

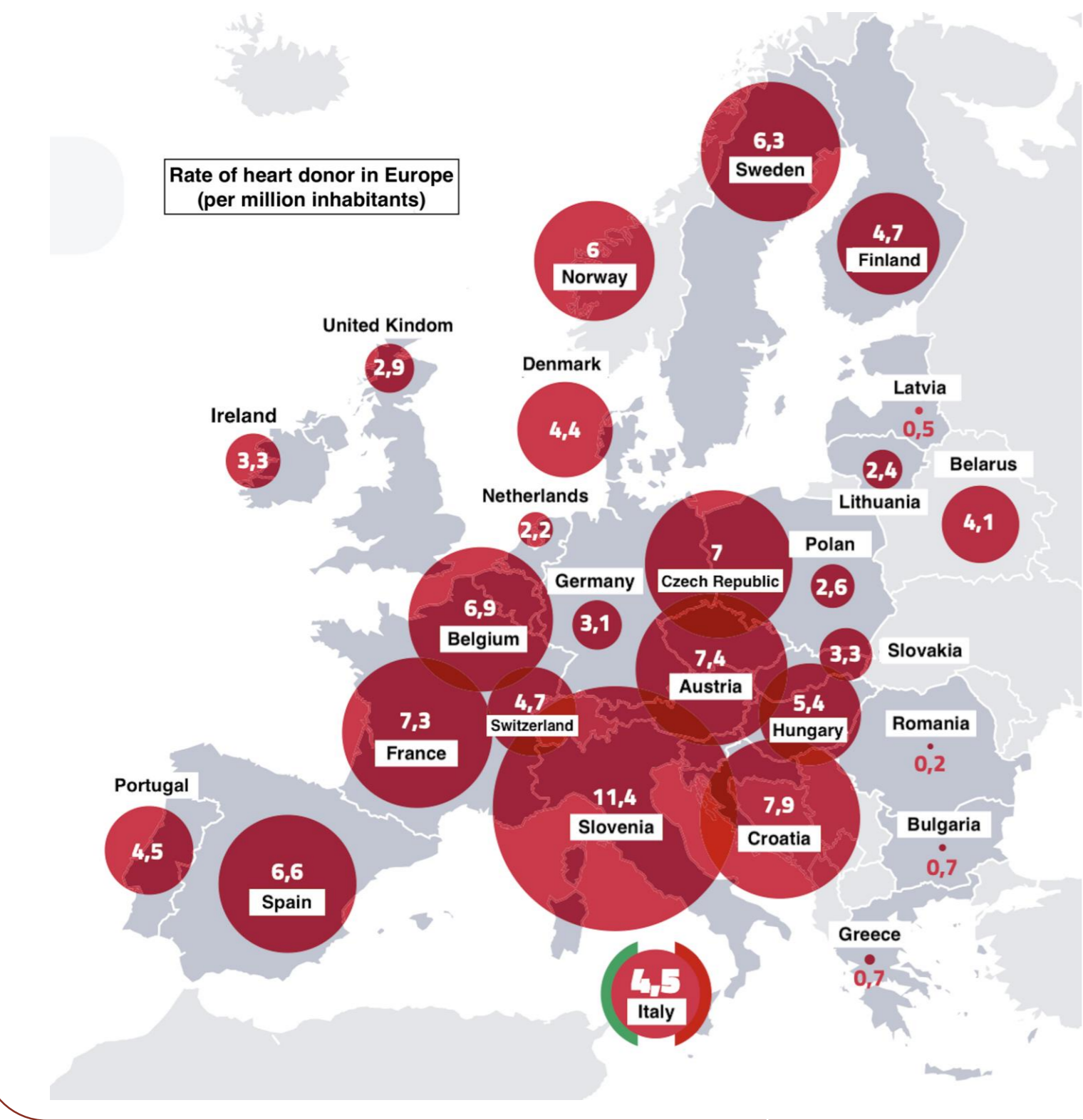
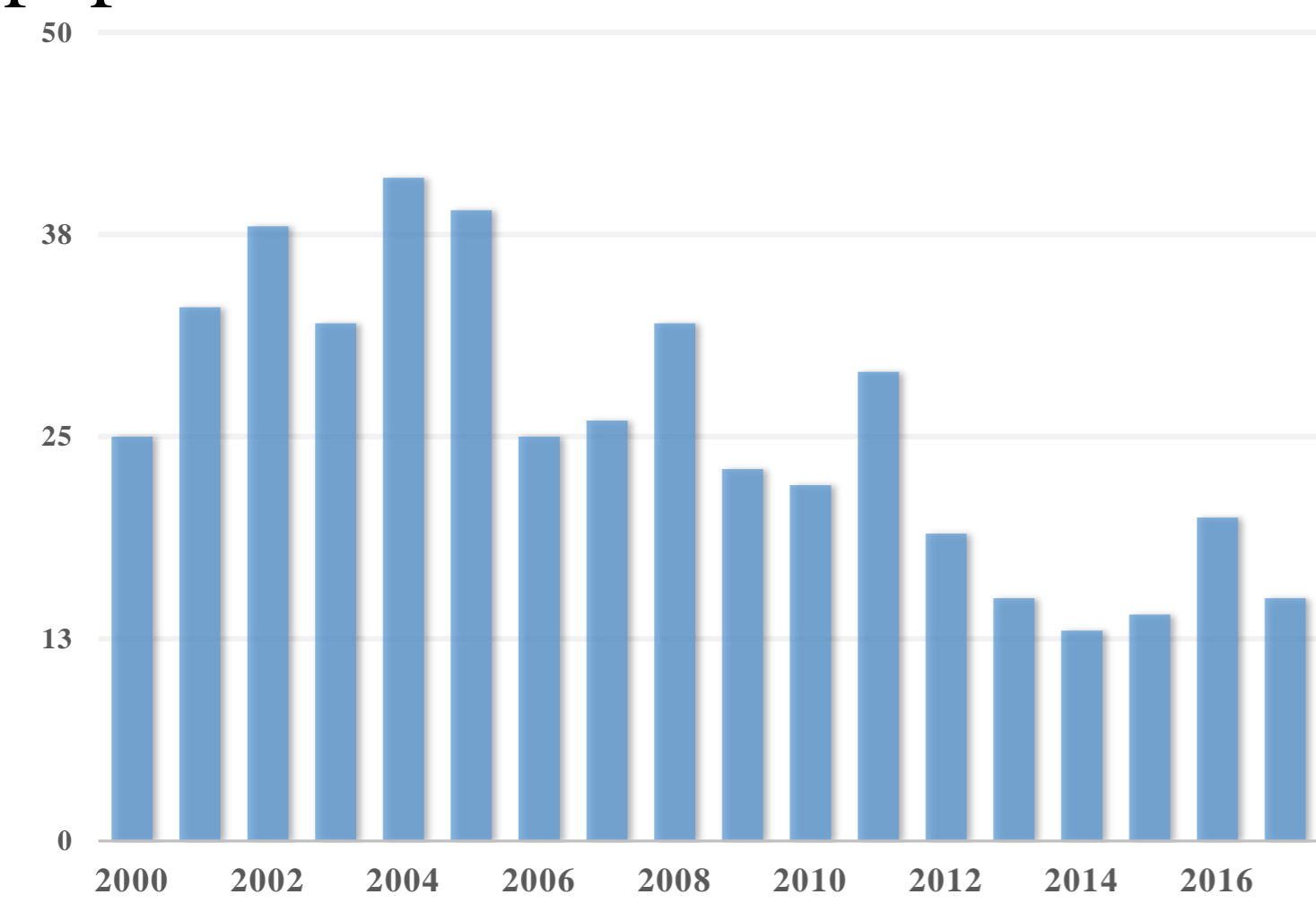


Background

Heart transplantation (Htx) remains the gold standard as treatment of patients with advanced heart failure. Donor and recipient characteristics have changed dramatically in recent years, leading to more complex decision-making regarding organ acceptance and postoperative management. Primary aim of the study was to identify donor risk factors variables impacting on in-hospital mortality, early graft failure and follow-up mortality; secondary objective was to validate the available international donor risk scores.

Methods

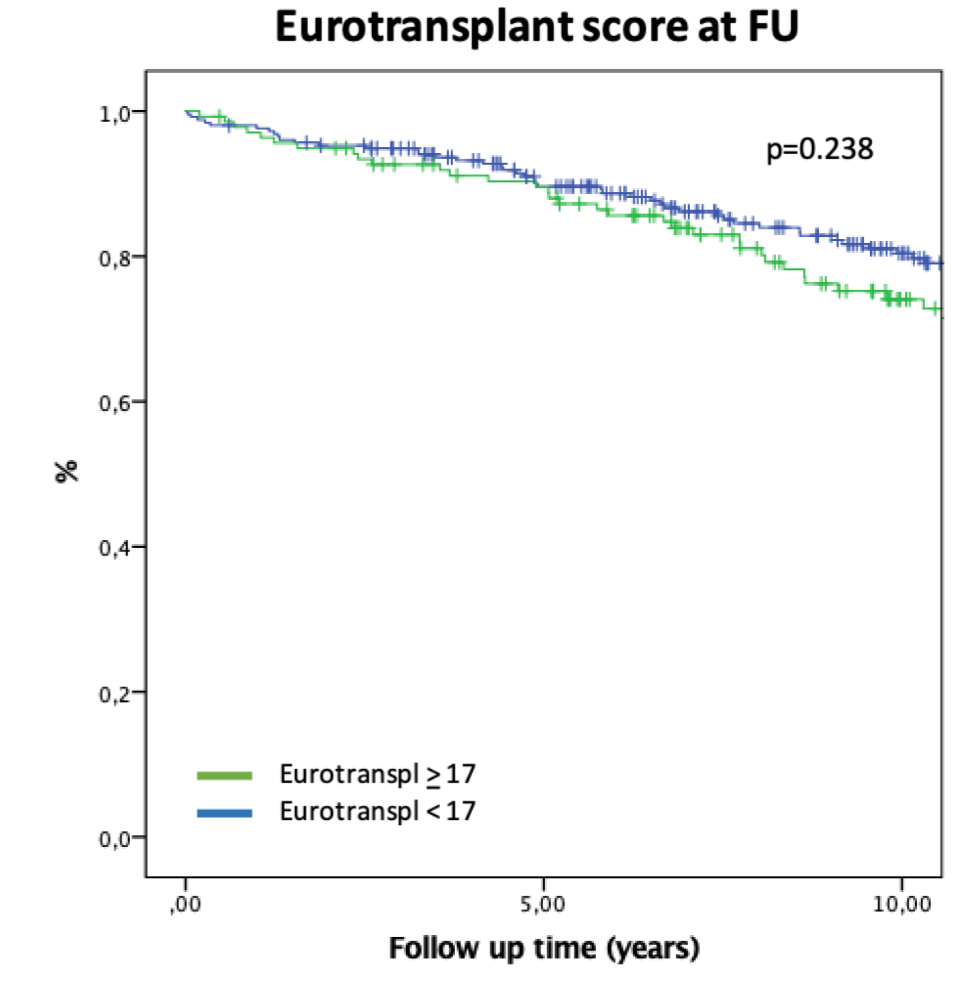
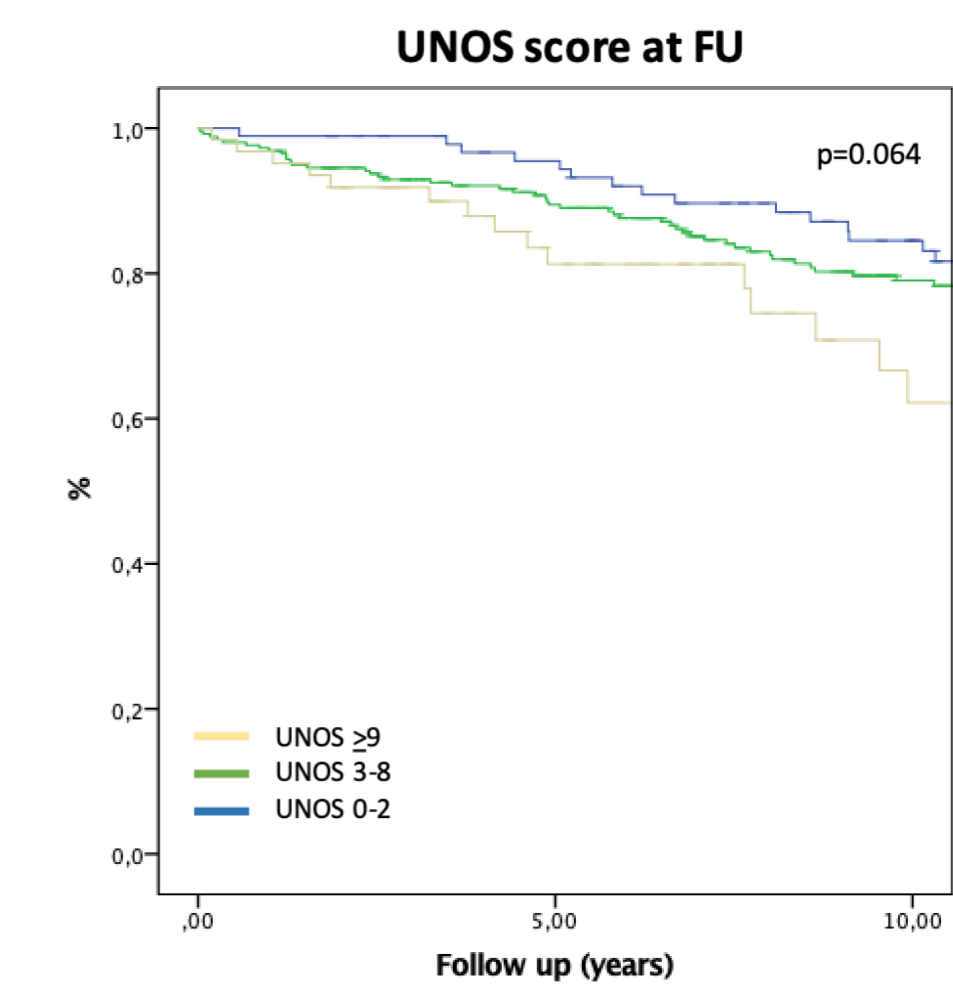
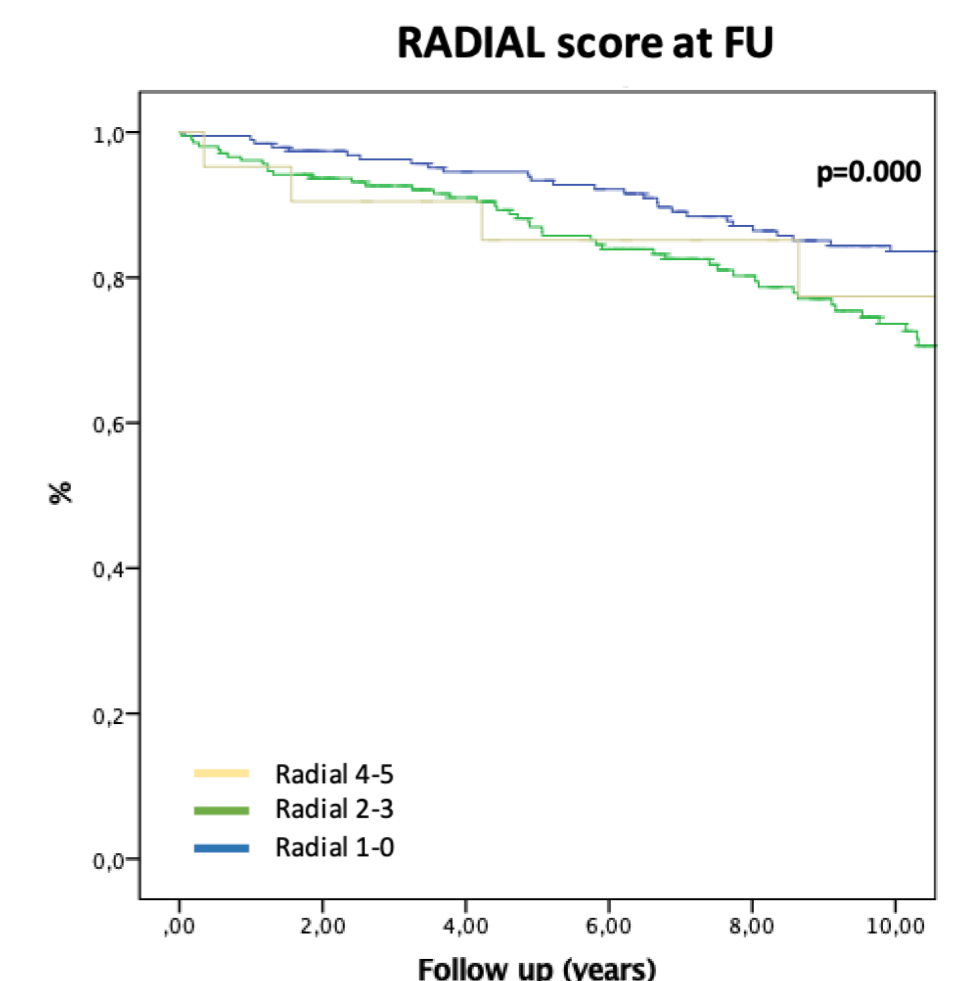
Between January 2000 and December 2017, 461 adult patients underwent Htx. UNOS, RADIAL and Eurotransplant scores have been calculated. Clinical features and donor risk scores have been tested in order to identify pre-, intra- and post-operative risk variables and eventually validate the scores on our population.



	Donors (n=461)					
	In-Hospital Mortality		Early Graft Failure		Follow-up Mortality	
	p-value	OR (CI)	p-value	OR (CI)	p-value	HR (CI)
Age	0.168	1.01 (0.99;1.04)	0.158	1.02 (0.99;1.04)	0.017	1.02 (1.00;1.04)
Age>50	0.162	1.65 (0.81;3.36)			0.003	2.00 (1.26;3.19)
Female	0.87		0.11		0.43	
Gender mismatch	0.744	0.87(0.40;1.91)	0.667	0.82 (0.34;1.97)	0.138	1.41 (0.89;2.22)
BMI	0.17		0.13		0.87	
Death cause						
Trauma	0.854	1.06 (0.53;2.12)	0.783	0.89 (0.40;1.96)	0.028	0.60 (0.38;0.95)
Cerebral hemorrhage	0.627	0.59 (0.07;4.79)	0.837	0.89 (0.09; 6.57)	0.781	1.15 (0.41;3.26)
Ictus cerebri						
Other	0.238	0.28 (0.36;2.26)	0.189	1.16 (0.31;4.36)	0.693	0.85 (0.38;1.91)
Noradrenaline	0.015	2.62 (1.20;5.68)	0.393	1.39 (0.64;3.01)	0.266	0.77 (0.50;1.21)
Adrenaline/dobutamine	0.699	0.90 (0.55;1.47)	0.324	0.74 (0.42;1.32)	0.367	1.15 (0.85;1.54)
CPR	0.685	1.25 (0.41;3.75)	0.161	2.07 (0.74;5.76)	0.389	0.64 (0.23;1.76)
Creatinine	0.604	1.10 (0.76;1.57)	0.323	1.19 (0.84;1.68)	0.818	0.97 (0.75;1.26)
GOT	0.377	1.00 (0.99;1.00)	0.795	0.99 (0.99;1.00)	0.858	1.00 (1.00;1.00)
GPT	0.907	0.99 (0.99;1.00)	0.842	0.99 (0.99;1.00)	0.370	1.00 (0.99;1.00)
Billirubin	0.540	0.99 (0.96;1.02)	0.215	0.79 (0.54;1.27)	0.067	1.00 (0.99;1.02)
Ischemic time (min)	0.443	0.99 (0.99;1.00)	0.543	0.99 (0.98;1.00)	0.588	1.00 (0.99;1.01)
Ischemic time >240 (min)	0.408	1.41 (0.62;3.23)	0.047	0.11 (0.00;3.02)	0.888	0.96 (0.52;1.76)
CBP time (min)	0.000	1.13 (1.00;1.019)	0.000	1.01 (1.01;1.02)	0.849	1.00 (0.99;1.00)

Results

Post-Htx extracorporeal life support (ECLS) was used in 11.1% (51/461). Of the donor related factors, peak of troponine (<0.001) and use of noradrenaline (p=0.02) negatively influenced on early outcomes, while a ischaemic time >240 minutes (p=0.037) influenced EGF occurrence. The Eurotransplant donor score didn't impact on outcomes, the RADIAL significantly influenced both on early (p=0.02) and late mortality (p=0.004) while the UNOS on late mortality only (p=0.03). On the multivariate model, after adjustment per cohort of scores, noradrenaline infusion resulted to be an independent predictor of in-hospital mortality in the Eurotransplant score >17 population, recipient pre-Htx ECLS and BMI >30 were independent predictors of EGF in the UNOS score >6 population, and recipient age >60 was predictor of late mortality in the RADIAL score >5.



	In-Hospital Mortality		Early Graft Failure		Follow-up Mortality	
	p-value	OR (CI)	p-value	OR (CI)	p-value	HR (CI)
Eurotransplant score	0.321	1.05 (0.94;1.17)	0.180	1.07 (0.96;1.19)	0.200	1.05 (0.97;1.13)
Eurotransplant score ≥17	0.810	1.09 (0.53;2.23)	0.596	1.22 (0.57;2.62)	0.533	1.14 (0.74;1.78)
RADIAL score	0.016	1.43 (1.07;1.92)	0.121	1.29 (0.93;1.78)	0.004	1.32 (1.10;1.60)
RADIAL score ≥3	0.175	1.62 (0.80;3.28)	0.126	1.82 (0.84;3.93)	0.026	1.61 (1.06;2.47)
UNOS score	0.174	1.08 (0.96;1.22)	0.125	1.10 (0.97;1.26)	0.030	1.09 (1.00;1.18)
UNOS score ≥6	0.052	1.92 (0.99;3.74)	0.009	2.74 (1.28;5.88)	0.181	1.34 (0.87;2.06)

Conclusions

Actual heart donor scoring systems do not fully behave as reliable predictors of transplant outcomes. Therefore, every transplant institution should consider developing a local donor scoring system to provide their own standard graft selection thus preserving the outcomes.

