Supplementary Material for

A Randomized Crossover Air Purifier Intervention Study of Patients with Stable Coronary Artery Disease

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Table S1 The literature review on the effect of statins on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Atorvastatin	Patients with undergoing coronary artery surgery	IL-6	↓	3W	29:28	61.3±7.7:61.8±7.4	Vukovic et al. 2010	case-control
2	Atorvastatin	Patients with hyperlipidemia	TNF-α IL-6	↓ ↓	8W	45	50±2（18-71）	Ascer et al. 2004	pre- and post-control
3	Rosuvastatin	Patients with hypertension complicated with dyslipidemia	IL-6 TNF-α CHO LDL-C TG HDL-C	↓ ↓ ↓ ↓ ↓ ↓	12W	16:14	56±8.8:54±8.01	Gómez-García et al. 2007	case-control
4	Atorvastatin	Patients with unstable angina	CRP	↓	16W	2322	——	Kinlav et al. 2002	pre- and post-control
5	Atorvastatin	Patients with SCAD & high SCAD risk	CRP	↓	1M/3M	155	——	Riesen et al. 2002	pre- and post-control
6	Atorvastatin	Patients with CAD	CHO HDL-C LDL-C TG ICAM-1 CD62P	↓ ↑ ↓ ↓ ↓ ↓	12M	28	——	Seljeflot et al. 2002	pre- and post-control

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
6	Simvastatin	Patients with CAD	CHO HDL-C LDL-C TG ICAM-1 CD62P	↓ ↑ ↓ ↓ ↓ ↓	12M	30	——	Seljeflot et al. 2002	pre- and post-control
7	Simvastatin	Patients with hyperlipidemia	IL-6 sCD62P sCD40L	↓ ↓ ↓	2M	25:20	59±13:55±11	Barale et al. 2018	case-control
8	Atorvastatin	Patients with hyperlipidemia	sCD40L	↓	4W	32	60.3±13.2	Chu et al. 2006	pre- and post-control
9	Simvastatin	Patients with SCAD	ET-1	↓	2W	16	——	Li et al. 2005a	pre- and post-control
10	Pravastatin	Patients with hypertension complicated with dyslipidemia	ET-1	↓	16W	25	53±2	Glorioso et al. 1999	pre- and post-control
11	Atorvastatin	Patients with SCAD	FIB	↓	12W	36	53±9	Atalar et al. 2002	pre- and post-control
12	Fluvastatin	Patients with CAD complicated with dyslipidemia	FIB	↓	24W	82:86	57±8:56±8	Cortellaro et al. 2000	case-control

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
13	Atorvastatin	Patients with hyperlipidemia	hsCRP MMP-9 PAI-1	↓ ↓ ↓	12W	34	59.2±9.3	Qu et al. 2009	pre- and post-control
	Rosuvastatin	Patients with hyperlipidemia	hsCRP MMP-9 PAI-1	↓ ↓ ↓	12W	35	57.7±11.1		
14	Simvastatin	Patients with CAD complicated with dyslipidemia	MMP-9 PAI-1	↓ ↓	14W	13	67±8	Koh et al. 2001	pre- and post-control
15	Simvastatin	Patients with CAD complicated with dyslipidemia	CRP TNF-α MMP-9 TIMP-1	↓ ↓ ↓ ↓	14W	32:31	62±7:62±8	Koh et al. 2002	case-control
16	Rosuvastatin	Patients with CHF	MMP-2 MMP-9	↓ ↓	1M	—— ——	—— ——	Tousoulis et al. 2010	pre- and post-control
17	Pravastatin	Patients with CAD	MMP-2	↓	2M	24	68±2	Fujiwara et al. 2008	pre- and post-control
18	Simvastatin	Patients with CAD complicated with dyslipidemia	MMP-9 TIMP-1	↓ ↓	8W	27	53	Koh et al. 2004	pre- and post-control

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
19	Atorvastatin	Patients with hyperlipidemia (64% with CAD)	LDL-C	↓	6W	639	61.7(18-80)	Karalis et al. 2002	pre- and post-control
			TG	↓					
			CHO	↓					
			HDL-C	↑					
		Patients with hyperlipidemia (63% with CAD)	LDL-C	↓	6W	641	61.5(18-80)		
			TG	↓					
			CHO	↓					
			HDL-C	↑					
	Simvastatin	Patients with hyperlipidemia (62% with CAD)	LDL-C	↓	6W	207	61.3(18-80)		
			TG	↓					
			CHO	↓					
			HDL-C	↑					
		Patients with hyperlipidemia (67% with CAD)	LDL-C	↓	6W	207	61.5(18-80)		
			TG	↓					
			CHO	↓					
			HDL-C	↑					

Table S2 The literature review on the effect of β-blockers on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Metoprolol	Patients with CHF	IL-6 TNF-α	↓ ↓	6M	48	61±12	Li et al. 2005b	pre- and post-control
2	Metoprolol/Bisoprolol	Patients with IDCM	TNF-α	↓	12W	32	61（26-74）	Ohtsuka et al. 2001	pre- and post-control
3	Propranolol/Atenolol/ Metoprolol/Carvedilol	Patients with unstable angina	CRP	↓ ↓ ↓ ↓	admitted to hospital 24H 48H out of the hospital	20:30	60±11：60±10	Doo et al. 2001	case-control
			IL-6	↓ ↓	admitted to hospital 24H	20:30	60±11：60±10		
4	Nebivolol	Patients with hypertension	hsCRP	↓	12W	15	——	Rizos et al. 2003	pre- and post-control
	Atenolol	Patients with hypertension	hsCRP CHO	↓ ↓	12W	15	—— ——		
5	Atenolol	Patients with high risk of CAD	ET-1	↓	4W	22	——	Seljeflot et al. 1999	pre- and post-control
6	Carvedilol	Patients with hypertension	ET-1	↓	3M	35	66.3±4.7	Dong and Yang 2012	pre- and post-control

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
7	Atenolol	Patients with hypertension	FIB	↓	6M	26	40~65	Makris et al. 2000	pre- and post-control
8	Celiprolol	Patients with hypertension	FIB CHO LDL-C TG	↓ ↓ ↓ ↓	12M	12	39.8	Herrmann and Mayer 1988	pre- and post-control
9	Nebivolol	Patients with hypertension	CHO TG	↓ ↓	6W	6376	>65	Fallois and Faulhaber 2001	pre- and post-control
10	Nebivolol	Patients with hypertension	CHO LDL-C	↓ ↓	12W	26	51.5±10.4	Lacourcière et al. 1992	pre- and post-control

Table S3 The literature review on the effect of Ca-channel blockers on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Nifedipine	DBA/2 mice inoculated with encephalomyocarditis virus	IL-6 TNF-α MMP-2 MMP-9	↓ ↓ ↓ ↓	5D	10:10	4 W	Liu et al. 2009	case-control
2	Barnidipine	Patients with hypertension	IL-6 TNF-α hsCRP	↓ ↓ ↓	6M	149	——	Derosa et al. 2015	pre- and post-control
3	Nifedipine	Patients with hypertension	TNF-α CRP	↓ ↓	12W	83	63.02±2.15	Jiang and Wang 2019	pre- and post-control
4	Lercanidipine	Patients with hypertension	MMP-9	↓	15D	7	48.9±5.3	Martinez et al. 2006	pre- and post-control
5	Barnidipine	Patients with hypertension	hsCRP TNF-α MMP-2 MMP-9	↓ ↓ ↓ ↓	6M	75	60.5±8.9	Derosa et al. 2016	pre- and post-control
	Lercanidipine	Patients with hypertension	MMP-2 MMP-9	↓ ↓	6M	76	60.7±8.8		

Table S4 The literature review on the effect of Clopidogrel on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Clopidogrel	Patients with ACS	TNF-α hsCRP	↓ ↓	30D	57:58	53.5±14.9:52.5±16.9	Chen et al. 2006	case-control
2	Clopidogrel	Patients with SCAD	TNF-α	↓	1Y	101	61(52,79)	Seljeflot et al. 2017	pre- and post-control
3	Clopidogrel	Patients with SCAD	hsCRP CD40L	↓ ↓	5W	77:26	64±4:65±3	Heitzer et al. 2006	case-control
4	Clopidogrel	Patients with SCAD	CD40L	↓	8W	37:36	64±11:66±8	Azar et al. 2006	case-control
5	Clopidogrel	Patients with CAD	CD62P	↓	＞3M	8:17	72(50-81):71(46-88)	Klinkhardt et al. 2003	case-control
6	Clopidogrel	Patients with ACS	sCD40L sCD62P	↓ ↓	24H	23	58±10	Xiao and Theroux 2004	pre- and post-control
7	Clopidogrel	Patients with unstable angina	MMP-2 MMP-9	↓ ↓	4W	35	64.2±6.7	Xu and Chen 2013	case-control
8	Clopidogrel	Patients with ischemic stroke	MMP-9	↓	4W	35:35	64.1±7.1:63.7±6.7	Zhang and Ding 2013	case-control
9	Clopidogrel	Patients with ischemic stroke	MMP-9	↓	2W	37	68.1±7.8	Zhang et al. 2013	pre- and post-control
10	Clopidogrel	Mice with AMI	TNF-α MMP-2 MMP-9	↓ ↓ ↓	8W	10:10	——	Korish 2020	case-control

Table S5 The literature review on the effect of Aspirin on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Aspirin	Patients with chronic stable angina	IL-6 CRP	↓ ↓	3W	40	55±5	Ikonomidis et al. 1999	pre- and post-control
2	Aspirin	Patients with angina	IL-6 TNF-α hsCRP	↓ ↓ ↓	4W	30	47.32±5.54	Wang et al. 2017	pre- and post-control
3	Aspirin	Patients with angina	TNF-α hsCRP CHO	↓ ↓ ↓	4W	40	——	Yin 2018	pre- and post-control
4	Aspirin	Patients with hypertension	sCD62P	↓	3M	35	64±7	Nadar et al. 2006	pre- and post-control
5	Aspirin	Patients with CAD	CD62P	↓	2W	41	——	Hou et al. 2010	pre- and post-control
6	Aspirin	Patients with angina	NO	↑	——	30	58.4±8.2	Zhai et al. 2005	case-control
7	Aspirin	Patients with SCAD	NO	↑	12W	37	64	Hetzel et al. 2013	pre- and post-control
8	Aspirin	Patients with unstable angina	CHO LDL-C	↓ ↓	4W	46	53.03±8.67	Su 2017	pre- and post-control
9	Aspirin	New Zealand rabbits with hyperlipidemia atherosclerotic	CHO LDL-C	↓ ↓	4W	—— ——	—— ——	Hua et al. 2009	pre- and post-control

Table S6 The literature review on the effect of ACEI/ARB on the indicators

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
1	Irbesartan	Patients with CAD complicated with arterial hypertension	IL-6	↓	3M	21	56±8	Schieffer et al. 2004	pre- and post-control
			hsCRP	↓					
			MMP-9	↓					
	Enalapril	Patients with CAD complicated with arterial hypertension	MMP-9	↓	3M	21	56±8		
2	Candesartan	Patients with congestive heart failure	IL-6	↓	14W	44	55.6±3.3	Tsutamoto et al. 2000	pre- and post-control
			TNF-α	↓					
			sICAM-1	↓					
3	Losartan	Patients with hypertension	TNF-α	↓	3M	16	42±4	Cottone et al. 1998	pre- and post-control
			TNF-α	↓	6M	16	42±4		
4	Ramipril	Patients with high cardiovascular risk	hsCRP	↓	6M	77	60±11	Lopez Santi et al. 2005	pre- and post-control
5	Ramipril	SD rats with hypercholesterolemia	ICAM-1	↓	10W	10:10	——	Li et al. 2003	pre- and post-control
	Losartan	SD rats with hypercholesterolemia	ICAM-1	↓	10W	10:10	——		
6	Irbesartan	Patients with hypertension	FIB	↓	6M	28	40~65	Makris et al. 2000	pre- and post-control
7	Perindopril	Patients with hypertension	FIB	↓	6W	28	43-64	Fogari et al. 1998	pre- and post-control

ID	Drug names	Subjects	Indicators	Change	Medication Duration	Sample Size (n)	Age	References	Design
8	Candesartan	Patients with hypertension	MMP-9	↓	3M	17	47±8	Onal et al. 2009	pre- and post-control
	Lisinopril	Patients with hypertension	MMP-9	↓	3M	16	47±8		

Table S7 Analysis model of each indicator and the interpretation contribution rate of its variables to the model

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
IL-6	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED [a] +(1|ID)	1.74	(-20.72,29.82)	0.891	135.75	Model	0.110	
						ED	0.074	67.27%
						Age	0.052	47.27%
						BMI	0.009	8.18%
						Gender	0.001	0.91%
						$PM_{2.5}$	<0.001	<0.01%
TNF-α	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-2.57	(-7.33,2.31)	0.293	51.36	Model	0.098	
						Gender	0.057	58.16%
						Age	0.029	29.59%
						ED	0.008	8.16%
						$PM_{2.5}$	0.002	2.04%
						BMI	<0.001	<0.01%
CRP	log (Indicator) ~ $PM_{2.5}$+Gender+BMI+Temp [b] +ED+(1|ID)	-23.43	(-39.03, -3.62)	0.027	127.5	Model	0.143	
						$PM_{2.5}$	0.078	54.55%
						ED	0.076	53.15%
						Temp	0.018	12.59%
						BMI	0.015	10.49%
						Gender	<0.001	<0.01%

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
FIB	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-2.81	(-8.90,2.94)	0.37	30.71	Model	0.234	
						Age	0.142	60.68%
						BMI	0.078	33.33%
						Gender	0.073	31.20%
						ED	0.036	15.38%
						$PM_{2.5}$	0.016	6.84%
CD62P	log (Indicator) ~ $PM_{2.5}$+Gender+BMI+Temp+ED+(1|ID)	-1.14	(-5.61,4.42)	0.649	23.5	Model	0.194	
						BMI	0.153	78.87%
						ED	0.044	22.68%
						$PM_{2.5}$	0.002	1.03%
						Temp	<0.001	<0.01%
						Gender	<0.001	<0.01%
CD40L	log (Indicator) ~ $PM_{2.5}$+Gender+BMI+Temp+ED+(1|ID)	1.76	(-7.24,16.36)	0.728	65.41	Model	0.060	
						Temp	0.044	73.33%
						$PM_{2.5}$	0.002	3.33%
						ED	0.001	1.67%
						Gender	<0.001	<0.01%
						BMI	<0.001	<0.01%

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
ICAM-1	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-1.18	(-3.60,1.28)	0.335	27.73	Model	0.204	
						BMI	0.184	90.20%
						ED	0.038	18.63%
						Age	0.027	13.24%
						Gender	0.021	10.29%
						$PM_{2.5}$	<0.001	<0.01%
NO	log (Indicator) ~ $PM_{2.5}$+Gender+BMI+Temp+ED+(1|ID)	-10.31	(-25.49,10.42)	0.284	115.94	Model	0.153	
						Gender	0.066	43.14%
						Temp	0.042	27.45%
						BMI	0.031	20.26%
						$PM_{2.5}$	0.022	14.38%
						ED	0.008	5.23%
ET-1	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-6.2	(-12.98,0.82)	0.082	81.94	Model	0.144	
						Gender	0.096	66.67%
						Age	0.068	47.22%
						ED	0.021	14.58%
						BMI	0.013	9.03%
						$PM_{2.5}$	0.005	3.47%

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
MMP-2	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	3.9	(-0.91,8.44)	0.097	11.58	Model	0.058	
						$PM_{2.5}$	0.035	60.34%
						Age	0.021	36.21%
						BMI	0.007	12.07%
						ED	0.002	3.45%
						Gender	<0.001	<0.01%
MMP-9	log (Indicator) ~ $PM_{2.5}$+Gender+Temp+RH [c] +ED+(1|ID)	-4.59	(-14.90,7.48)	0.448	83.04	Model	0.261	
						Gender	0.153	58.62%
						RH	0.148	56.70%
						Temp	0.075	28.74%
						ED	0.037	14.18%
						$PM_{2.5}$	0.012	4.60%
TIMP-1	log (Indicator) ~ $PM_{2.5}$+Gender+Temp+RH+ED+(1|ID)	-1.83	(-4.11,0.52)	0.135	-18.04	Model	0.115	
						RH	0.046	40.00%
						Gender	0.041	35.65%
						Temp	0.039	33.91%
						$PM_{2.5}$	0.011	9.57%
						ED	0.003	2.61%

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
CHO	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	3.66	(-0.75,8.85)	0.129	12.74	Model	0.494	
						Gender	0.342	69.23%
						ED	0.126	25.51%
						BMI	0.105	21.26%
						$PM_{2.5}$	0.033	6.68%
						Age	0.001	0.20%
TG	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-2.34	(-9.96,6.71)	0.583	67.26	Model	0.336	
						ED	0.196	58.33%
						BMI	0.176	52.38%
						Gender	0.162	48.21%
						Age	0.004	1.19%
						$PM_{2.5}$	0.002	0.60%
HDL-C	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	4.09	(-0.08,8.39)	0.05	21.68	Model	0.144	
						Gender	0.063	43.75%
						Age	0.026	18.06%
						$PM_{2.5}$	0.013	9.03%
						ED	0.003	2.08%
						BMI	<0.001	<0.01%

	Models	%change of IQR	95%CI	p-value	AIC	Variables	R^2	Contribution
LDL-C	log (Indicator) ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	7.21	(0.09,17.92)	0.075	47.03	Model	0.314	
						Gender	0.215	68.47%
						BMI	0.083	26.43%
						$PM_{2.5}$	0.059	18.79%
						ED	0.016	5.10%
						Age	<0.001	<0.01%
	Models	β	95%CI	p-value	AIC	Variables	R^2	Contribution
AIP	Index ~ $PM_{2.5}$+Age+Gender+BMI+ED+(1|ID)	-0.001 [d]	(-0.003,0.001)	0.226	23.35	Model	0.340	
						ED	0.253	74.41%
						BMI	0.140	41.18%
						Gender	0.054	15.88%
						Age	0.012	3.53%
						$PM_{2.5}$	0.010	2.94%

[a] ED: effective drug

[b] Temp: Temperature

[c] RH: relative humidity;

[d] AIP is normally distributed, so there is no need for logarithmic conversion. Therefore, there result shows the correlation coefficient β of $PM_{2.5}$ instead of percentage change associated with a $PM_{2.5}$ interquartile range decrease.

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