Importance of Risk Control on the Incidence of Aortic Artery Disease-Related Disease in Epidemiological Studies

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Hypertension is the primary factor predisposing to aortic dissection. A recent epidemiological survey from Taiwan suggested significant ratios for coronary atherosclerosis, hypertension, dyslipidemia and diabetes of 7.97, 2.09, 2.48 and 1.51, respectively. The effect of hypertension differs according to the type of aortic aneurysm. Patients with descending thoracic aortic aneurysms are more hypertensive (82% vs. 59%, P<0.001) and have a higher burden of atherosclerosis (88% vs. 9%, P<0.001) than those with ascending thoracic aortic aneurysms.

In the report by Takeuchi et al., the frequency of male sex, total protein level, rate of current smoking and alcohol intake were greater for Stanford type B dissection than for type A, suggesting there may be different pathophysiologic background in each group. In the reports from Asia, Wang et al. suggested that the incidence of aortic aneurysm was associated with age and sex differences. It was much higher in those older than 65 years, especially for males. Hypertension, coronary artery disease (CAD), and chronic obstructive pulmonary disease (COPD) were prevalent comorbidities. A total of 88% of patients were prescribed antihypertensive agents in the acute phase, of which 61.4% were calcium-channel blockers. Yeh et al. also reported that hypertension was the most common risk factor, followed by CAD and COPD. Within 1 year of acute aortic dissection diagnosis, 92% of patients were taking antihypertensive medication. Calcium-channel blockers were the most frequently prescribed antihypertensive medication in a long-term observation in Taiwan. It is interesting to note that the annual trends revealed statistically significant increases in the numbers and percentages of prevalence, incidence, and death in Asia. In a report from Europe of patients with ascending aortic aneurysm, women were significantly older when operation was indicated (P<0.001) and presented with significantly more hypertension (P=0.04) and COPD (P=0.017), whereas men had significantly more previous cardiac operations (P=0.016).

As for abdominal aortic aneurysm (AAA), age ≥65 years (P=0.029), smoking (P=0.037), hypertension (P=0.026), and aortic root diameter >30mm (P=0.003) were independent predictors in a multivariate analysis. Jahangir et al. reported that AAA risk was lower among women (hazard ratio (HR) 0.48, 95% confidence interval (CI) 0.36–0.65) and blacks (HR 0.51, 95% CI 0.37–0.69). They also reported that smoking was the strongest risk factor and a history of hypertension was the next one. In their meta-analysis, Li et al. demonstrated that hypertension, smoking, CAD, dyslipidemia, respiratory disease, cerebrovascular disease, claudication and renal insufficiency were risk factors for AAA in Europe. The prevalence of AAA is higher in Australia than in America and Europe. The pooled prevalence in Western countries is higher than in Asia.

In this issue of the Journal, Otaki et al. report that both systolic and diastolic blood pressures are risk factors for aortic artery diseases (AAD)-related death. There is the first prospective study and of critical importance in the primary prevention of AAD-related deaths. Although they defined the endpoint of AAD-related death as aortic dissection and aortic aneurysmal rupture, it may be more...
important to control blood pressure and to prevent the risk factors for atherosclerotic disease at the first stage of aneurysm\(^1\). (Table)

## References

4. Fang CT, Fang YP, Huang YB, Kuo CC, Chen CY. Epidemiology and risk factors of coronary artery aneurysm in Taiwan: A population based case control study. *BMJ Open* 2017; **7**:e014424.