Online text

Patient selection

All recruiting centers defined non-ischemic DCM according to the guidelines which applied to the time of recruitment. These cohorts include patients with left ventricular or biventricular systolic dysfunction and dilatation that are not explained by abnormal loading conditions or coronary artery disease as well as patients with hypokinetic non-dilated cardiomyopathy with left ventricular or biventricular global systolic dysfunction without dilatation (defined as LVEF<45%), not explained by abnormal loading conditions or coronary artery disease [1]. In Utrecht first all patients with an ICD-10 code of I42.0 (dilated cardiomyopathy) were extracted from UNRAVEL research data platform. Then each patient's record was manually checked and those who fitted our inclusion criteria were included. In Warsaw all patients who presented to OBP-NIKARD consecutively were assessed and included if they met our inclusion criteria. In Paris and Heidelberg patients were assessed from cohorts, which were non-continuously enrolled in dedicated research programs about DCM. Every patient who met our inclusion criteria was then included.

Comparison with conventional risk factors in patients with 3 years follow-up only

This analysis could be performed in 1015 patients of our cohort, in whom 3-year follow-up information was available. 87 patients had an event. By applying the guideline criteria, 613 out of 1015 patients (60.4%) would have been treated with an ICD and 75 patients with events would have been protected. To avoid under-treatment and provide the same level of protection, the developed model would indicate 553 device implantations (54.5%), thereby reducing the total number of ICD implants by 9.8% [(613–553)/613] (P=0.007). When implanting the same number of patients with ICDs as current guidelines (n=613) but use the new model for selection of patients, 77 patients with end-point SVA would have been protected.

Online references

1. Pinto YM, Elliott PM, Arbustini E, Adler Y, Anastasakis A, Bohm M, Duboc D, Gimeno J, de Groote P, Imazio M, Heymans S, Klingel K, Komajda M, Limongelli G, Linhart A, Mogensen J, Moon J, Pieper PG, Seferovic PM, Schueler S, Zamorano JL, Caforio AL and Charron P. Proposal for a revised definition of dilated cardiomyopathy, hypokinetic non-dilated cardiomyopathy, and its implications for clinical practice: a position statement of the ESC working group on myocardial and pericardial diseases. *Eur Heart J*. 2016;37:1850-8.

Online Tables

Online Table 1A: Trained on 3 centers, validated on ICH, Germany

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.36 (0.84-2.21)	0.20
History for nsVT	1.86 (1.08-3.19)	0.02
History for Syncope	1.73 (0.74-4.04)	0.21
Family history for CMP	1.16 (0.68-1.96)	0.59
QRS duration	1.00 (1.00-1.01)	0.30
LV-EF	0.98 (0.96-1.01)	0.15

Concordance = 0.61

Online Table 1B: Trained on 3 centers, validated on OBP-NIKARD, Poland

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.68 (1.09-2.58)	0.02
History for nsVT	2.53 (1.71-3.76)	<0.005
History for Syncope	2.06(1.18-3.57)	0.01
Family history for CMP	1.58 (1.02-2.44)	0.04
QRS duration	1.01 (1.00-1.01)	0.03
LV-EF	0.96 (0.95-0.98)	<0.005

Concordance = 0.74

Online Table 1C: Trained on 3 centers, validated on CEREFCOEUR, France

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.35 (0.92-2.00)	0.13
History for nsVT	2.48 (1.73-3.56)	<0.005
History for Syncope	2.40(1.42-4.08)	<0.005
Family history for CMP	1.65 (1.11-2.43)	0.01
QRS duration	1.01 (1.00-1.01)	0.02
LV-EF	0.96 (0.95-0.98)	<0.005

Concordance = 0.75

Online Table 1D: Trained on 3 centers, validated on UNRAVEL, the Netherlands

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.56 (0.95-2.55)	0.08
History for nsVT	2.97 (1.97-4.47)	<0.005
History for Syncope	2.38(1.34-4.22)	<0.005
Family history for CMP	1.58 (1.02-2.47)	0.04
QRS duration	1.01 (1.00-1.01)	0.03
LV-EF	0.96 (0.94-0.98)	<0.005

Concordance = 0.76

Online Table 2: Model to adjust for center effect

Predictor variable	SCD risk prediction model Hazard ratio (95% CI)	P-value	Sensitivity analysis: model with center Hazard ratio (95% CI) P-value	P-value
Sex (male)	1.36 (0.98-1.89)	0.07	1.39 (1.01-1.92)	0.05
History for nsVT	2.36 (1.74-3.19)	<0.005	2.89 (2.05-4.08)	<0.005
History for Syncope	1.82 (1.15-2.87)	0.01	1.79 (1.14-2.85)	0.01
Family history for CMP	1.55 (1.11-2.18)	0.01	1.54 (1.09-2.17)	0.01
QRS	1.01 (1.00-1.01)	0.01	1.01 (1.00-1.01)	0.03
LV-EF	0.96 (0.94-0.97)	<0.005	0.96 (0.95-0.98)	<0.005
Center				
ICH, Germany			0.83 (0.33-2.08)	0.69
OBP-NIKARD, Poland			0.88 (0.34-2.29)	0.80
CEREFCOEUR, France			0.92 (0.33-2.65)	0.88
UNRAVEL, the Netherlands			1.57 (0.61-4.04)	0.35

Online Table 3: Model using only patients with complete data (N=1119)

Predictor variable	Risk prediction model Hazard ratio (95% CI)	P-value	Model with center Hazard ratio (95% CI)	P-value
Sex (male)	1.50 (1.02−2.19)	0.04	1.53 (1.05−2.22)	0.03
History for nsVT	2.47 (1.75−3.50)	<0.005	3.08 (2.07−4.57)	<0.005
History for Syncope	2.24 (1.34−3.73)	<0.005	2.15 (1.28−3.59)	<0.005
Family history for CMP	1.53 (1.05−2.24)	0.03	1.56 (1.06−2.28)	0.02
QRS	1.01 (1.00−1.01)	0.02	1.01 (1.00−1.01)	0.04
LV-EF	0.96 (0.95−0.98)	<0.005	0.97 (0.95−0.98)	<0.005
Center				
ICH, Germany	–		0.89 (0.31−2.51)	0.82
OBP-NIKARD, Poland	–		0.77 (0.26−2.27)	0.63
CEREFCOEUR, France	–		1.09 (0.34−3.53)	0.89
UNRAVEL, the Netherlands	–		1.57 (0.54−4.59)	0.41

Online Table 4: Model excluding ATPs as event

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.61 (1.07-2.44)	0.02
History for nsVT	1.86 (1.28-2.72)	<0.005
History for Syncope	1.78 (1.00-3.17)	0.05
Family history for CMP	1.36 (0.89-2.07)	0.16
QRS duration	1.01 (1.00-1.01)	0.02
LV-EF	0.95 (0.93-0.97)	<0.005

Concordance = 0.71

Online Table 5: Model in patients without CRT

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.37 (0.92-2.06)	0.13
History for nsVT	2.77 (1.93-3.96)	<0.005
History for Syncope	1.49 (0.83-2.65)	0.18
Family history for CMP	1.57 (1.06-2.32)	0.02
QRS duration	1.01 (1.00-1.01)	0.04
LV-EF	0.96 (0.95-0.98)	<0.005

Concordance = 0.72

Online Table 6: including LGE presence as the seventh model parameter

Predictor variable	Hazard ratio (95% CI)	P-value
Sex (male)	1.39 (1.00-1.94)	0.05
History for nsVT	2.28 (1.68-3.09)	<0.005
History for Syncope	1.79 (1.13-2.83)	0.01
Family history for CMP	1.57 (1.12-2.20)	0.01
QRS duration	1.01 (1.00-1.01)	0.01
LV-EF	0.96 (0.95-0.98)	<0.005
LGE	2.00 (1.22-3.27)	0.01

Concordance = 0.73

Online Figure legend 1: Performance of model vs. conventional risk factors (LV-EF ≤35% + NYHA II/III or asymptomatic patients with LV-EF ≤30%) using different thresholds for predicted 5-year risk (%). 5-year follow-up information was available in 799 patients. 671 patients had no events (blue circles). By selecting 8.5% as threshold for predicted 5-year risk, equal number of events would have been missed by each strategy (yellow and orange triangles), whereas 94 patients would have been protected based on both methods (green circles). 10 patients would have been missed by either two selection strategies (red circles).

Online Figure 1