

A Study of the Arterial Stiffness Index in Diabetes Patients: Trial of a New Non-Invasive Arterial Hardness Estimation Procedure that Uses an Oscillometric Method

Third Department of Internal Medicine, Tokyo Medical University School of Medicine¹,
Kyorin University School of Health Sciences², Department of General Medicine, Kyorin University School of
Medicine³, Tokyo Metropolitan Toshima Hospital, Department of Internal Medicine⁴, National Public Service
personnel mutual Aid Associations Federation Tachikawa Hospital, Health Medicine Center⁵

Kazuhiro Hiramine¹, Takashi Miwa¹, Keiichiro Harashima², Toshiaki Takeichi³, Naoko Iwahashi¹,
Rie Kubota⁴, Rokuro Ito⁴, Masao Kanazawa¹, Yoko Notoya¹, Hideaki Sato⁵, Hideaki Shimazu²,
Juinchi Hayashi³, Toru Hayashi¹

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Introduction:

The CardioVision Model MS-2000 (distributed by IMDP Corporation USA) system applies the oscillometric method to measure arterial stiffness, which is quantified by the Arterial Stiffness Index (ASI). Using this device, we compared arterial stiffness in diabetes and non-diabetes patients.

Subjects and Method:

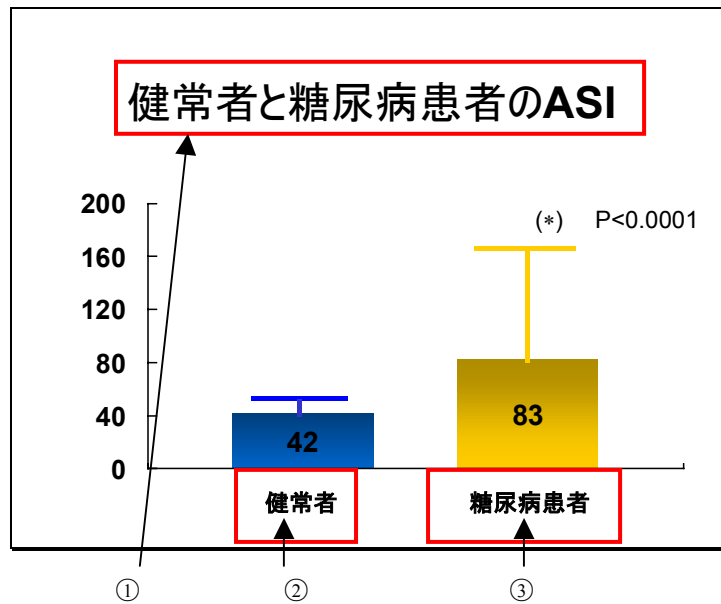
202 outpatients with Type 2 diabetes participated in this study. 54 regular medical checkup patients participated as a control group. ASI measurement was conducted with the subject in a sitting position and rested state and was repeated for each subject 3 to 5 times.

Result:

The diabetes patients' ASI of 104 was significantly higher than the non-diabetes patients' ASI of 41. A strong correlation with age, blood pressure, and BMI was also noted. When we categorized diabetes subjects by general danger factors, those patients who also had high blood pressure demonstrated a prominent increased ASI score.

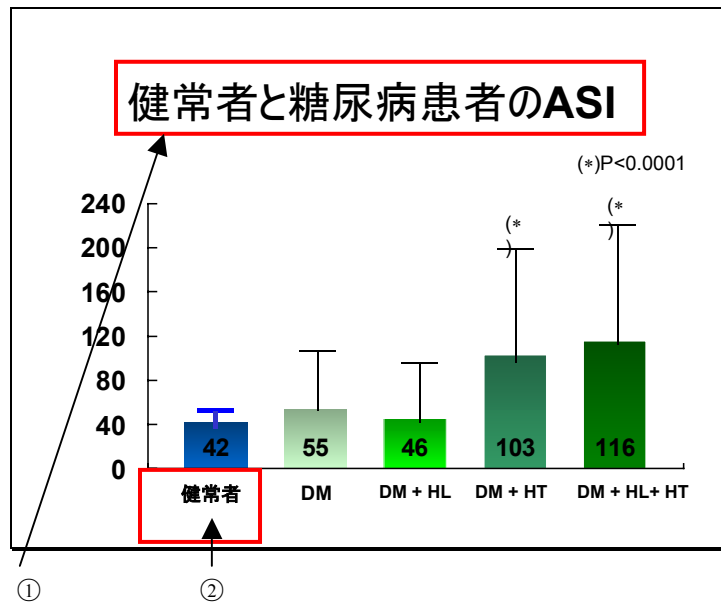
Observations:

Diabetes patients demonstrated significantly increased arterial stiffness. As data accumulates, we expect that the ASI system will emerge as a new non-invasive standard for measuring arterial stiffness.



English

- ① Normal/healthy subjects and diabetes patients' ASI
- ② Normal/ healthy subjects
- ③ Diabetes patient



English

① Normal/healthy subjects and diabetes patients' ASI

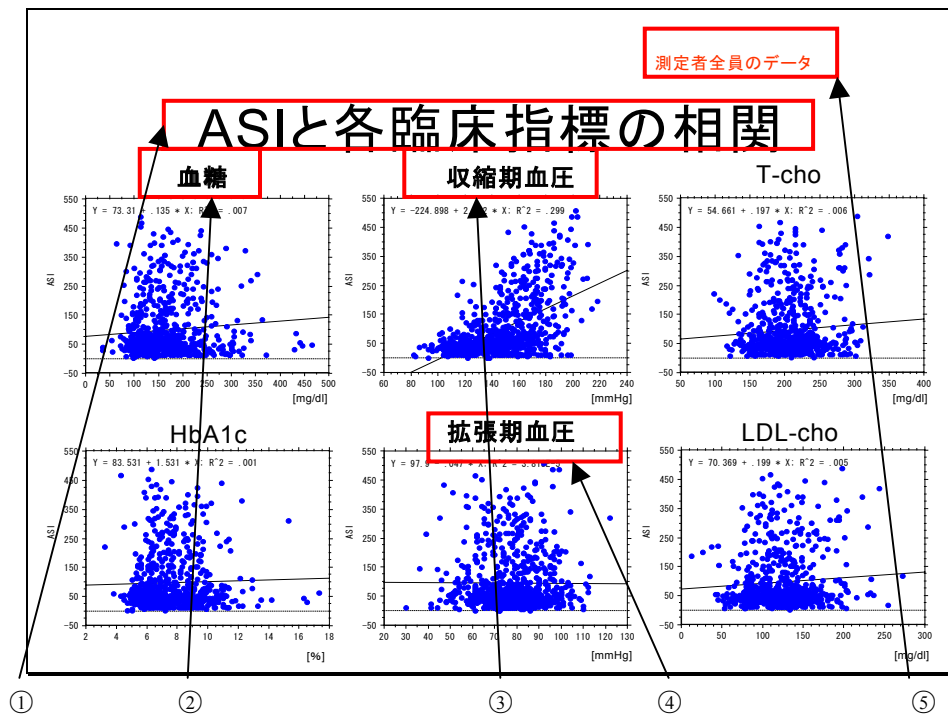
② Normal/ healthy subjects

ASI正常・異常群の各指標

	正常群	異常群	
④ → 収縮期血圧	140±22	162±23	P<0.001
⑤ → 拡張期血圧	77±12	81±14	P=0.045
T-CHO	199±34	215±44	P=0.02
LDL-CHO	118±30	137±40	P=0.004
HDL-CHO	54±17	53±13	n.s
TG	137±84	128±64	n.s
HbA1c	7.8±1.8	7.6±1.3	n.s
⑥ → DM罹病年数	10±8.4	13±8.5	P=0.035
BMI	24.3±16.0	24.3±3.2	n.s

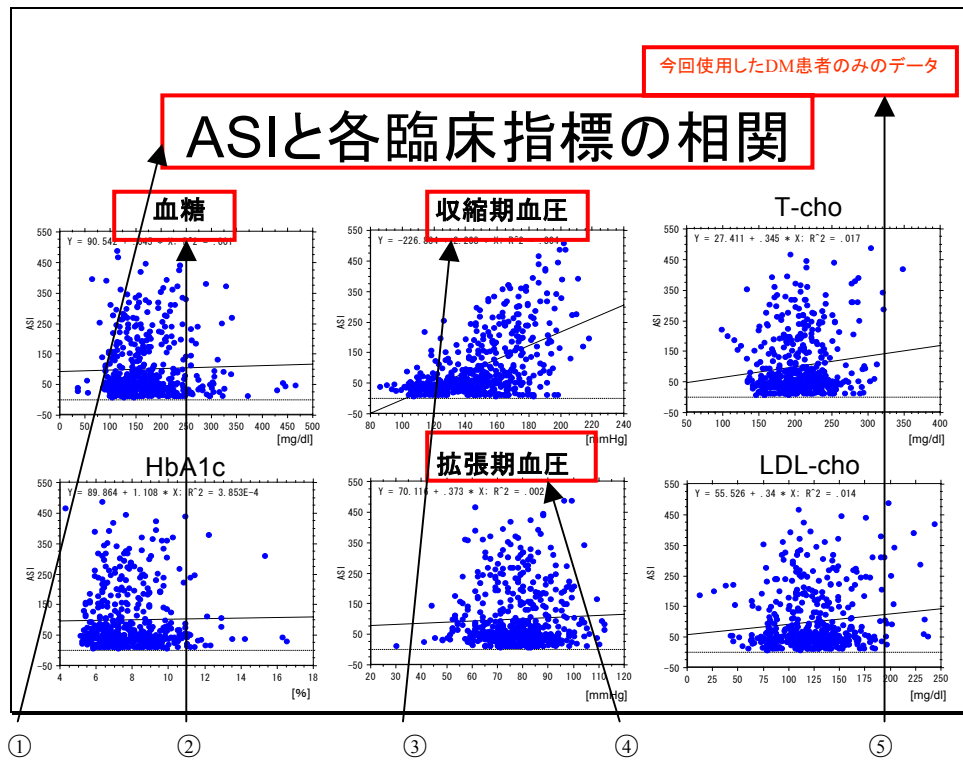
English

- ① Index for each ASI normal group/abnormal group
- ② ASI normal group
- ③ ASI abnormal group
- ④ Systolic blood pressure
- ⑤ Diastolic blood pressure
- ⑥ Number of years for which disease has been contracted



English

- ① Correlation between ASI and each clinical index
- ② Blood sugar
- ③ Systolic blood pressure
- ④ Diastolic blood pressure
- ⑤ Data for all measurement recipients



English

- ① Correlation between ASI and each clinical index
- ② Blood sugar
- ③ Systolic blood pressure
- ④ Diastolic blood pressure
- ⑤ The data for DM patients used (in this study)