P69 The Initial Upstroke Time is Most Strongly Associated with the Severity of aortic Stenosis Among Brachial Pulse Wave Parameters

Masao Takahashi1,*, Kyohei Fukatani2, Tomoyuki Kabutoya3, Satoshi Hoshide3, Tatsuya Yoneyama4, Tetsuya Ito2, Kazuomi Kario3

1Department of Cardiovascular Medicine, Jichi Medical University, Shimotsuke, Japan
2Academic Promotion Section, Fukuda Denshi Co., Ltd.
3Jichi Medical University, Japan
4R&D Head Office, Fukuda Denshi Co., Ltd.

ABSTRACT

Background: Aortic valve stenosis (AS) is the most common valve disease in an elderly population, therefore, simple screening examination for AS is needed. Although a prolonged carotid upstroke time (UT), and prolonged ejection time (ET) of a brachial pulse wave (BPW) have been observed in severe AS patients, it has been unclear which BPW parameters have a better correlation with the severity of AS. The aim of this study was to examine which BPW parameters are most relevant to the severity of AS.

Methods: Sixty-five Consecutive moderate and severe AS patients who were evaluated by trans-thoracic echocardiography were enrolled in this study. Control patients who were adjusted for age, gender, and blood pressure among outpatients were enrolled (N = 110). UT, ET, initial upstroke time (iUT), and half rise time of upstroke (1/2 hrUT) were evaluated correlations between mean pressure gradient (mPG) among AS patients.

Results: iUT and 1/2 hrUT have significant correlations with mPG among AS patients (iUT: R = 0.50, 95% CI = 0.29–0.67, p < 0.0001; 1/2 hrUT: R = 0.41, 95% CI = 0.19–0.60, p < 0.001), whereas UT and ET did not. Multivariate logistic regression analysis showed area under curve (AUC) of iUT and 1/2 hrUT were higher than UT and ET to predict mPG >40 mmHg (AUC: iUT vs 1/2 hrUT vs UT vs ET = 0.90 vs 0.89 vs 0.69 vs 0.77).

Conclusion: The severity of AS appeared strongly in the first half of the BPW upstroke. iUT and 1/2 hrUT may be a simple and useful screening test to assess the severity of AS.