Hemoglobin level at stabilization is associated with long-term all-cause mortality in patients with left-sided endocarditis, a POET substudy

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Background: Left-sided infectious endocarditis (IE) has a high 1-year mortality. Anemia is a common finding in patients with IE, yet little is known about frequency, severity, and associated outcomes in this setting.

Purpose: To examine the relationship between Hemoglobin (Hgb) level measured at IE stabilization (time of randomization) in the Partial Oral versus intravenous Antibiotic Treatment of Endocarditis (POET) trial - and long-term all-cause mortality.

Methods: In the POET trial, 400 patients with left-sided IE were randomized, after medical and/or surgical stabilization, to conventional antibiotic treatment or partial oral treatment. Only non-surgically treated patients were considered in this study. Patients were divided by quartiles into four groups based on Hgb level at randomization.

Results: We examined 248 patients with non-surgically treated IE. Median time from diagnosis of IE to randomization was 14 days (IQ 12–19). At long-term follow-up (median 3.2 years, IQ 2.18–4.60), 71 patients had died (28.6%). Patients in the lowest quantile (Hgb ≤6.0 mmol) had a HR of 4.17 (95% CI 1.81–9.61, p<0.001) for death compared to patients in the highest quantile (Hgb >7.5 mmol/L). This association remained significant after multivariable adjustment for age, sex, renal disease, C-Reactive Protein, and Prosthetic heart valve (HR 2.69, 95% CI 1.11–6.50); p=0.028).

Conclusion: Low Hemoglobin level at stabilization in patients with IE was associated with an increased risk of long-term mortality. Whether intensified treatment of anemia in patients with IE could improve long-term outcome requires investigation.

Table. Baseline Characteristics

	All (n=248)	Hgb ≤6.0* (n=65)	Hgb 6.1–6.7* (n=63)	Hgb 6.8–7.5* (n=61)	Hgb >7.5* (n=59)	p value
Male, n (%)	186 (75.0)	43 (66.2)	46 (73.0)	46 (75.4)	51 (86.4)	0.024
Age, years – mean (n)	70.6 (11.1)	70.9 (11.1)	71.5 (10.3)	73.1 (9.7)	66.7 (12.4)	0.013
Renal disease, n (%)	39 (15.7)	20 (30.8)	8 (12.7)	8 (13.1)	3 (5.1)	0.001
Diabetes, n (%)	52 (21.0)	18 (27.7)	13 (20.6)	11 (18.0)	10 (16.9)	0.180
Prosthetic heart valve, n (%)	85 (34.4)	27 (41.5)	25 (40.3)	21 (34.4)	12 (20.3)	0.025
Pacemaker, n (%)	27 (10.9)	5 (7.7)	10 (15.9)	8 (13.1)	4 (6.8)	0.821
Streptococcus spp., n (%)	119 (48.0)	26 (40.0)	31 (49.2)	33 (54.1)	29 (49.2)	0.302
Staphylococcus aureus, n (%)	61 (24.6)	18 (27.7)	15 (23.8)	12 (19.7)	16 (27.1)	0.813
Enterococcus faecalis, n (%)	62 (25.0)	19 (29.2)	17 (27.0)	17 (27.9)	9 (15.3)	0.149
Coagulase-negative staphylococci, n (%)	8 (3.2)	3 (4.6)	0 (0)	0 (0)	5 (8.5)	0.347
Full IV AB-treatment, n (%)**	124 (50)	18 (43.1)	34 (54.0)	31 (50.8)	31 (52.5)	0.423
C-reaktive protein, mg/L – median (IQ)	13.0 (5.6–24.0)	17.0 (8.0–31.0)	13.0 (6.6–26.5)	12.0 (5.0–23.0)	10.0 (4.3–18.5)	0.038

IV = Intra venous, AB = Antibiotic. *Hgb in mmol/L; **Non-intervention group in POET.