

PASSIVE SMOKING AND CIRCULATION

Table 1. Hemodynamic Change Due to Passive Smoking*

	HR, beats/min	SBP, mm Hg	DBP, mm Hg	MAP, mm Hg	RPP
Nonsmokers					
Before passive smoking					
Baseline	61.1 (8.3)	108.6 (10.6)	64.3 (7.3)	86.5 (8.6)	5264.4 (797.2)
Hyperemia	64.2 (9.6)	104.9 (10.2)	59.2 (8.7)	82.1 (8.7)	5257.9 (922.2)
After passive smoking					
Baseline	61.8 (8.5)	110.2 (11.1)	62.3 (5.9)	86.2 (8.1)	5329.1 (912.1)
Hyperemia	64.2 (9.8)	106.9 (12.0)	60.6 (6.0)	83.8 (8.5)	5360.2 (890.6)
Smokers					
Before passive smoking					
Baseline	58.9 (5.7)	105.4 (11.7)	63.3 (10.1)	84.3 (10.4)	4956.5 (724.9)
Hyperemia	64.7 (10.6)	102.6 (11.4)	58.9 (10.3)	80.7 (10.4)	5251.1 (1271.4)
After passive smoking					
Baseline	62.3 (7.8)	107.1 (12.0)	64.1 (10.5)	85.6 (11.0)	5359.4 (1086.6)
Hyperemia	65.9 (11.2)	104.5 (10.5)	59.8 (8.8)	82.1 (9.4)	5429.8 (1222.9)

Repeated Measures ANOVA†

Group	.97	.46	.97	.65	.87
Passive smoking	.20	.24	.78	.36	.13
Group × passive smoking	.34	>.99	.53	.79	.39
Adenosine	.01	.001	<.001	<.001	.26
Group × adenosine	.44	.66	.55	.95	.32
Passive smoking × adenosine	.21	.81	.24	.37	.36
Passive smoking × group × adenosine	.52	.91	.27	.43	.20

*HR indicates heart rate; SBP, systolic blood pressure; DBP, diastolic blood pressure; MAP, mean arterial pressure; RPP, rate pressure product (beats per minute × mm Hg); and ANOVA, analysis of variance. Data presented as mean (SD).

†Data presented as *P* values.

Table 2. Carbon Monoxide Level in Air and Carboxyhemoglobin Level in Blood*

	Setting	
	Echocardiographic Laboratory	Smoking Room
CO, ppm		
Nonsmokers	0.40 (0.21)	6.02 (0.88)
Smokers	0.52 (0.17)	6.32 (0.88)
	Status	
	Before Passive Smoking	After Passive Smoking
Hbco, %		
Nonsmokers	0.24 (0.18)	1.57 (0.32)
Smokers	2.49 (1.78)	2.67 (1.79)

Repeated Measures ANOVA

	F Value	P Value
CO, ppm		
Group effect	1.6	.22
Setting effect	1271.2	<.001
Interaction effect	0.3	.58
Hbco, %		
Group effect	13.6	.001
Passive smoking effect	65.2	<.001
Interaction effect	37.9	<.001

*Data presented as mean (SD). For each statistic, *df* = 1, 28. CO indicates carbon monoxide; Hbco, carboxyhemoglobin level; and ANOVA, analysis of variance.

no effect on hemodynamic parameters including heart rate, blood pressure, mean arterial pressure, and heart rate–blood pressure product in each group (Table 1).

Carbon Monoxide and Hbco Level

The results of repeated measures ANOVA analysis for carbon monoxide level in air and HbCO level in blood are presented in TABLE 2. Carbon monox-

ide level in the smoking room was higher than that in the echocardiographic laboratory for both nonsmokers and active smokers. There were significant group, passive smoking, and interaction effects on HbCO level over passive smoking between both groups. Before passive smoking, the HbCO level in the blood was significantly lower in nonsmokers than in active smokers. Passive smoking significantly increased HbCO level in nonsmokers but did not significantly increase HbCO level in active smokers.

Coronary Flow Velocity

Coronary flow velocity could be observed at baseline and during hyperemia in all subjects. There was a significant interaction effect between the 2 groups over adenosine triphosphate administration before and after passive smoking (TABLE 3 and FIGURE 1). Coronary flow velocity during hyperemia in nonsmokers was significantly higher than that in active smokers before passive smoking. This parameter was quite similar in the 2 groups after passive smoking. Thus, CFVR in nonsmokers was significantly higher than that in ac-