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Low sCD163/TWEAK Ratio at First Day After Acute Myocardial Infarction Associated with Adverse Cardiac Remodeling in Non-Elderly Patients

SUPPLEMENTARY MATERIALS

Table 1. Demographic and laboratory baseline findings and post-MI period CMR findings

Variable	All population n=44	Adverse Remodeling		p
		No, n=26	Yes, n=18	
Demographic findings				
Age, years	53.6±5.1	54.2±6.0	52.8±3.3	0.355
Male gender	39(88.6)	23(88.5)	16(88.9)	0.999
BMI, kg/m^2	26.9±4.1	26.7±4.4	27.2±3.7	0.731
Hypertension	18(40.9)	9(34.6)	9(50.0)	0.361
Diabetes mellitus	11(25.0)	6(23.1)	5(27.8)	0.999
Smoking	19(43.2)	9(34.6)	10(55.6)	0.222
Symptoms				
Chest pain	43(100)	20(100)	23(100)	-
Shoulder or back pain	24(54.5)	15(57.7)	9(50.0)	0.760
Arm pain	20(45.5)	12(46.2)	8(44.4)	0.999
Dyspnea	18(40.9)	9(34.6)	9(50.0)	0.361
Fatigue	28(63.6)	16(61.5)	12(66.7)	0.761
Clinical findings				
Heart rate, bpm	74.1±12.4	73.8±15.1	74.6±7.1	0.827
SBP, mm Hg	124.2±14.6	126.3±17.2	121.1±9.4	0.254
DBP, mm Hg	78.8±13.3	80.3±15.2	76.6±9.9	0.370
Door to balloon time, min	43.0±8.8	43.5±9.1	42.4±8.4	0.686
Symptom to balloon time, min	312.0±71.2	315.2±74.5	310.3±67.9	0.825
Grace score	131.3±31.2	128.8±35.4	135.0±24.4	0.524
Infarct-related artery				
LAD	29(65.9)	16(61.5)	13(72.2)	0.531
CX	15(34.1)	10(38.5)	5(27.8)	0.531
Number of diseased vessels				
1	31(70.5)	19(73.1)	12(66.7)	0.903
≥2	13(29.5)	7(26.9)	6(33.3)	
Number of stents	1(1-2)	1(1-2)	1(1-2)	0.166
Laboratory findings				
cTn-I, μg/l	47.7(40.5-60.8)	44.5(38.3-55.7)	50.6(40.4-62.5)	0.190
Glucose, mg/dl	103.6±22.3	101.3±21.2	107±24	0.408
Hemoglobin, g/dl	13.5±2.4	13.3±2.4	13.8±2.3	0.535
WBC, x10^9/l	11.6±2.6	11.3±2.3	12.1±3.0	0.323
Neutrophil, x10^9/l	8.9±1.9	8.5±2.0	9.5±1.6	0.088
Lymphocyte, x10^9/l	2.3±0.7	2.4±0.6	2.3±0.8	0.638
Monocyte, x10^9/l	0.8±0.1	0.8±0.2	0.8±0.1	0.874

Table 1. Demographic and laboratory baseline findings and post-MI period CMR findings

Variable	All population n=44	Adverse Remodeling		p
		No, n=26	Yes, n=18	
Platelet, x10^9/ l	334.5±36.2	329.3±36.2	342.1±35.8	0.252
Total cholesterol, mg/dl	174.9±44.6	177.6±42.3	171.1±48.7	0.637
HDL, mg/dl	39.7±10.7	37.9±9.8	42.2±11.6	0.191
LDL, mg/dl	111.3±42.1	109.4±36.6	114.1±50.1	0.722
hs-CRP, mg/l	25.5(16.1-33.5)	21.7(15.7-30.3)	30.0(22.2-42.6)	0.026*
Discharge therapy				
ACE/ARB	41(93.2)	24(92.3)	17(94.4)	0.999
Beta blockers	39(88.6)	23(88.5)	16(88.9)	0.999
Statins	42(95.5)	25(96.2)	17(94.4)	0.999
MRI findings				
2 wks				
LV EF, %	47.0±10.3	46.7±9.8	47.4±11.2	0.805
LV EDV, ml	164.8±33.1	166.8±37.3	161.9±26.8	0.638
LV ESV, ml	94(59.5-134.5)	89(61-136)	99(59-133)	0.971
Stroke volume, ml	73.5±14.0	72.2±10.1	75.3±17.1	0.454
Cardiac output, ml/min	4.5±0.9	4.4±0.8	4.7±1.1	0.300
Infarct size, % of LV	17(10-24)	15(12-20)	20(13-26)	0.025*
6 mos				
LV EF, %	48.2±10.4	51.4±8.6	43.4±11.2	0.011*
LV EDV, ml	163.8±39.0	145.9±32.9	189.7±32.4	<0.001*
LV ESV, ml	82.5(61.5-129.5)	72.5(53-121)	119.5(70-164)	0.004*
Stroke volume, ml	76.3±14.4	76.9±12.3	75.5±17.4	0.758
Cardiac output, ml/min	4.8±1.1	4.8±0.9	4.9±1.5	0.801
Infarct size, % of LV	15(10-24)	13(10-17)	17(10-22)	0.030*

* – p <0.05. BMI, body mass index; cTn-I, cardiac troponin I; HDL, high density lipoprotein;
LDL, low density lipoprotein; hs-CRP, high sensitive C reactive protein; LV EF, left ventricular ejection fraction;
LV EDV, left ventricular end-diastolic volume; LV ESV, left ventricular end-systolic volume;
WBC, white blood cells. Data are number (percentage), mean±SD, or median (IQR).

Table 2. Evaluation of the effects of demographic and clinical findings on the development of adverse remodeling by univariable regression analysis

Variables	Univariable Regression		
	OR	95% CI	p
Demographic findings			
Age	0.94	0.83-1.07	0.348
Male gender	1.04	0.16-6.97	0.965
BMI	1.03	0.89-1.20	0.705
Hypertension	1.89	0.55-6.45	0.310
Diabetes mellitus	1.28	0.32-5.08	0.924
Smoking	2.36	0.69-8.09	0.172
Clinical findings			
Heart rate, bpm	1.01	0.96-1.06	0.822
SBP	0.97	0.93-1.02	0.252
DBP	0.98	0.93-1.03	0.363
Door to balloon time	0.96	0.89-1.03	0.558
Symptom to balloon time	0.99	0.98-1.01	0.714
Grace score	1.01	0.99-1.03	0.514
Infarct-related artery			
LAD	ref		
CX	1.62	0.44-5.96	0.464
Number of diseased vessels			
1	ref		
≥2	1.36	0.37-5.02	0.847
Number of stents	0.29	0.07-1.08	0.109

Table 2. Evaluation of the effects of demographic and clinical findings on the development of adverse remodeling by univariable regression analysis

Variables	Univariable Regression		
	OR	95% CI	p
Laboratory findings			
cTn-I	1.01	0.92-1.09	0.158
Glucose	1.01	0.98-1.04	0.399
Hemoglobin	1.09	0.84-1.41	0.525
WBC	1.00	0.79-1.27	0.304
Neutrophil	1.36	0.95-1.94	0.094
Lymphocyte	0.99	0.98-1.03	0.588
Monocyte	0.71	0.01-42.35	0.871
Platelet	1.01	0.99-1.03	0.248
Total cholesterol	1.00	0.98-1.01	0.628
HDL	1.04	0.98-1.11	0.196
LDL	1.00	0.99-1.02	0.715
hs-CRP	1.08	1.01-1.15	0.018*
2 wk MRI findings			
LV EF	1.01	0.95-1.07	0.800
LV EDV	1.00	0.98-1.01	0.629
LV ESV	1.00	0.99-1.02	0.863
Stroke volume	1.02	0.92-1.11	0.400
Cardiac output	1.03	0.94-1.13	0.290
Infarct size, % of LV	1.05	1.02-1.09	0.028*
First day post-MI			
sCD163	1.05	1.01-1.10	0.012*
TWEAK	1.02	1.01-1.03	0.009*
sCD163/TWEAK ratio	0.97	0.95-0.99	<0.001*
2 wks post-MI			
sCD163	1.00	0.98-1.02	0.183
TWEAK	0.98	0.97-0.99	0.015*
sCD163/TWEAK ratio	1.01	0.99-1.03	0.550
6 wks post-MI			
sCD163	1.00	0.99-1.02	0.897
TWEAK	1.00	0.99-1.01	0.551
sCD163/TWEAK ratio	1.01	0.98-1.02	0.358

*p<0.05. Reference group: without adverse remodeling. sCD163, soluble CD163,
TWEAK, tumor necrosis factor-like weak inducer of apoptosis; OR, odds ratio; CI, confidence interval.

Table 3. Diagnostic performance assessment of the sCD163/TWEAK ratio in predicting adverse cardiac remodeling

Time after MI	AUC	SE	p	95% CI	
				Lower	Upper
First day					
sCD163	0.620	0.09	0.181	0.444	0.795
TWEAK	0.847	0.06	<0.001*	0.737	0.948
sCD163/TWEAK ratio	0.913	0.05	<0.001*	0.819	0.999
2 wks					
sCD163	0.620	0.09	0.181	0.452	0.788
TWEAK	0.738	0.08	0.008*	0.579	0.898
sCD163/TWEAK ratio	0.581	0.09	0.364	0.407	0.755
6 wks					
sCD163	0.524	0.09	0.793	0.351	0.696
TWEAK	0.549	0.09	0.583	0.376	0.722
sCD163/TWEAK ratio	0.573	0.09	0.417	0.399	0.746
Change					
From first day to 2 wks					
sCD163	0.724	0.08	0.012*	0.569	0.880
TWEAK	0.885	0.07	<0.001*	0.757	0.999
sCD163/TWEAK ratio	0.991	0.01	<0.001*	0.974	0.999
From first day to 6 wks					
sCD163	0.588	0.09	0.328	0.414	0.761
TWEAK	0.718	0.08	0.015	0.560	0.876
sCD163/TWEAK ratio	0.895	0.06	<0.001*	0.774	0.999

AUC, area under the curve; SE, standard error; CI, confidence interval.