**100th General Meeting of the Japan Internal Medicine Association**
**Session: April 1-3, 2003**
**Venue: Fukuoka International Conference Hall**

Lecture: Dr. Junichi Hayashi
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Eight Additional Authors

Lecture Title: A Study of the Arterial Stiffness Index (ASI) and Insulin Resistance

Goal:
The Arterial Stiffness Index (ASI) is currently receiving considerable attention for its clinical usefulness as an indicator of arterial stiffness. ASI is employed as an indicator of arterial hardness in clinical research on arterial stiffness, rather than as an evaluator of the pathological change or progression of atherosclerotic arterial stiffness, and new knowledge continues to accumulate in this regard. In this research, the extent of the relationship between ASI and the Insulin Resistance Index HOMA-R was studied.

Method:
3,091 subjects (2,764 males and 327 females) participated in this study. The subjects' average age was 42 ± 6 years (34-68 years). Measurements were conducted in the morning with the subject in a fasted state. After the body (weight, height) and blood pressure were measured, blood was drawn for the following tests (peripheral blood, lipids, blood sugar, and insulin). The BMI and HOMA-R were then calculated from the measurement results. ASI was measured using the CardioVision Model MS-2000.

Results:
2,900 subjects fell at or below the ASI cutoff value of 70 (control group). 191 subjects scored above an ASI of 71 (high value group). The HOMA-R (2.0± 1.4) of the high value ASI group was significantly higher than the control group (1.6 ± 0.8). Multiple retrogression analysis recognized significant explanation variables for pulse pressure, total cholesterol, and HOMA-R.

Conclusion:
This study suggests the involvement of insulin resistance in hyper arterial stiffness (ASI).

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Lecture Title:

# The Relationship of the Arterial Stiffness Index to Carotid Artery Pathological Change and to Coagulable Fibrinolytic Lipids in Elderly Thrombosis Patients

Goal:
The brachial Arterial Stiffness Index, which employs the oscillometric method to quantify arterial elasticity, is now being recognized for its clinical application and ease of use. This study evaluates the relationship of ASI to pathological change of carotid artery stiffness and to coagulable fibrinolytic lipids.

Method:
The speakers measured the brachial ASI of thrombosis patients (stroke, ischemic heart disease, diabetes, chronic arterial occlusion (n=135, eg. 50 males, 50 women, average age 69.0 ± 10.9)). The Inner Membrane Thickness (IMT), Plaque Number (PN), and Total Plaque Length (TPL) of both sides of the carotid artery were measured using ultrasonic tomography equipment to evaluate carotid arterial stiffness. The relationship between ASI and the blood coagulable fibrinolytic lipid marker was then studied.

Results:
The correlation with ASI was as follows: age (r=0.28* , significant), systolic pressure (0.65* ), pulse pressure (0.70* ), PN(0.10), TPL (0.19), BMI (0.20), Lp (a) (0.22* ), Fbg (0.17), TAT (-0.05), TChol (0.003), HDL (-0.06) TG (0.10), LDL (-0.0004).

Conclusions:
The correlation recognized between ASI and pulse pressure, systolic pressure, and age conforms to previous reports. However, a correlation with both IMT and Lp (a) was also obtained, indicating a relationship with carotid arterial stiffness.