

TEMA LIVRE



Favours [VNS] Favours [control]

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ID 57122 – METANÁLISE SOBRE NEUROMODULAÇÃO VAGAL NO TRATAMENTO DA INSUFICIÊNCIA CARDÍACA

Introduction: Heart failure (HF) is a clinical syndrome characterized by autonomic nervous system (ANS) imbalance and electrical events that can lead to sudden death. While sympathetic activation is well studied, the effects of parasympathetic (vagal) stimulation is not well established. The aim of this systematic review and meta-analysis was to evaluate the evidence for use of invasive vagal nerve stimulation (VNS) in patients with chronic HF and reduced ejection fraction (HFrEF). Methods: From May 1994 to July 2020, PubMed, Embase and the Cochrane Library of Trials were searched for clinical trials comparing VNS with medical therapy (control) for management of chronic HFrEF (EF \leq 40%). **Results**: The systematic review identified 4 randomized control trials (RCT) and three one-arm studies, totalizing 1263 patients with a median follow-up of 6 months. Of these, 756 were treated with VNS and 507 with medical therapy. Only the RCTs were included in the meta-analysis, and groups were compared by using fixed-effect distribution tests. Freedom from serious adverse effects related to the procedure was observed in 89.3% of patients with VNS and there was no difference in mortality between groups (OR 1.24, 95% CI 0.82-1.89, p = 0.43). VNS was associated with significant improvement in the New York Heart Association (NYHA) functional class (OR 2.72, 95% CI 2.07-3.57, p < 0.0001), quality of life (MD -14.18, 95% CI -18.09 to -10.28, p < 0.0001), 6-min walk test (MD 55.46, 95% CI 39.11- 71.81, p < 0.0001) and NTproBNP levels (MD -144.25, 95% CI -238.31 to -50.18, p = 0.003). Conclusion: This meta-analysis showed that VNS improves the NYHA functional class, QoL, 6mWT and NT-proBNP levels in patients with chronic HFrEF, with no impact on mortality.

	VNS	Control		Odds Ratio		Odds Ratio	
Study or Subgroup	Events Tot	al Events Tot	al Weight	M-H, Fixed, 95% CI	Year	M-H, Fixed, 95% CI	
HOPE4HF 2015	5 7	6 5	70 12.2%	0.92 [0.25, 3.31]	2015		
NECTAR HF 2015	1 6	3 2	6.5%	0.24 [0.02, 2.77]	2015	· · · · · · · · · · · · · · · · · · ·	
INNOVATE HF 2016	62 43	6 28 2	71 74.0%	1.44 [0.90, 2.31]	2016	 	
BEAT HF 2020	2 13	30 3 1	7.3%	0.68 [0.11, 4.15]	2020	•	
Total (95% CI)	70		7 100.0%	1.24 [0.82, 1.89]		+	
Total events	70	38					
Heterogeneity: Chi ²			0%		0.	.01 0.1 1 10 10	7
Test for overall effec	t: $Z = 1.01 (P =$	= 0.31)				Favours [VNS] Favours [Control]	
	VNS	Control		Odds Ratio		Odds Ratio	
Study or Subgroup	Events Tot	al Events Tot	al Weight	M-H, Fixed, 95% CI	Year	M-H, Fixed, 95% CI	
HOPE4HF 2015	35 €	4 13	4 10.0%	3.81 [1.72, 8.43]	2015		٠
NECTAR HF 2015	39 6	3 14	11.0%	2.09 [0.88, 4.96]	2015	-	+
INNOVATE HF 2016	150 31	7 57 1	4 58.1%	2.16 [1.48, 3.16]	2016		
BEAT HF 2020	78 12	0 39 1	20.9%	4.10 [2.40, 6.98]	2020		٠
Total (95% CI)	5€	i4 40	5 100.0%	2.72 [2.07, 3.57]		•	
Total events	302	123					
Heterogeneity: Chi ²	= 4.73, df = 3	$(P = 0.19); I^2 =$	37%		_		-
Test for overall effect	t: Z = 7.20 (P -	< 0.00001)				0.5 0.7 1 1.5 2 Favours [Control] Favours [VNS]	
						ravours [Control] ravours [VN3]	
			Control	Mean Diffe		Mean Difference	
Study or Subgroup	Mean Differen				ed, 95% CI		_
HOPE4HF 2015	-19			22.5% -19.50 [-27.3			
BEAT HF 2020 NECTAR HF 2015	-14	.1 2.5 12 -6 5.3312 5		63.5% -14.10 [-19 14.0% -6.00 [-1	6.45, 4.45]		
NECTAR HF 2015		-0 5.5512 5	9 20	14.0% -6.00 [-1	0.43, 4.43]	•	
Total (95% CI)		24	3 207	100.0% -14.18 [-18.0	9, -10.28]	•	
Heterogeneity: Chi2 =	3.96, df = 2 (P	$= 0.14$); $I^2 = 49\%$				-100 -50 0 50 10	7
Test for overall effect: Z = 7.12 (P < 0.00001)						Favours (VNS) Favours (control)	U
Study or Subgroup	Mean Differer		IS Control Ital Tota		erence d, 95% CI	Mean Difference IV, Fixed, 95% CI	
INNOVATE HF 2016			244 14			•	
HOPE4HF 2015		3.1 19.8	56 4				-
BEAT HF 2020		60 10.2043	20 11	8 66.8% 60.00 [40.0	00, 80.00]		
Total (95% CI)			20 30	8 100.0% 55.46 [39.1	1 71 811		
Heterogeneity: Chi ² =	1 36 df - 3 /D		20 30	8 100.0% 33.46 [39.1	11, /1.01]		_
Test for overall effect:						-100 -50 0 50 10	0
rest for overall effect.	2 - 0.03 (1 < 0					Favours [control] Favours [VNS]	
			Control	Mean Diffe		Mean Difference	
Study or Subgroup	Mean Difference				xed, 95% C		
BEAT HF 2020	-200.			48.4% -200.50 [-335			
HOPE4HF 2015	-198.			32.5% -198.50 [-363			
NECTAR HF 2015	9	1 109.89 57	27	19.1% 91.00 [-124	.58, 306.38		•
Total (95% CI)		241	204 1	100.0% -144.25 [-238.	3150.18		

Heterogeneity: $Chi^2 = 5.66$, df = 2 (P = 0.06); $I^2 = 65\%$ Test for overall effect: Z = 3.01 (P = 0.003)