



High preoperative Controlling Nutritional Status (CONUT) score predicts failure and mortality in acute periprosthetic joint infection

Víctor Otero-Naveiro, Silvia Pena-Paz, Ricardo Andrés Rión-Giraldo, Blanca Ayuso-García, María José Gracia-Pais, Alejandro López-Pardo Pardo
Osteoarticular Infection Unit - University Hospital Lucus Augusti, Lugo, Spain

Introduction & Aim:

Host-related factors influence outcomes in periprosthetic joint infection (PJI). The Controlling Nutritional Status (CONUT) score integrates serum albumin, total lymphocyte count, and total cholesterol, reflecting immunonutritional status. This study aimed to evaluate whether CONUT predicts failure and mortality after surgery for acute PJI.

Methods:

We performed a single-centre retrospective cohort study of patients surgically treated for acute postoperative or acute haematogenous hip or knee PJI between 2013 and 2024. PJI was defined according to European Bone and Joint Infection Society (EBJIS) criteria. Minimum follow-up was 12 months. Patients were classified as low (<5) or high CONUT (≥5). Outcomes were assessed using the Musculoskeletal Infection Society Outcome Reporting Tool (MSIS-ORT). Failure was defined as persistent or recurrent infection requiring further treatment (tiers 3B–3F). Total failure additionally included all-cause death within 1 year (tier 4A). Overall mortality at final follow-up was analysed separately.

Results:

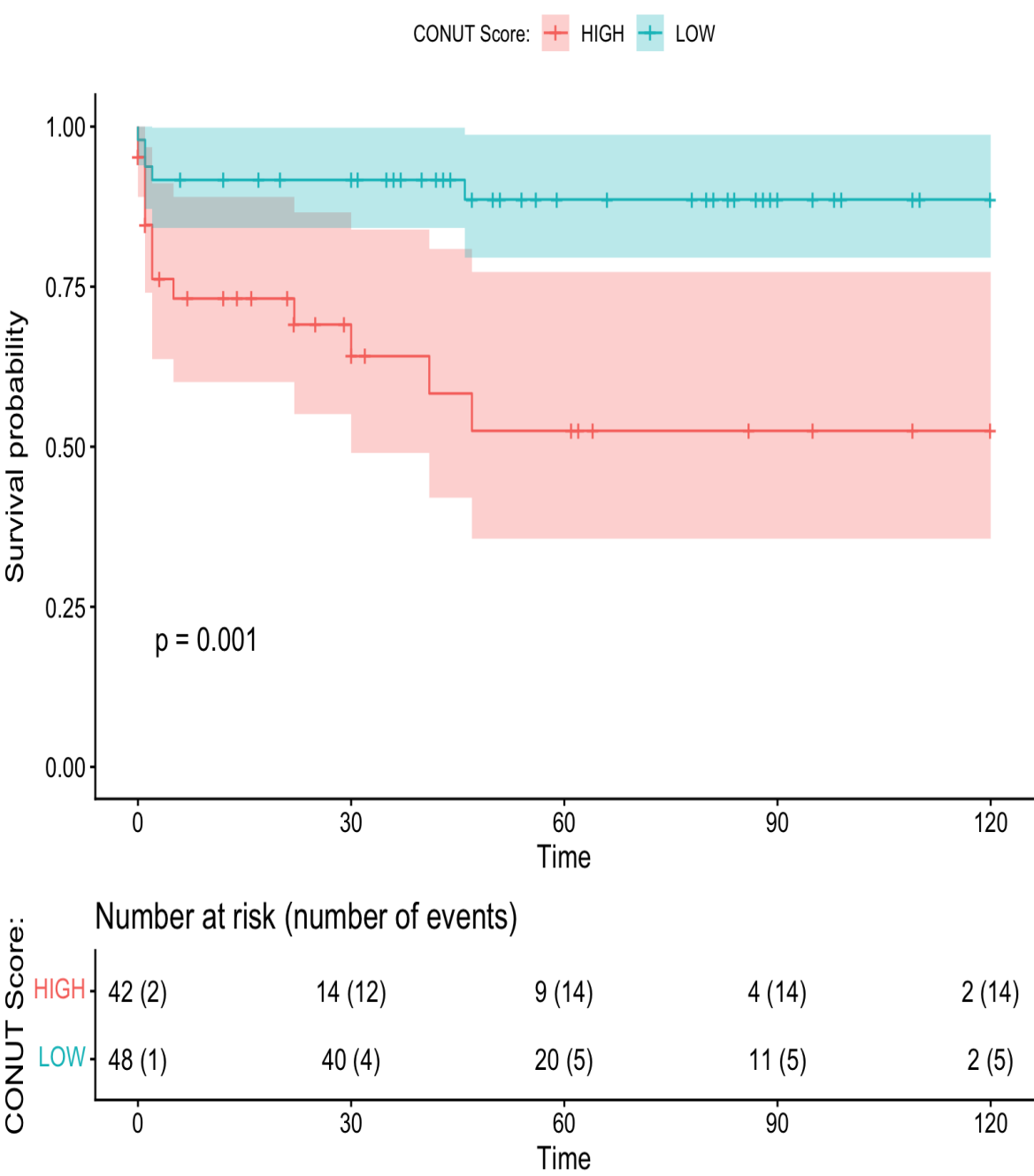
Ninety patients were included, of whom 42 (46.7%) had high CONUT. Median follow-up was 46.5 months (range 0–149).

Baseline characteristics	High CONUT n=42	Low CONUT n=48	p value
Age, years	80.0 ± 9.4	73.6 ± 10.8	0.004
Female sex	28 (66.7)	30 (62.5)	0.680
Diabetes mellitus	14 (33.3)	9 (18.8)	0.114
Fracture/revision indication	20 (47.6)	17 (35.4)	0.240
Acute haematogenous infection	13 (31.0)	9 (18.8)	0.179
McPherson host grade C	19 (45.2)	8 (16.7)	0.003
High JS-BACH	34 (81.0)	33 (68.8)	0.185
CRP, mg/L	80.5 [36.7–173.0]	38.1 [12.6–110.9]	0.250
Polymicrobial infection	7 (16.7)	13 (27.1)	0.236
<i>Staphylococcus aureus</i>	20 (47.6)	13 (27.1)	0.044
Coagulase-negative staphylococci	3 (7.1)	16 (33.3)	0.002
Positive blood cultures	17 (40.5)	6 (12.5)	0.002

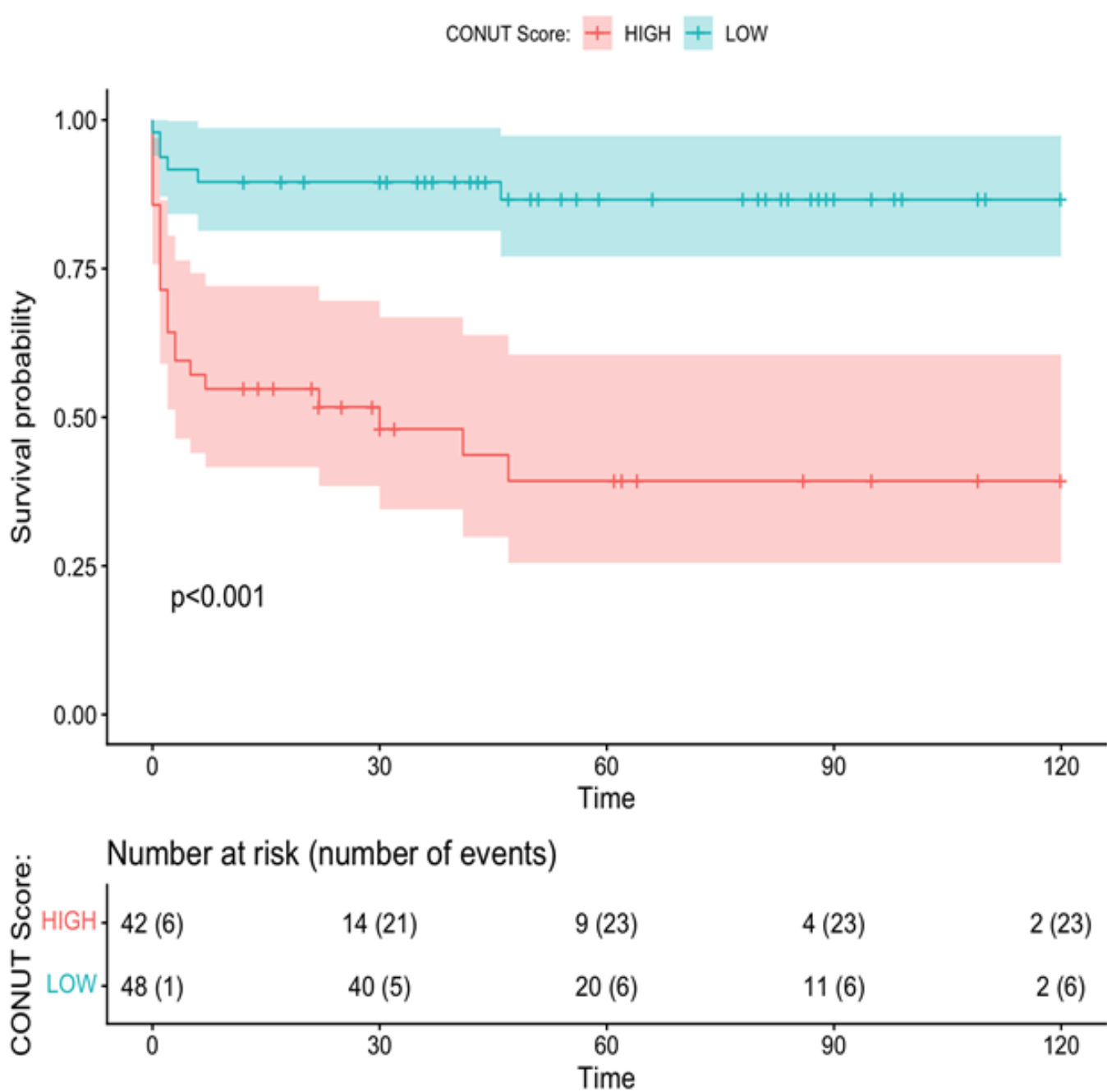
Data are presented as mean ± SD, median [IQR], or n (%), as appropriate. Bold indicates p < 0.05.

Kaplan–Meier analyses according to CONUT status

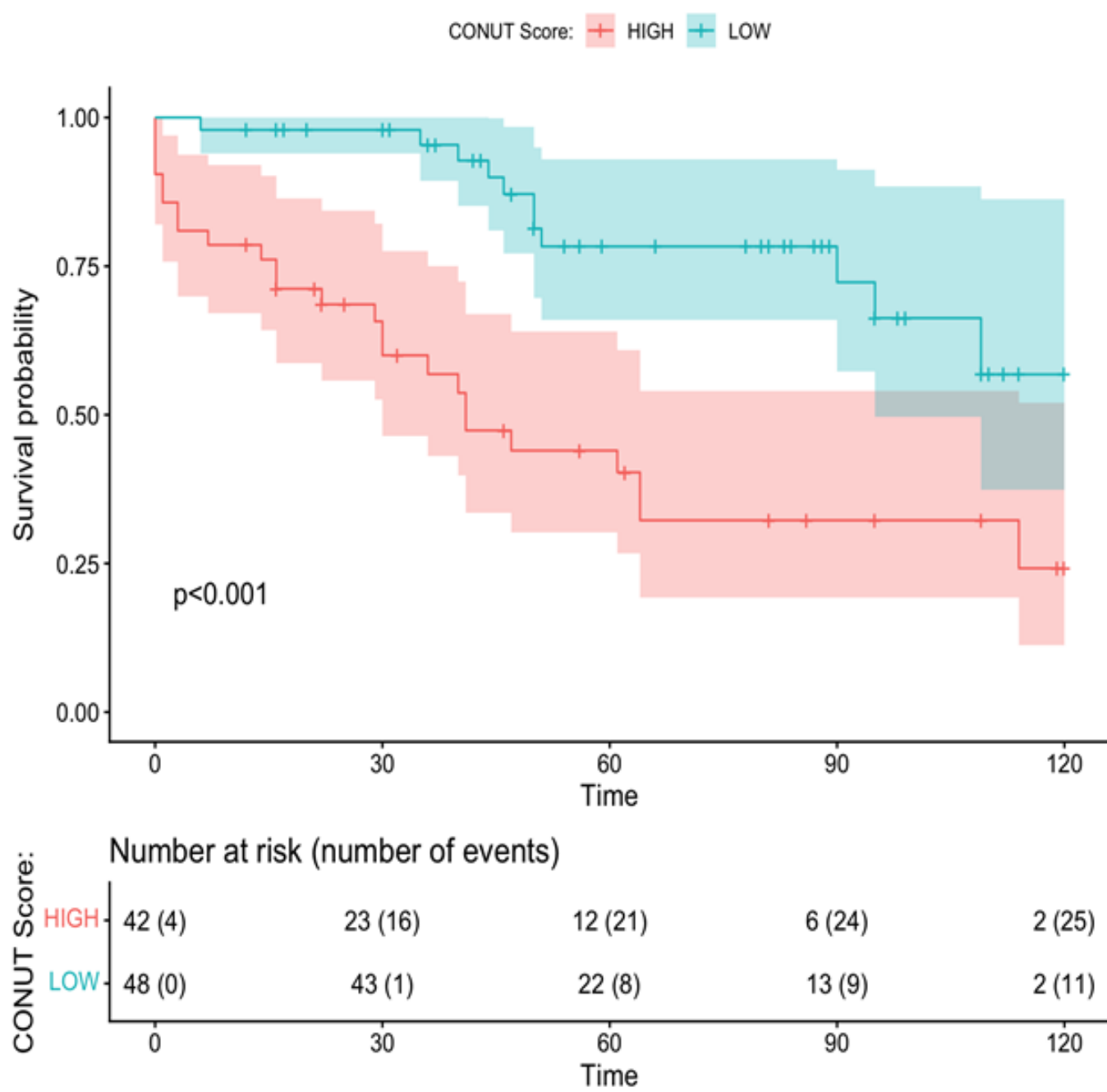
Failure-free survival



Total Failure-free survival



Overall survival

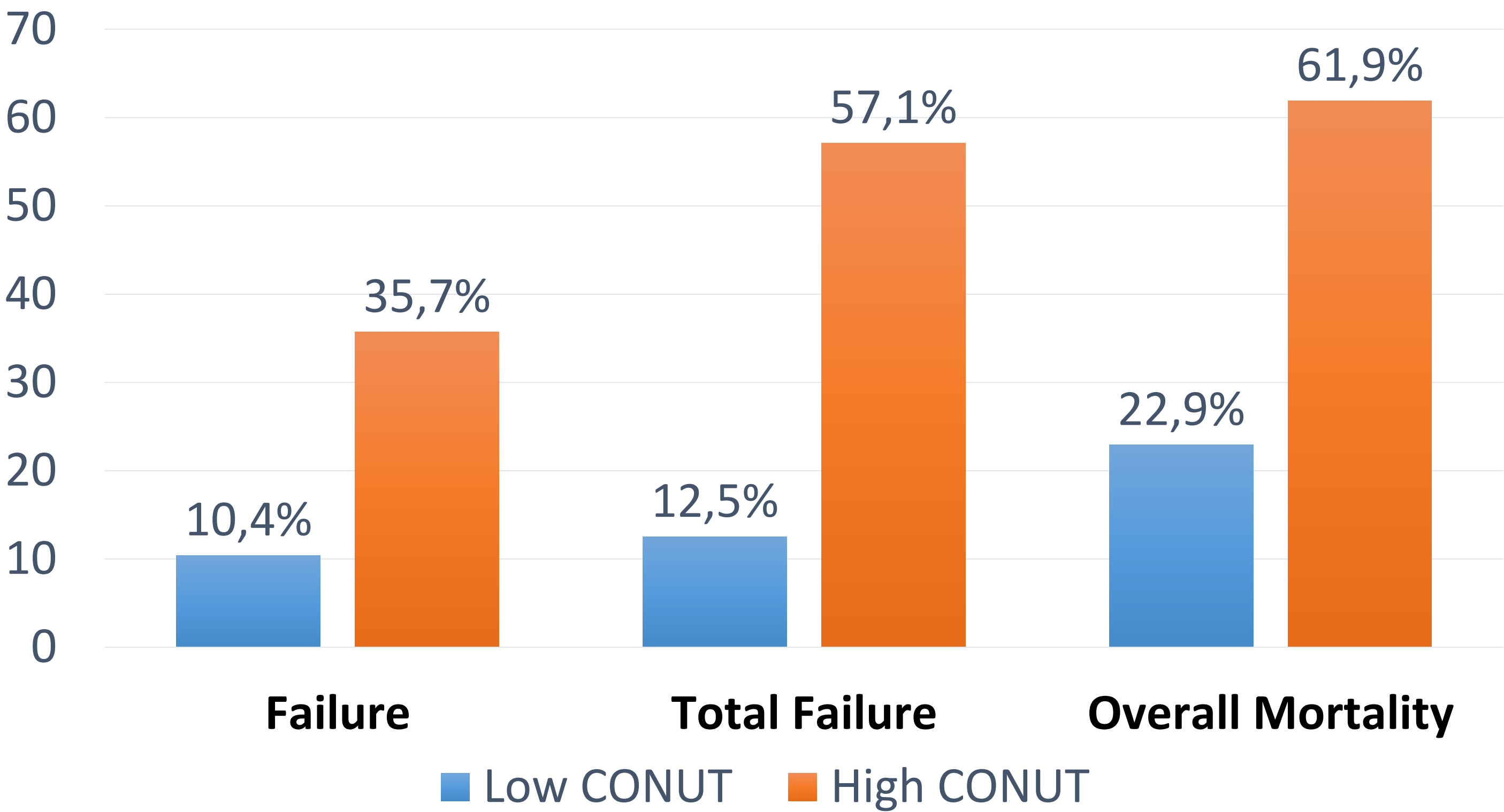


Shaded areas indicate 95% CIs; tick marks indicate censored observations

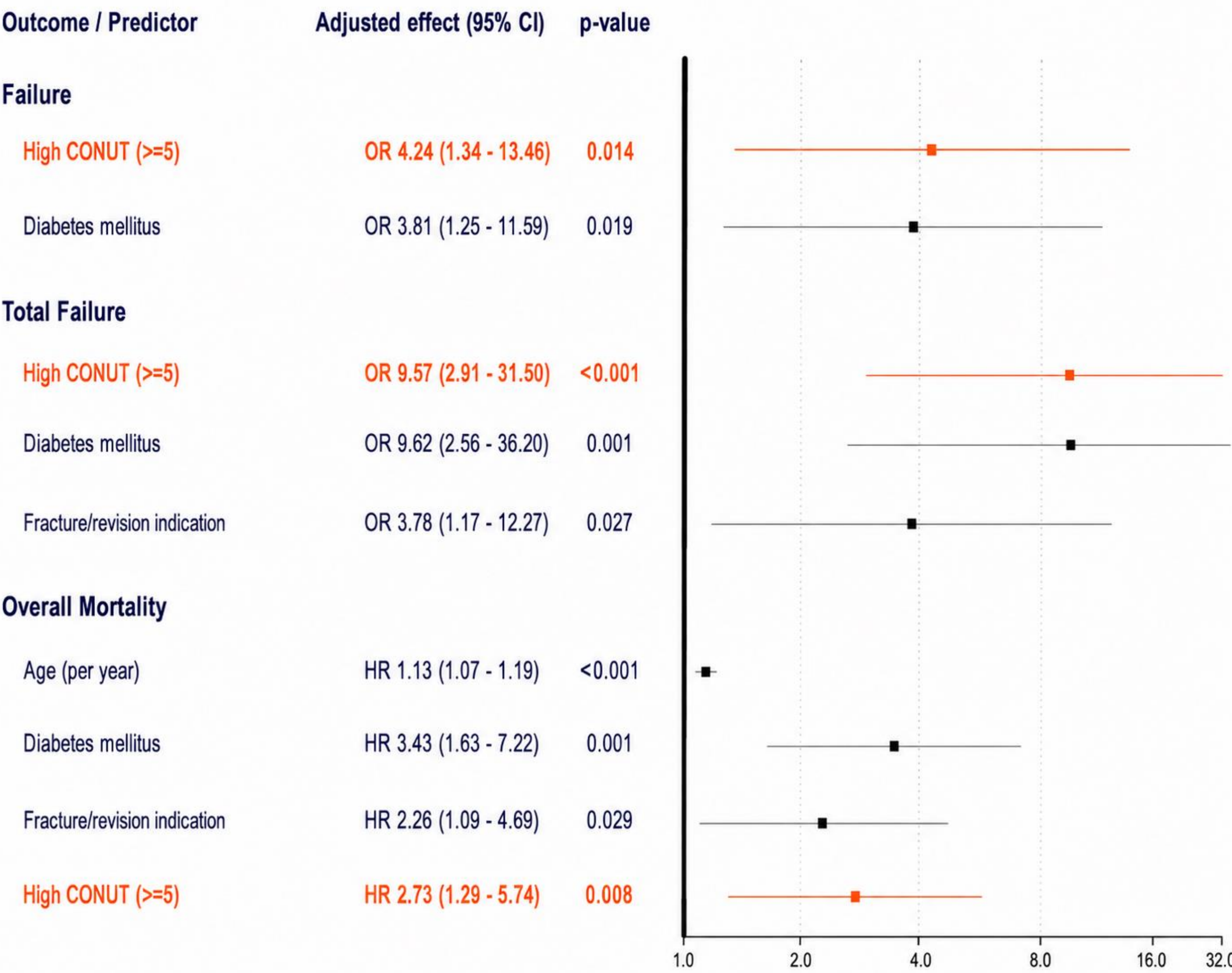
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Clinical outcomes according to CONUT status



Multivariable analyses



OR, odds ratio; HR, hazard ratio; CI, confidence interval. Reference line = 1.

Conclusions:

- Preoperative CONUT identifies high-risk patients with markedly increased failure and mortality after surgery for acute PJI.
- As a simple and widely available marker, it may support preoperative risk stratification and inform clinical decision-making in this challenging population.

