CSS improved by 12.3 ± 3.3 ($P < 0.001$) with adding aficamten to disopyramide treatment (Table 3, Central Illustration D and E). Cardiac biomarkers also demonstrated significant improvements, with a proportional reduction in serum NT-proBNP: 0.35 (95% CI: 0.26-0.48; $P < 0.0001$) and hsTnI: 0.74 (95% CI: 0.63-0.87; $P < 0.001$) (Supplemental Table 1, Central Illustration F). Withdrawal of aficamten while receiving disopyramide resulted in worsening of obstruction (Δ LSM resting LVOT gradient = 44.1 ± 7.4 mm Hg; $P < 0.0001$; and Δ LSM Valsalva LVOT gradient = 65.5 ± 9.4 mm Hg; $P < 0.0001$) (Table 2, Central Illustration A and B).

In comparison, there were no improvements in response to the addition or removal of placebo (Table 2, Central Illustration A to F).

EFFECT OF DISOPYRAMIDE WITHDRAWAL VS CONTINUATION IN PATIENTS ON MAINTENANCE AFICAMTEN. In FOREST-HCM, 44 patients were receiving disopyramide at baseline; of those, 17 were withdrawn from disopyramide during follow-up (ie, Afi-Diso Withdrawal) and 27 patients were not (ie,

TABLE 1 Baseline Characteristics of the 4 Groups

	Diso-Afi Withdrawal (n = 29)	Diso-Pbo (n = 20)	Afi-Diso Withdrawal (n = 17)	Diso+Afi Continuous (n = 27)
Age, y	58.0 ± 13.3	62.8 ± 10.4	60.9 ± 15.0	63.0 ± 10.9
Female	15 (51.7)	7 (35.0)	9 (52.9)	14 (51.9)
Race				
White	24 (82.8)	19 (95.0)	16 (94.1)	23 (85.2)
Black or African American	3 (10.3)	0	0	2 (7.4)
Asian	2 (6.9)	1 (5.0)	1 (5.9)	2 (7.4)
BMI, kg/m^2	29.7 ± 4.7	29.6 ± 3.8	29.6 ± 4.4	28.7 ± 3.5
Known HCM-causing gene mutation or positive family history	12 (41.4)	4 (20.0)	6 (35.3)	9 (33.3)
Beta-blockers	26 (89.7)	19 (95.0)	14 (82.4)	25 (92.6)
Calcium channel blockers (verapamil or diltiazem)	4 (13.8)	1 (5.0)	3 (17.6)	3 (11.1)
Disopyramide	29 (100)	20 (100)	17 (100)	27 (100)
Mean daily disopyramide dose, mg	352.6 ± 146.74	302.5 ± 93.86	276.5 ± 128.84	364.3 ± 175.82
≥2 background HCM medications	29 (100)	19 (95.0)	17 (100)	26 (96.3)
Baseline NYHA functional class				
I	0	0	1 (5.9)	1 (3.7)
II	19 (65.5)	13 (65.0)	8 (47.1)	16 (59.3)
III	10 (34.5)	6 (30.0)	8 (47.1)	10 (37.0)
IV	0	1 (5.0)	0	0
KCCQ-CSS	71 ± 17	71 ± 22	59 ± 21	69 ± 21
LVEF, %	69 ± 6	69 ± 9	68 ± 5	69 ± 7
Resting LVOT gradient, mm Hg	51 ± 24	64 ± 30	60 ± 33	54 ± 37
Valsalva LVOT gradient, mm Hg	90 ± 37	94 ± 43	91 ± 41	87 ± 34
NT-proBNP, pg/mL; geometric mean (Geo CV%)	1,231.0 (372.0-1,689.0); 839.1 (172.8)	1,081.5 (605.5-1,925.0); 1,005.3 (112.4)	1,129.0 (1,051.0-1,643.0); 980.0 (93.8)	1,139.0 (508.0-1,619.0); 912.3 (140.2)
HsTnI, ng/L; geometric mean (Geo CV%)	11.6 (82.1)	12.8 (137.1)	11.2 (102.4)	10.2 (63.1)
ECG QRS duration, ms	109.1 ± 20.3	130.8 ± 35.7	124.9 ± 26.9	113.8 ± 27.7
ECG QTcB interval, ms	468.5 ± 27.4	484.1 ± 33.0	483.3 ± 31.3	474.9 ± 35.4
ECG QTcF interval, ms	467.7 ± 27.2	487.5 ± 32.9	483.6 ± 32.4	471.6 ± 34.8

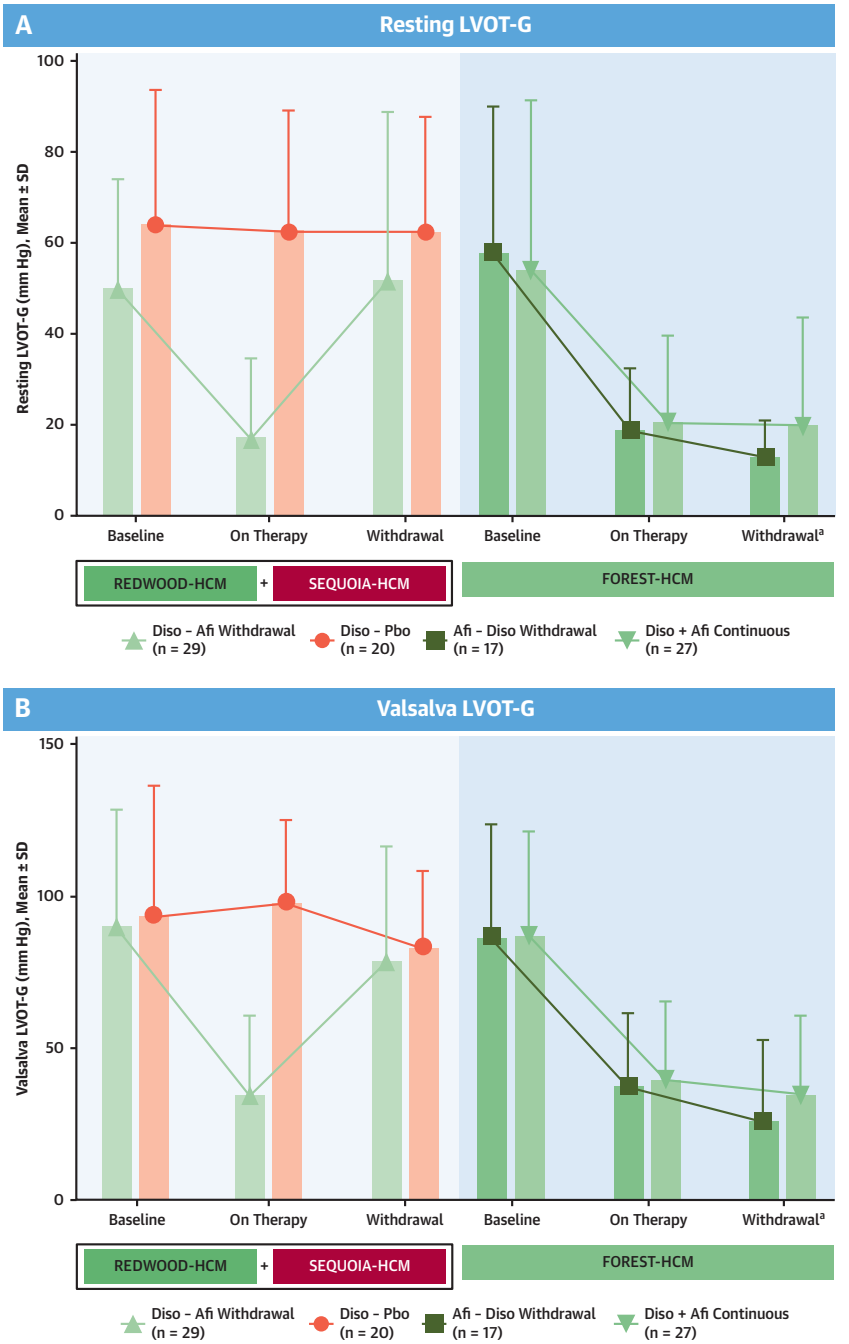
Values are mean ± SD, n (%), or median (Q1-Q3), unless otherwise indicated.

Afi-Diso Withdrawal = concomitant aficamten and disopyramide therapy followed by withdrawal of disopyramide; BMI = body mass index; Diso+Afi Continuous = concomitant aficamten and disopyramide therapy throughout study; Diso-Afi Withdrawal = concomitant disopyramide and aficamten therapy followed by withdrawal of aficamten; Diso-Pbo = concomitant disopyramide and placebo therapy; ECG = electrocardiogram; Geo CV% = geometric percent coefficient of variation; HCM = hypertrophic cardiomyopathy; hsTnI = high-sensitivity troponin I; KCCQ-CSS = Kansas City Cardiomyopathy Questionnaire-Clinical Summary Score; LVEF = left ventricular ejection fraction; LVOT = left ventricular outflow tract; NT-proBNP = N-terminal pro-B-type natriuretic peptide; QTcB = Bazett corrected QT interval; QTcF = Fridericia corrected QT interval.

Diso+Afi Continuous). The addition of aficamten resulted in significant reductions in resting and Valsalva LVOT gradient (Table 2). Aficamten also resulted in significant improvement in NYHA functional class ≥1 in 13 of 16 patients in Afi-Diso Withdrawal (81.3%) (95% CI: 59.8-100.0; $P = 0.0001$) and in 20 of 27 (74.1%) patients in Diso+Afi Continuous (95% CI: 56.4-91.7; $P < 0.0001$) (Central Illustration C). Aficamten significantly improved KCCQ-CSS (ΔLSM: 10.4 ± 3.3; $P = 0.003$) in the Afi-Diso Withdrawal and Diso+Afi Continuous (ΔLSM: 16.1 ± 2.5; $P < 0.0001$) groups (Table 3, Central Illustration A to E).

In the Afi-Diso Withdrawal group, withdrawal of disopyramide did not impact the hemodynamic benefits initially seen with the addition of aficamten (ΔLSM resting LVOT gradient = 3.0 ± 8.9 mm Hg; $P = 0.74$; and ΔLSM Valsalva LVOT gradient = 8.2 ± 11.2 mm Hg; $P = 0.49$), nor was there worsening of symptoms by NYHA functional class or KCCQ-CSS (ΔLSM KCCQ-CSS = 1.5 ± 3.9; $P = 0.70$) (Tables 2 and 3, Central Illustration A to E). In addition, withdrawal of disopyramide did not affect NT-proBNP (proportional change: 0.75 [95% CI: 0.52-1.07]; $P = 0.11$), and there continued to be a gradual reduction in hsTnI (proportion change: 0.79 [95% CI: 0.65-0.95]; $P = 0.012$). When comparing patients who continued with aficamten treatment, no hemodynamic or biomarker differences were seen whether disopyramide was withdrawn or continued, although there was a trend to worsening symptoms with prolonged disopyramide use (Diso+Afi Continuous) (ΔLSM [±SE] KCCQ-CSS = −10.2 ± 5.0; $P = 0.052$; and NYHA functional class worsening ≥1 = 14.8%; 95% CI: 0.5-29.1; $P = 0.04$) when compared with those

CENTRAL ILLUSTRATION Measures of Disopyramide and Aficamten Efficacy



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Data are geometric mean (CV%). [a]Diso+Afi continuous group did not have washout and was assessed again during the next follow-up visit. Afi-Diso Withdrawal = concomitant aficamten and disopyramide therapy followed by withdrawal of disopyramide; CV = coefficient of variation; Diso+Afi Continuous = concomitant aficamten and disopyramide therapy throughout study; Diso-Afi Withdrawal = concomitant disopyramide and aficamten therapy followed by withdrawal of aficamten; Diso-Pbo = concomitant disopyramide and placebo therapy; KCCQ-CSS = Kansas City Cardiomyopathy Questionnaire-Clinical Summary Score; LVEF = left ventricular ejection fraction; LVOT = left ventricular outflow tract; NT-proBNP = N-terminal pro-B-type natriuretic peptide.

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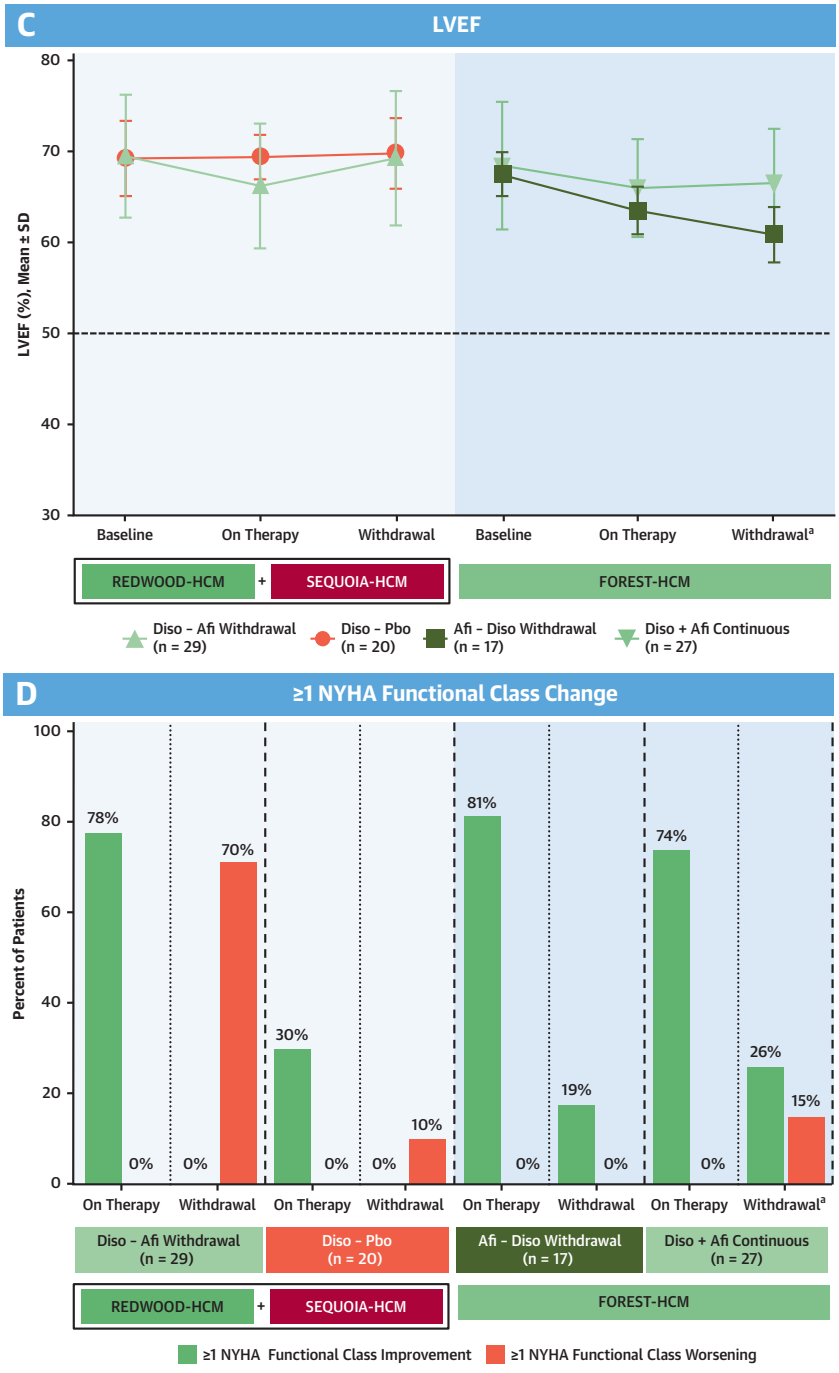

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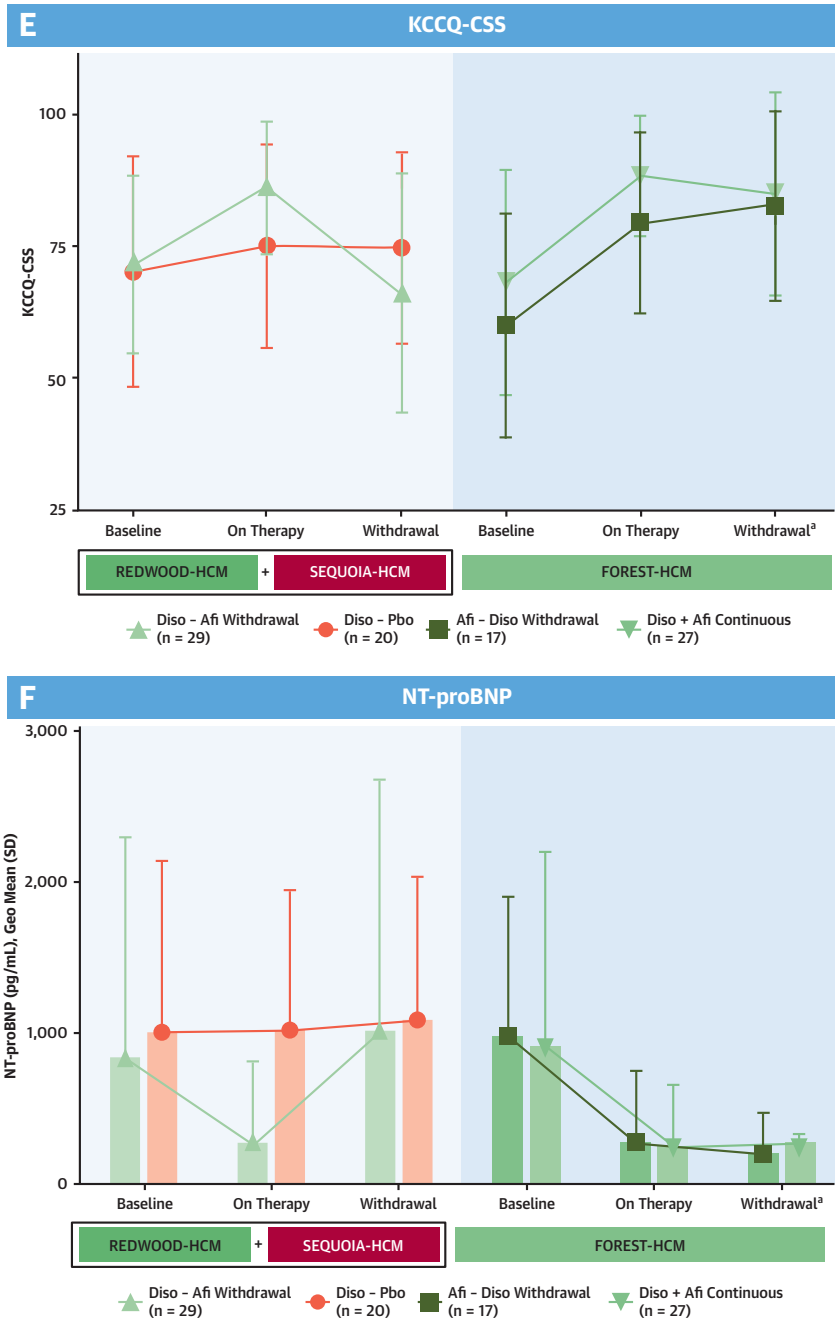
CENTRAL ILLUSTRATION Continued



Masri A, et al. JACC Heart Fail. 2025;■(■):102441.

TABLE 2 Treatment Effect on Echocardiographic Endpoints Across Groups

	Diso-Afi Withdrawal (n = 29)	Diso-Pbo (n = 20)	Afi-Diso Withdrawal (n = 17)	Diso+Afi Continuous (n = 27)
Resting LVOT gradient, mm Hg				
Baseline	50.1 ± 24.1	64.1 ± 29.7	58.0 ± 32.2	54.1 ± 37.2
Add-on therapy	17.3 ± 17.6	62.5 ± 26.8	18.8 ± 14.0	20.7 ± 19.2
LS mean change[a]	−27.0 ± 3.6 (<0.0001)	14.6 ± 4.3 (<0.001)	−27.5 ± 4.7 (<0.0001)	−24.6 ± 3.6 (<0.0001)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	−0.5 ± 5.8 (0.93)	2.4 ± 5.0 (0.64)
LS mean difference vs Diso-Pbo[a]	−41.5 ± 5.5 (<0.0001)	–	−42.1 ± 6.2 (<0.0001)	−39.2 ± 5.5 (<0.0001)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	2.9 ± 5.8 (0.62)
Withdrawal (except Diso+Afi)	51.9 ± 37.1	62.5 ± 25.5	12.9 ± 8.4	20.0 ± 23.8
LS mean change[a]	44.1 ± 7.4 (<0.0001)	−7.7 ± 7.9 (0.34)	3.0 ± 8.9 (0.74)	7.5 ± 7.1 (0.30)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	−41.1 ± 10.3 (0.001)	−36.6 ± 8.9 (<0.001)
LS mean difference vs Diso-Pbo[a]	51.9 ± 11.9 (<0.001)	–	10.8 ± 12.8 (0.41)	15.3 ± 11.6 (0.20)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	4.5 ± 10.3 (0.67)
Valsalva LVOT gradient, mm Hg				
Baseline	90.3 ± 38.5	93.8 ± 42.8	86.6 ± 37.3	87.2 ± 34.4
Add-on therapy	34.6 ± 26.2	98.1 ± 27.2	37.4 ± 24.3	39.7 ± 25.8
LS, mean change[a]	−39.2 ± 5.0 (<0.0001)	23.8 ± 5.8 (<0.001)	−35.7 ± 6.4 (<0.0001)	−33.5 ± 4.9 (<0.0001)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	3.48 ± 8.0 (0.66)	5.7 ± 6.9 (0.41)
LS mean difference vs Diso-Pbo[a]	−62.9 ± 7.5 (<0.0001)	–	−59.5 ± 8.5 (<0.0001)	−57.3 ± 7.5 (<0.0001)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	2.2 ± 8.0 (0.79)
Withdrawal (except Diso+Afi)	78.7 ± 37.9	83.3 ± 25.3	25.9 ± 27.1	34.4 ± 26.5
LS mean change[a]	65.5 ± 9.4 (<0.0001)	−31.6 ± 10.0 (0.02)	8.2 ± 11.2 (0.49)	13.0 ± 9.0 (0.19)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	−57.4 ± 12.8 (0.004)	−52.5 ± 11.1 (0.003)
LS mean difference vs Diso-Pbo[a]	97.1 ± 15.1 (<0.0001)	–	39.8 ± 16.2 (0.04)	44.6 ± 14.7 (0.01)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	4.8 ± 12.8 (0.72)
LVEF, %				
Baseline	69.7 ± 6.8	69.4 ± 8.9	67.7 ± 4.6	68.6 ± 7.1
Add-on therapy	66.4 ± 6.9	69.6 ± 5.3	63.7 ± 5.0	66.1 ± 5.4
LS mean change[a]	−2.0 ± 1.0 (0.052)	1.2 ± 1.2 (0.30)	−4.0 ± 1.3 (0.003)	−1.9 ± 1.0 (0.06)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	−2.0 ± 1.7 (0.24)	0.14 ± 1.4 (0.92)
LS mean difference vs Diso-Pbo[a]	−3.3 ± 1.6 (0.04)	–	−5.3 ± 1.8 (0.004)	−3.1 ± 1.5 (0.046)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	2.1 ± 1.7 (0.20)
Withdrawal (except Diso+Afi)	69.4 ± 7.4	70.0 ± 8.3	61.0 ± 5.7	66.7 ± 6.0
LS mean change[a]	2.8 ± 1.4 (0.052)	0.7 ± 1.6 (0.65)	−3.4 ± 1.9 (0.07)	0.3 ± 1.4 (0.85)
LS mean difference vs Diso-Afi[a]	–	–	−6.3 ± 2.3 (0.009)	−2.6 ± 2.0 (0.20)
LS mean difference vs Diso-Pbo[a]	2.1 ± 2.2 (0.34)	–	−4.2 ± 2.5 (0.10)	−0.5 ± 2.1 (0.83)
LS mean difference vs Afi-Diso[a]	–	–	–	3.7 ± 2.3 (0.11)

Values are mean ± SD, unless otherwise indicated. [a]± SE (*P* value).
LS = least squares; other abbreviations as in Table 1.

patients who discontinued the disopyramide (Tables 3 and 4, Central Illustration A to E).

A subset from all patients (n = 15) with persistent obstruction despite receiving higher baseline doses (≥ 500 mg/d) of disopyramide was analyzed and demonstrated a similar peak hemodynamic response compared with the overall group (mean Δ Valsalva LVOT gradient = −38 ± 51 mm Hg).

SAFETY. There were no safety events of interest that were directly related to the addition of aficamten, withdrawal of disopyramide, or the concurrent use of aficamten and disopyramide. Furthermore, in the setting of triple-negative inotrope therapy, there were no episodes of LVEF <50% with congestive heart failure. Occurrences of asymptomatic LVEF <50%, new-onset atrial fibrillation, and recurrent atrial fibrillation were infrequent. Safety events of interest are shown in Table 4.

DISCUSSION

Over the past several decades, numerous observational studies evaluating the efficacy and safety of disopyramide in patients with oHCM have been published.[2-6] These data demonstrate that disopyramide is associated with relief of LVOT obstruction and limiting symptoms in an important subset of

TABLE 3 Treatment Effect on Clinical Endpoints Across Groups

	Diso-Afi Withdrawal (n = 29)	Diso-Pbo (n = 20)	Afi-Diso Withdrawal (n = 17)	Diso+Afi Continuous (n = 27)
NYHA functional class improvement by ≥1 class (%)				
Baseline	–	–	–	–
Add-on therapy; *P* value	77.8 (61.0-94.5), <0.0001	30.0 (8.0-52.0), 0.01	81.3 (59.8-100), <0.0001	74.1 (56.4-91.7), <0.0001
Common rate difference vs Diso-Afi Withdrawal; *P* value	–	–	3.5 (−23.0 to 30.0), 0.79	−3.7 (−27.5 to 20.1), 0.76
Common rate difference vs Diso-Pbo; *P* value	47.8 (21.4-74.2), <0.001	–	51.3 (21.1-81.4), 0.001	44.1 (16.9-71.2), 0.002
Common rate difference vs Afi-Diso Withdrawal; *P* value	–	–	–	−7.2 (−34.6 to 20.3), 0.60
Withdrawal (except Diso+Afi); *P* value	0.0 (0.0-0.0), >0.999	0.0 (0.0-0.0), >0.999	18.8 (−2.7 to 40.2), 0.08	25.9 (8.3-43.6), 0.006
Common rate difference vs Afi-Diso; *P* value	–	–	–	7.2 (−20.3 to 34.6), 0.60
NYHA functional class worsening by ≥1 class (%)				
Add-on therapy; *P* value	0.0 (0.0-0.0), >0.999	0.0 (0.0-0.0), >0.999	0.0 (0.0-0.0), >0.999	0.0 (0.0-0.0) >0.999
Withdrawal (except Diso+Afi); *P* value	70.4 (52.0-88.8), <0.0001	10.0 (−4.4 to 24.4), 0.16	0.0 (0.0-0.0), >0.999	14.8 (0.5-29.1), 0.04
KCCQ-CSS				
Baseline	72.0 ± 16.9	70.5 ± 22.0	60.2 ± 21.4	68.5 ± 21.4
Add-on therapy	86.4 ± 12.7	75.4 ± 19.3	79.7 ± 17.2	88.7 ± 11.5
LS mean change[a]	12.3 ± 3.3 (<0.001)	2.0 ± 2.9 (0.49)	10.4 ± 3.3 (0.003)	16.1 ± 2.5 (<0.0001)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	−1.9 ± 4.7 (0.68)	3.7 ± 4.1 (0.37)
LS mean difference vs Diso-Pbo[a]	10.3 ± 4.4 (0.02)	–	8.4 ± 4.3 (0.06)	14.1 ± 3.8 (<0.001)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	5.7 ± 4.1 (0.17)
Withdrawal (except Diso+Afi)	66.4 ± 22.8	75.1 ± 18.2	82.9 ± 18.1	85.3 ± 19.4
LS mean change[a]	−24.3 ± 4.2 (<0.0001)	−0.4 ± 3.5 (0.92)	1.5 ± 3.9 (0.70)	−8.7 ± 3.3 (0.01)
LS mean difference vs Diso-Afi Withdrawal[a]	–	–	25.9 ± 5.7 (<0.0001)	15.7 ± 5.1 (0.004)
LS mean difference vs Diso-Pbo[a]	−24.0 ± 5.5 (<0.001)	–	1.9 ± 5.3 (0.72)	−8.3 ± 4.8 (0.1)
LS mean difference vs Afi-Diso Withdrawal[a]	–	–	–	−10.2 ± 5.0 (0.052)

Values are % (95% CI), unless otherwise indicated. [a]± SE (*P* value).
Abbreviations as in Tables 1 and 2.

oHCM patients, including some patients who enjoy these benefits long-term.[4] Disopyramide treatment is generally safe without substantial risk of proarrythmia or systolic dysfunction. Based on this experience, expert consensus treatment guidelines for HCM have recommended disopyramide, or CMI therapy, as additional medical therapy in patients who remain symptomatically limited following first-line therapy with atrioventricular nodal blocking agents. However, it is currently unknown whether aficamten is safe and effective as combination therapy for patients treated with disopyramide, and what the clinical impacts of various treatment strategies involving these medications may be. Therefore, we leveraged the

TABLE 4 Safety Outcomes of Interest in the Study Population

	Diso-Afi Withdrawal (n = 29) n (%), m	Diso-Pbo (n = 20) n (%), m	Afi-Diso Withdrawal (n = 17) n (%), m	Diso+Afi Continuous (n = 27) n (%), m
Patients died during the study	0	0	0	0
LVEF <50%	3 (10.3), 3	0	1 (5.9), 1	1 (3.7), 2
Atrial fibrillation or flutter	2 (6.9), 2	1 (5.0), 1	1 (5.9), 1	2 (7.4), 2
New onset	0	0	1 (5.9), 1	1 (3.7), 1
Recurrent	2 (6.9), 2	1 (5.0), 1	0	1 (3.7), 1
LVEF <50% with heart failure	0	0	0	0

n = count of patients with events; m = count of events; other abbreviations as in Tables 1 and 2.

unique data set from the aficamten clinical development program to help characterize the impact of aficamten on those HCM patients who have tolerated disopyramide but remained symptomatic due to residual significant LVOT obstruction. Although this study is neither randomized nor a head-to-head comparison of aficamten and disopyramide, herein we provide detailed multimodality evidence to address the important clinical question of how these medications might be used in the clinical environment.

In this study of patients with oHCM with persistent limiting symptoms and outflow tract obstruction despite the use of disopyramide (albeit at modest mean dose) and atrioventricular nodal blocking agents, we have shown: 1) the addition of aficamten to this background therapy was safe, well tolerated, and resulted in substantial decrease in outflow gradients and improvement in limiting symptoms; 2) withdrawal of aficamten while maintaining the background therapy resulted in return of LVOT obstruction and worsening symptoms; 3) withdrawal of disopyramide while maintaining aficamten treatment did not adversely affect LVOT gradients, symptoms, or cardiac biomarkers and was also safe; and 4) continuation of disopyramide did not confer added treatment advantage over withdrawal.

Aficamten is a CMI that directly targets the sarcomere to normalize myocardial contractility by shifting a proportion of the cardiac myosin to the super-relaxed state, reducing actin-myosin interactions and the pathologic hypercontractility of the HCM myocardium.[14] Aficamten has been shown to be safe and effective in improving exercise capacity, symptoms, hemodynamics, and cardiac biomarkers in SEQUOIA-HCM.[7] The trial allowed disopyramide as part of individually optimized HCM-specific background medical therapy, and a prior phase II trial, REDWOOD-HCM Cohort 3, evaluated open-label aficamten on the background of disopyramide.[8] In the absence of a head-to-head trial of aficamten (or any CMI) vs disopyramide, the current analysis leverages data from 3 clinical trials, including a randomized, placebo-controlled clinical trial, to provide the most comprehensive assessment of aficamten vs disopyramide safety and efficacy. These are important data, especially given that the guidelines provide similar recommendations for the use of CMIs and disopyramide, and the tendency for physicians to add, rather than replace, therapies for LVOT obstruction.

The current analysis underscores the impact of the disease-specific mechanism of action of aficamten. Although the focus in oHCM has traditionally been LVOT gradients and symptoms, NT-proBNP provides a holistic marker of the degree of myocardial wall stress and the myopathic process seen in HCM.[15] NT-proBNP is also a highly objective marker that is not susceptible to placebo effect or other confounding factors. In the current analysis, NT-proBNP levels remained elevated in patients receiving disopyramide alone, whereas they were reduced in patients receiving aficamten as monotherapy or in combination with disopyramide. Because nearly all the clinically relevant outcome measures obtained from patients who were withdrawn from disopyramide remained stable, but improved with aficamten monotherapy, these data support the emerging treatment principle that disopyramide may not provide additional clinical benefit in patients who are concurrently treated with aficamten; however, given the relatively small sample size, additional studies should be considered to confirm these initial observations.

STUDY LIMITATIONS. This study is subject to the usual biases experienced in open-label studies; however, patients were followed prospectively and orthogonal data (symptoms, biomarkers, and echocardiography) appeared to be internally consistent. In the context of an open-label study, subjective measures of functional capacity measures should be interpreted with caution. In addition, for reference, we were able to include a cohort of patients who were treated with placebo. We included patients who had persistent symptoms and LVOT obstruction despite disopyramide and beta-blocker/calcium-channel blocker (medically refractory). Consequently these results cannot be extrapolated to patients who achieve long-term clinical improvement in response to background medical therapy with disopyramide.[4] Although these analyses stem from 3 well-conducted prospective clinical trials, they are post hoc, without randomization, and the results were not adjusted for multiple testing.

Unlike consensus guidelines developed for the treatment of heart failure with reduced LVEF, and due to the lack of controlled trials evaluating standard of care medical therapies in HCM, the societal guidelines for HCM lack specific target doses for beta-blocker, calcium-channel blocker, or disopyramide. As such, investigators were instructed to

ensure patients were receiving maximally tolerated background medical therapy according to these guidelines. Previously the mean daily dose of 501 ± 30 mg appeared to be effective and well tolerated in a study of 221 patients for >5 years,[5] complemented by dose-response relationship data on disopyramide that have been shown in vitro,[16] in the echocardiographic laboratory,[17] and in the catheterization laboratory.[18] But this metric, the mean dose of disopyramide observed in our study (331 ± 146 mg) was modest. However, although limited by a small sample size, the subset of patients with persistent obstruction in this analysis receiving ≥500 mg disopyramide per day did demonstrate a similar hemodynamic response to the overall group (mean Δ Valsalva LVOT gradient = −38 ± 51 mm Hg), with doses <400 mg/d yielding low plasma drug concentrations.[16-18]

CONCLUSIONS

In the subgroup of patients with oHCM who remain limited with residual outflow gradients despite use of disopyramide at modest dose ranges, combination therapy with aficamten and disopyramide was safe and well tolerated but did not enhance clinical efficacy compared with aficamten alone. Indeed, withdrawal of disopyramide in these patients did not compromise the clinical efficacy of aficamten or result in increased atrial fibrillation. These data suggest there may be limited value for continuation of disopyramide therapy in patients receiving aficamten.

DATA AVAILABILITY STATEMENT. Qualified researchers may submit a request containing the research objectives, endpoints/outcomes of interest, statistical analysis plan, data requirements, publication plan, and qualifications of the researcher(s). In general, Cytokinetics, Incorporated does not grant external requests for individual patient data for the purpose of reevaluating safety and efficacy issues already addressed in the product labeling. Requests are reviewed by a committee of internal advisors, and if not approved, may be further arbitrated by a Data Sharing Independent Review Panel. On approval, the information necessary to address the research question will be provided under the terms of a data sharing agreement. This may include anonymized individual patient data and/or available supporting documents, containing fragments of analysis code where provided in analysis specifications. Requests may be submitted to medicalaffairs@cytokinetics.com.

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PERSPECTIVES

COMPETENCY IN MEDICAL KNOWLEDGE: Patients with obstructive hypertrophic cardiomyopathy who remain obstructed on disopyramide therapy had significant relief of their LVOT obstruction and improved symptoms and biomarkers with the addition of aficamten, whereas the withdrawal of disopyramide did not compromise efficacy of aficamten.

TRANSLATIONAL OUTLOOK: Disopyramide and aficamten have distinct mechanisms of action and their combined use is safe.

REFERENCES

1. Ommen SR, Ho CY, Asif IM, et al. 2024 AHA/ACC/AMSSM/HRS/PACES/SCMR guideline for the management of hypertrophic cardiomyopathy: a report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2024;83(23):2324–2405.

2. Adler A, Fourey D, Weissler-Snir A, et al. Safety of outpatient initiation of disopyramide for obstructive hypertrophic cardiomyopathy patients. *J Am Heart Assoc*. 2017;6:e005152.

3. Sherrid MV, Barac I, McKenna WJ, et al. Multicenter study of the efficacy and safety of disopyramide in obstructive hypertrophic cardiomyopathy. *J Am Coll Cardiol*. 2005;45:1251–1258.

4. Massera D, Sherrid MV, Adlestein E, et al. Disopyramide revisited for treatment of symptomatic obstructive hypertrophic cardiomyopathy: efficacy and safety in patients treated for at least 5 years. *J Am Heart Assoc*. 2025;14:e037639.

5. Sherrid MV, Shetty A, Winson G, et al. Treatment of obstructive hypertrophic cardiomyopathy symptoms and gradient resistant to first-line therapy with β-blockade or verapamil. *Circ Heart Fail*. 2013;6:694–702.

6. Ball W, Ivanov J, Rakowski H, et al. Long-term survival in patients with resting obstructive hypertrophic cardiomyopathy comparison of conservative versus invasive treatment. *J Am Coll Cardiol*. 2011;58:2313–2321.

7. Maron MS, Masri A, Nassif ME, et al. Aficamten for symptomatic obstructive hypertrophic cardiomyopathy. *N Engl J Med*. 2024;390:1849–1861.

8. Owens AT, Masri A, Abraham TP, et al. Aficamten for drug-refractory severe obstructive hypertrophic cardiomyopathy in patients receiving disopyramide: REDWOOD-HCM Cohort 3. *J Card Fail*. 2023;29:1576–1582.

9. Olivotto I, Oreziak A, Barriales-Villa R, et al. Mavacamten for treatment of symptomatic obstructive hypertrophic cardiomyopathy (EXPLORER-HCM): a randomised, double-blind, placebo-controlled, phase 3 trial. *Lancet*. 2020;396:759–769.

10. Desai MY, Owens A, Geske JB, et al. Myosin inhibition in patients with obstructive hypertrophic cardiomyopathy referred for septal reduction therapy. *J Am Coll Cardiol*. 2022;80:95–108.

11. Garcia-Pavía P, Bilen O, Burroughs M, et al. Aficamten vs metoprolol for obstructive hypertrophic cardiomyopathy: MAPLE-HCM rationale, study design, and baseline characteristics. *JACC Heart Fail*. 2025;13:346–357.

12. Owens AT, Masri A, Abraham TP, et al. Efficacy and safety of aficamten and disopyramide coadministration in obstructive hypertrophic cardiomyopathy: results from REDWOOD-HCM cohort 3. *J Am Coll Cardiol*. 2022;79, 244-244.

13. Masri A, Choudhury L, Barriales-Villa R, et al. Standard-of-care medication withdrawal in patients with obstructive hypertrophic cardiomyopathy receiving aficamten in FOREST-HCM. *J Am Coll Cardiol*. 2024;84:1839–1849.

14. Haraf R, Habib H, Masri A. The revolution of cardiac myosin inhibitors in patients with hypertrophic cardiomyopathy. *Can J Cardiol*. 2024;40:800–819.

15. Geske JB, McKie PM, Ommen SR, Sorajja P. B-type natriuretic peptide and survival in hypertrophic cardiomyopathy. *J Am Coll Cardiol*. 2013;61:2456–2460.

16. Coppini R, Ferrantini C, Pioner JM, et al. Electrophysiological and contractile effects of disopyramide in patients with obstructive hypertrophic cardiomyopathy: a translational study. *JACC Basic Transl Sci*. 2019;4:795–813.

17. Sherrid M, Delia E, Dwyer E. Oral disopyramide therapy for obstructive hypertrophic cardiomyopathy. *Am J Cardiol*. 1988;62:1085–1088.

18. Kimball BP, Bui S, Wigle ED. Acute dose-response effects of intravenous disopyramide in hypertrophic obstructive cardiomyopathy. *Am Heart J*. 1993;125:1691–1697.

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APPENDIX For investigator lists and a supplemental table, please see the online version of this paper.