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STRUCTURAL AND FUNCTIONAL CHANGES OF CORONARY ARTERY IN ELDERLY SENILE PATIENTS WITH ESSENTIAL HYPERTENSION

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Hu Jun, Zhu Fu. *ShangHai XuHui Central Hospital*

Objectives To evaluate the effect of aging on the changes of structure and function of artery in elderly senile patients with essential hypertension.

Methods Aged 80 or above are the very elderly, aged 60 or above and below 80 are the elderly. Patients were divided into very elderly with hypertension (Group I, 84 cases), very elderly without hypertension (Group II, 18 cases), and elderly with hypertension (Group III, 48 cases). All above 132 cases hypertensive patients were divided according to duration of hypertension into four sub-groups: Group A: >0 and ≤10 years (29 cases), >10 and ≤20 years (32 cases), >20 and ≤30 years (44 cases), >30 and ≤40 years (27 cases). All those patients were tested the following index by 64 coronary CT scan: right coronary artery calcification score (CS_{RCA}), left main coronary artery calcification score (CS_{LM}), left anterior descending coronary artery calcification score (CS_{LAD}), left circumflex coronary artery calcification score (CS_{LCX}); the total coronary calcification score (TCS). The 24 h systolic blood pressure (24 h SBP) were measured by using ambulatory BP monitoring (ABPM). Weight and height were measured and calculated to be BMI. Total cholesterol, triglyceride, High-density lipoprotein, Low-density lipoprotein, haemoglobin A1c (HbA1c), and glucose levels were measured in blood samples obtained after a 12-h fast.

Results The value of 24 h SBP, smoking ratio, FPG, HbA1c, TG between the Group I and Group III is similar. The BMI, TC and LDL were lower in Group I than in Group III ($p < 0.01$), but higher with age and HDL in Group I ($p < 0.01$ and $p < 0.05$, respectively). The CS_{LAD}, TCS and PP, as well as CS_{LM}, CS_{LCX} and PP were significantly increased in Group I than those in Group III ($p < 0.01$ and $p < 0.05$, respectively), but no difference with CS_{RCA}. The value of 24 h SBP of Group I is higher than in Group II ($p < 0.01$), no difference in age, smoking persons, BMI, TG, TC, HDL, LDL, FPG, HbA1 ($p > 0.05$). There were no significant differences in CS_{RCA}, CS_{LM}, CS_{LAD}, CS_{LCX}, TCS between Group I and Group II ($p > 0.05$). It was the same with IMT levels in 3 groups ($p > 0.05$). The TCS level was positively correlated with the duration of hypertension in elderly hypertensive patients ($r = 0.160$, $p = 0.036$). The level of 24 h SBP is positively correlated with the duration of hypertension ($r = 0.223$, $p = 0.003$) as well. But there was no correlation between with PP level and the duration of hypertension ($r = 0.138$, $p = 0.072$).

Conclusions In elderly patients, accompany aging, there may be a decreasing trend in the levels of BMI, HDL, TC and LDL. Meanwhile, the decline of arterial compliance and increase of arterial stiffness developed with aging. Aging is more likely lead to atherosclerosis in coronary artery, especially in the left main coronary and its main branches. Aging is a uncontrolled risk factor, which had played an crucial role in coronary artery atherosclerosis. Therefore, it is a priority to anti-oxidise and prevent senility.