

Suboptimal Heart Rate Control Despite Beta-Blocker Use in Coronary Artery Disease: Evidence from the Fasa PERSIAN Cohort

Supplementary Appendix

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Table S1. The multivariable association of drugs with heart rate <70 bpm in total and sub-total population.

	Total population (n=7119)		Sub-total population (n=1849)					
			CAD (n=399)		HTN (n=982)		CAD and HTN (n=468)	
	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)
ACE	182 (2.5)	0.83 (0.58-1.19)	12 (3.0)	0.38 (0.08-1.73)	67 (6.9)	0.60 (0.36-0.98) <i>P-value=0.045</i>	71 (15.2)	0.80 (0.35-1.42)
ARB	354 (5.0)	1.17 (0.91-1.52)	12 (3.0)	0.97 (0.27-3.51)	139 (14.2)	1.21 (0.84-1.73)	148 (31.6)	0.68 (0.44-1.08)
ACE + ARB	13 (0.1)	0.37 (0.09-1.46)	0	N.A.	5 (0.5)	0.87 (0.12-5.97)	5 (1.1)	0.42 (0.04-4.39)
BB + ACE + ARB	5 (0.07)	0.37 (0.04-3.44)	0	N.A.	1 (0.1)	N.A.	2 (0.4)	2.135 (0.12-36.21)
BB + CCB + ARB	41 (0.5)	1.14 (0.56-2.30)	1 (0.3)	N.A.	4 (0.5)	1.80 (0.49-6.65)	30 (6.4)	0.74 (0.32-1.71)
BB + CCB + ACE	15 (0.2)	1.01 (0.35-2.95)	0	N.A.	1 (0.1)	N.A.	12 (2.6)	1.04 (0.31-3.42)
CCB + ACE + ARB	4 (0.05)	0.26 (0.02-2.83)	0	N.A.	1 (0.1)	N.A.	3 (0.6)	0.74 (0.06-9.18)
BB + ACE + ARB + CCB	2 (0.02)	1.30 (0.07-21.84)	0	N.A.	0 (0.0)	N.A.	2 (0.4)	2.135 (0.12-36.22)

N.A. = not applicable due to low frequency. Significant P-value is reported and bolded. CAD: Coronary Artery Diseases. HTN: Hypertension. BB: beta blocker. CCB: calcium channel blocker. ACEI: angiotensin converting enzyme inhibitors. ARB: angiotensin receptor blocker.

Table S2. The beta coefficients of each drug and their combination with HR (as continuous variable)

	Total population (n=7119)		Sub-total population (n=1849)					
	Unstandardized beta (S.E.)	P-value	CAD (n=399)		HTN (n=982)		CAD and HTN (n=468)	
			Unstandardized beta	P-value	Unstandardized beta	P-value	Unstandardized beta	P-value
BB	-3.00 (0.48)	<0.001	-0.86 (1.55)	0.578	-4.10 (0.89)	<0.001	-1.42 (1.26)	0.259
ACE	1.46 (0.89)	0.101	6.35 (4.06)	0.119	3.22 (1.33)	0.016	1.35 (1.73)	0.435
ARB	-0.42 (0.65)	0.517	-2.74 (3.85)	0.477	0.64 (1.04)	0.538	1.69 (1.35)	0.211
CCB	0.62 (0.70)	0.374	-6.41 (4.29)	0.137	2.70 (1.09)	0.014	0.65 (1.38)	0.635
More than one BB	-1.47 (2.28)	0.518	N.A.	N.A.	-4.31 (4.40)	0.328	1.53 (3.18)	0.631
BB + ACE	1.24 (1.45)	0.378	0.76(4.82)	0.875	5.39 (2.67)	0.044	0.90 (2.16)	0.677
BB +ARB	-1.92 (1.02)	0.061	0.19 (4.51)	0.966	-1.82 (1.87)	0.332	1.20 (1.67)	0.473
CCB + ARB	1.96 (1.22)	0.110	-17.52 (8.83)	0.048	5.90 (2.21)	0.008	2.28 (1.88)	0.227
CCB + ACE	1.77 (2.00)	0.376	N.A.	N.A.	5.36 (3.40)	0.115	1.30 (2.99)	0.663
CCB + BB	-1.16 (1.09)	0.289	-7.19 (8.87)	0.418	0.29 (2.11)	0.891	-0.10 (1.66)	0.995
ACE + ARB	9.12 (3.15)	0.004	N.A.	N.A.	7.08 (4.32)	0.102	14.33 (5.09)	0.016
BB + ACE + ARB	11.57 (4.88)	0.018	N.A.	N.A.	N.A.	N.A.	3.28 (8.61)	0.703
BB + CCB + ARB	1.35 (1.74)	0.440	N.A.	N.A.	6.48 (3.73)	0.083	2.14 (2.42)	0.377
BB + CCB + ACE	3.53 (2.82)	0.212	N.A.	N.A.	N.A.	N.A.	1.96 (3.56)	0.582
CCB + ACE + ARB	11.24 (5.46)	0.040	N.A.	N.A.	N.A.	N.A.	10.81 (7.03)	0.125
BB + ACE + ARB + CCB	4.68 (7.73)	0.544	N.A.	N.A.	N.A.	N.A.	3.28 (8.61)	0.703

N.A. = not applicable due to low frequency. Significant P-value is reported and bolded. CAD: Coronary Artery Diseases. HTN: Hypertension. BB: beta blocker. CCB: calcium channel blocker. ACEI: angiotensin converting enzyme inhibitors. ARB: angiotensin receptor blocker.

Table S3. Variables associated with heart rate<70 bpm (Logistic regression with backward selection)

Variable*	P-value	OR	95%CI	
			lower	upper
Sex (male)	.000	3.884	3.432	4.395
DM history	.046	.820	.675	.997
HTN history	.027	1.193	1.020	1.396
CAD history	.008	1.279	1.065	1.537
Ethnicity (Fars)	ref			
Ethnicity (Turk)	.000	.813	.726	.911
Ethnicity (Arab)	.266	.869	.678	1.113
Family history of DM	.068	1.116	.992	1.255
Family history of HTN	.036	.883	.786	.992
Age (per 10-year increase)	.000	1.137	1.064	1.214
Diastolic (per 10 mm Hg increase)	.000	.850	.809	.894
BMI (per 2 kg/m2 increase)	.011	.968	.944	.993
FBS (per 20 mg/dL increase)	.000	.790	.747	.836
MET (per 5 MET increase)	.000	1.175	1.111	1.242
TG (per 50 mg/dl increase)	.000	.876	.834	.920
TC (per 50 mg/dl increase)	.002	1.417	1.137	1.766
LDL (per 50 mg/dl increase)	.000	.605	.476	.770

*Variables remained in the last step (Step 8) with backward selection method in logistic regression.

Variables entered on step 1: Age (per 10-year increase), Sex (male), Current smoking, Ethnicity, Systolic Blood Pressure (per 10 mm Hg increase), Diastolic Blood Pressure (per 10 mm Hg increase), BMI (per 2 kg/m2 increase), FBS (per 20 mg/dL increase), HDL (per 10 mg/dL increase), LDL (per 50 mg/dl increase), TG (per 50 mg/dl increase), TC (per 50 mg/dl increase), HC (per 10 cm increase), MET (per 5 MET increase), Medical history of Diabetes, Hypertension, CVD, MI, CAD, Stroke, Chronic Lung Diseases, Thyroid Diseases, Psychiatry Disorders and Family history of Diabetes, CVD, Hypertension