Self measured home blood pressure was better than "clinic" blood pressure for predicting stroke in a Japanese population

Asayama K, Ohkubo T, Kikuya M, *et al.* Prediction of stroke by self-measurement of blood pressure at home versus casual screening blood pressure measurement in relation to the Joint National Committee 7 classification: the Ohasama study. *Stroke* 2004;**35**:2356–61.

Clinical impact ratings GP/FP/Primary care ★★★★★☆☆ IM/Ambulatory care ★★★★★☆☆ Neurology ★★★★★☆☆

Q In a Japanese population, is self measured home blood pressure (BP) or clinic BP measured by healthcare professionals accurate for predicting the risk of a stroke or transient ischaemic attack (TIA)?

METHODS

Design: a cohort of Japanese people followed up for a mean of 10.6 years (maximum of 13.9 y)

Setting: A rural community (Ohasama town) in Japan.

Participants: 1702 participants ⩾40 years of age (mean age 61 y, 61% women) who were followed up for the first onset of a stroke or TIA.

Description of prediction guide: in line with the Joint National Committee 7 criteria, participants were classified into groups 1–4 on the basis of either home or clinic BP (table). Groups 2, 3, and 4 were further divided into 2 subgroups (a and b): those without and with cardiovascular risk factors (eg, diabetes mellitus, smoking, hypercholesterolaemia, or history of cardiovascular disease), respectively. Risk of first stroke or TIA in each of these groups was estimated using the Cox proportional hazards model after adjusting for age and sex.

Outcomes: incidence of a first stroke or TIA confirmed by hospital records.

MAIN RESULTS

8.3% of participants had a stroke or TIA. The table shows hazard ratios for groups 2–4 compared with group 1.

For correspondence: Dr Y Imai, Tohoku University Graduate School of Pharmaceutical Science and Medicine, Sendai, Japan. rinsyo@bureau.tohoku.ac.jp

Source of funding: not stated

CONCLUSION

In a Japanese population, self measured home blood pressure was more consistent than "clinic" blood pressure for predicting the risk of stroke or transient ischeamic attacks.

Commentary

Many studies have confirmed that home BP readings are generally 8–12 mm Hg lower for systolic and 4–6 mm Hg lower for diastolic compared with office readings. Ambulatory BP monitoring (ABPM) further showed an association between the common occurrence of white coat hypertension and an intermediate cardiovascular risk relative to patients with normal BP and those with sustained elevations. Both home BP and ABPM provide more data by which to judge BP control than episodic clinic visits.[1] Home BP determinations carry some cautions for implementation and interpretation.[2 3] Morning readings offer useful correlates to circadian variation in risk factors (ie, high cortisol, high sympathetic tone, hypercoagulability, hypofibrinolysis, and drug concentration nadirs).[4] Other patient behaviour, like squatting or eating, may respectively raise or lower BP, predisposing to BP instability and stroke.[5] The study by Asayama *et al* builds on previous data[6] confirming the enhanced value of home BP as a predictor of target organ damage compared with office BP readings.

Peter Rudd, MD
Stanford University
Stanford, California, USA

1 Jain A, Krakoff LR. *Blood Press Monit* 2002;**7**:157–61.
2 Gerin W, Schwartz AR, Schwartz JE, *et al. Blood Press Monit* 2002;**7**:313–8.
3 Imai Y, Otsuka K, Kawano Y, *et al. Hypertens Res* 2003;**26**:771–82.
4 Shimada K, Kario K, Umeda Y, *et al.Blood Press Monit* 2001;**6**:349–53.
5 Hossain M, Ooi WL, Lipsitz LA. *J Clin Epidemiol* 2001;**54**:488–94.
6 Sakuma M, Imai Y, Tsuji I, *et al. Hypertens Res* 1997;**20**:167–74.

Self measured home blood pressure (HBP) *v* "clinic" blood pressure (CBP) measured by healthcare professionals for predicting the risk of stroke at a mean follow up of 10.6 years*

Type of BP	Category definitions	Systolic BP mm Hg		Diastolic BP mm Hg	CVD risk factors	Group	Hazard ratio (95% CI)
HBP	Normotension	<115	And	<75	Yes or no	1	1.0†
	Prehypertension	115–134	Or	75–84	No	2a	1.9 (0.9 to 4.1)‡
					Yes	2b	2.6 (1.2 to 5.5)‡
	Stage 1 hypertension	135–149	Or	85–94	No	3a	2.4 (1.1 to 5.3)
					Yes	3b	6.7 (3.2 to 14.3)‡
	Stage 2 hypertension	⩾150	Or	⩾95	No	4a	2.9 (1.1 to 7.6)
					Yes	4b	6.4 (2.8 to 14.6)
CBP	Normotension	<120	And	<80	Yes or no	1	1.0†
	Prehypertension	120–139	Or	80–89	No	2a	0.9 (0.5 to 1.8)
					Yes	2b	1.7 (0.9 to 3.0)‡
	Stage 1 hypertension	140–159	Or	90–99	No	3a	0.7 (0.3 to 1.6)
					Yes	3b	2.6 (1.4 to 4.9)‡
	Stage 2 hypertension	⩾160	Or	⩾100	No	4a	2.1 (1.0 to 4.2)
					Yes	4b	2.9 (1.3 to 6.6)

*BP = blood pressure; CVD = cardiovascular disease; CVD risk factors included diabetes mellitus, hypercholesterolaemia, smoking, and history of CVD. CI defined in glossary.
†Used as baseline for the respective type of BP.
‡Hazard ratios provided by author.