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IMPACT OF SMOKING AND SMOKING CESSATION ON ARTERIAL STIFFNESS IN HEALTHY INDIVIDUALS
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Background The majority of studies identified chronic smoking is associated with increased arterial stiffness. However, whether arterial stiffness is improved and reversed after smoking cessation and the timeline in which this may occur are unknown. Therefore, we prospectively investigated the effects of smoking and 6, 12 months quitting smoking programme on aortic stiffness in healthy subjects.

Methods 187 healthy male subjects were recruited in this study and were divided into current smoking group and non-smoking group. The case of 6 months and 12 months arterial stiffness was prospectively observed in the subjects who got the will on smoking cessation and successfully achieved cessation. Ankle-brachial index (ABI) and brachial-ankle pulse wave velocity (baPWV) were measured by the VP-1000 automatic arteriosclerosis measurement system.

Results ABI was lower in current smoker than in non-smoker, (1.05 VS1.26, p<0.01). BaPWV was significantly higher in current smokers than in non-smokers (1510.67 vs 1303.23, p<0.01). At the end of 12-month follow-up time, 31 patients quit smoking successfully (carbon monoxide confirmed) and completed the study. No significant difference in ABI (1.04 vs 1.06, p=0.479 baseline vs 6 month; 1.06 vs 1.07, p=0.143 6 months vs 12 months) between baseline and the end of 6 months, at the end of 6 months and the end of 12 months. However, there was significant difference in ABI between the end of 12 months and baseline (1.04 vs 1.07, p=0.03). There was no significant difference in baPWV (1520.15 vs 1511.47 vs 1506.66, p=0.438; 0.066; 0.283) among baseline, 6th month and 12th month, although the baPWV was lowest at the end of 12 months.

Conclusions Cigarette smoking might increase arterial stiffness. 12 months of smoking cessation is associated with improvement of arterial stiffness, but that improvement is not significant.