

Parameter	Group	Baseline	3 months	6 months
AHI	Study	58.9 (28.5–70.3)	44.2 (22.4–59.3)	4.6 (3.2–5.5)
	Control	55.0 (29.9–67.8)	52.2 (30.8–70.2)	6.6 (4.5–11.2)
T<90% (%)	Study	12.4 (5.1–19.2)	8.9 (3.8–12.9)	0.3 (0.0–0.8)
	Control	14.7 (8.9–23.3)	15.4 (9.2–24.1)	3.2 (0.0–10.2)
MOS (%)	Study	89.7 (88.4–90.6)	91.6 (91.2–92.7)	94.7 (94.0–95.5)
	Control	90.5 (89.6–92.1)	90.7 (89.0–92.0)	93.6 (92.9–94.5)
LOS (%)	Study	81.2 (78.5–85.5)	87.1 (83.5–89.2)	89.6 (88.8–91.6)
	Control	80.0 (75.0–86.5)	80.1 (77.0–85.1)	89.0 (87.6–90.5)
LVEF (%)	Study	48.0 (40.0–50.0)	55.0 (50.0–58.0)	55.0 (55.0–60.0)
	Control	45.0 (45.0–50.0)	45.0 (45.0–50.0)	50.0 (45.0–50.0)
NT-proBNP (pg/ml)	Study	371.8 (345.3–429.8)	251.7 (215.2–279.0)	188.5 (171.5–213.4)
	Control	375.8 (348.2–412.0)	360.4 (312.8–398.1)	296.0 (263.2–321.2)

Table S1. Longitudinal values of sleep, oxygenation, and cardiac parameters. Data are presented as median (Q1–Q3).

Abbreviations: **AHI**, apnea–hypopnea index; **T<90%**, percentage of analyzed recording time with oxygen saturation below 90%; **MOS**, mean oxygen saturation; **LOS**, lowest oxygen saturation; **LVEF**, left ventricular ejection fraction; **NT-proBNP**, N-terminal pro-B-type natriuretic peptide.

Symptom	1	2	3	4
Dyspnea	Absent	Mild; during strenuous exertion	Moderate; during ordinary physical activity	Severe; during minimal activity or at rest
Palpitations	Absent	Mild and occasional	Moderate; recurrent and noticeable	Severe; frequent or markedly disturbing
Chest pain	Absent	Mild and occasional	Moderate; recurrent and limiting activity	Severe; frequent or occurring with minimal activity/rest
Lower-extremity edema	Absent	Mild, mainly around the ankles	Moderate, clearly visible lower-extremity edema	Severe, marked or extensive edema
Nocturia	None	1 episode/night	2 episodes/night	≥3 episodes/night

Table S2. Heart failure symptom scoring system.

Each of the five symptoms was rated on a four-point ordinal scale from 1 to 4, with higher scores indicating greater symptom severity. The total HF symptom score ranged from 5 to 20 points, with higher scores reflecting greater HF symptom burden.

Baseline AHI	Baseline LVEF, (%)	Study group, n	Control group, n	Total, n
5.0–14.9	≤40%	0	0	0

5.0–14.9	41–49%	0	0	0
5.0–14.9	≥50%	1	1	2
15.0–29.9	≤40%	3	0	3
15.0–29.9	41–49%	1	3	4
15.0–29.9	≥50%	5	5	10
≥30	≤40%	7	5	12
≥30	41–49%	11	13	24
≥30	≥50%	9	6	15
Total	—	37	33	70

Table S3. Distribution of randomized participants across the nine prespecified AHI–LVEF strata.

Abbreviations: AHI, apnea–hypopnea index; LVEF, left ventricular ejection fraction. Randomization was performed in a 1:1 ratio using computer-generated stratified permuted blocks with randomly varying block sizes of four and six within each stratum. Recruitment was concluded after the prespecified overall sample size of 70 participants had been reached.

AHI response	Study group, n/N (%)	Control group, n/N (%)	p-value
≥50% reduction at month 3	0/37 (0.0%)	0/33 (0.0%)	1.000
AHI <15 events/h at month 3	3/37 (8.1%)	1/33 (3.0%)	0.616
≥50% reduction at month 6	37/37 (100.0%)	33/33 (100.0%)	—
AHI <15 events/h at month 6	36/37 (97.3%)	30/33 (90.9%)	0.337

Table S4. Exploratory AHI responder analyses at months 3 and 6.

Abbreviations: AHI, apnea–hypopnea index. Between-group p-values were calculated using Fisher’s exact test. No comparative p-value is presented for the ≥50% reduction criterion at month 6 because all participants in both groups met this criterion.