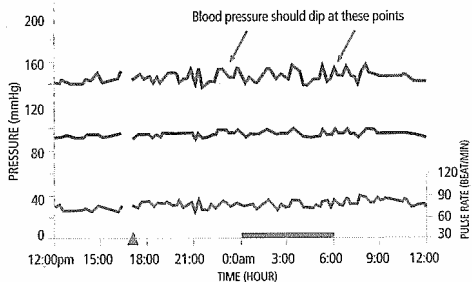


Section **Wellness**

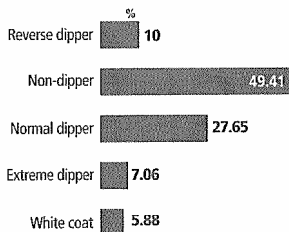
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## Blood pressure pattern

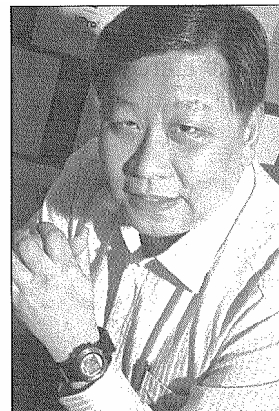
Sample of Non-dipper



Dipping status of 170 stroke patients



**Dr Ting:** He is the inventor of BPro, a digital watch that provides 24-hour monitoring of blood pressure



Source: HealthStats

# Don't wait till the pressure builds up

Thanks to a recent study involving stroke patients, doctors can better understand why people who are having strokes aren't necessarily those with hypertension, reports **CHEAH UI-HOON**

**T**HOSE with hypertension are four to six times more likely to get stroke, and 80 per cent of stroke patients are hypertensive, medical research tells us.

While the link between hypertension and stroke incidents is quite clear, now apparently the question to ask is, what type of hypertension is more likely to result in strokes? Not all who have high blood pressure get strokes, and there are also some who don't seem to have hypertension but are suddenly struck down by stroke later in life.

"The number of those having stroke is going up, while victims are also younger," observes Dr Ting Choon Meng on stroke incidents. Inventor of BPro, a digital watch that provides 24-hour monitoring of blood pressure, Dr Ting's company, HealthStats, recently collaborated with the National Neurology Institute (NNI) to do a test on stroke patients at the Singapore General Hospital's Stroke Centre.

Dr Ting and his co-investigator, Associate Professor Wong Meng Cheong, who is the senior consultant neurologist at NNI, did 24-hour ambulatory blood pressure measurements on 170 stroke patients to better under-

stand how blood pressure and related issues have an impact on them.

For example, do stroke patients with known hypertension control their hypertension well or poorly? Could stroke patients without known hypertension have undiagnosed hypertension? While most people take blood pressure measurements in the day, what about blood pressure readings at night and when they're asleep?

The results were quite revealing, especially as this is the first time such a study has been done, to the knowledge of the two doctors.

### Nocturnal readings

"What we found is that 50 per cent of stroke patients had a non-dip pattern in their 24-hour blood pressure reading," he says.

It might sound like a constellation, but the non-dipper isn't a stellar condition. It refers to blood pressure that doesn't experience a usual 10-15 per cent dip at night.

"Finding out that one out of two of the 170 stroke patients were non-dippers was a revelation," he says. This essentially means that these people don't realise they have a blood pressure problem because their blood pressure is normal in the day. "So

when they see a doctor in the day, and take their blood pressure, it shows up as normal."

Non-dippers aren't prevalent in the general population. If you took the blood pressure readings of 100 people at random, then usually, only 2 to 5 per cent would be found to be non-dippers. The majority would experience that night-time dip in their blood pressure readings.

As age increases, then naturally, non-dipping would become more prevalent, explains Dr Ting. For those aged above 60 years, about 30 per cent would be non-dippers.

"So, it's interesting to realise that two per cent of the population of young non-dippers later progresses to make up 50 per cent of those who suffer from stroke when they're older," he says. The average age of the 170 stroke patients in the study is 66 years.

This finding corroborates a major Dublin study, which found that if one's blood pressure at night is lowered by 10mmHg, it would bring down the risk of stroke by 20 per cent. For every 10mmHg increase of pressure during the day, it would have an 11 per cent increase of risk of stroke.

"So we know that nocturnal blood pressure is important,"

says Dr Ting, who's an avid advocate of getting a 24-hour pattern of blood pressure rather than one-off readings at the doctor's clinic during office hours.

"If we were given only one set of data, the nocturnal pressure readings are more indicative of risk of stroke," he adds.

The take-home message of the study is that people who are having strokes aren't necessarily those with high blood pressure; while those with normal blood pressure might be undiagnosed non-dippers. And then 10 per cent also have undiagnosed hypertension.

### Optimal monitoring vital

Another group - 33 per cent of the stroke patients - had arrhythmia or irregular heartbeat which were detected only by the BPro system.

"If we can manage to diagnose these people and manage their blood pressure with the right medication, then they needn't suffer from stroke. The condition is preventable," stresses Dr Ting.

Based on the research outcome, the recommendations are that former stroke patients who have hypertension should seek optimal monitoring of their blood pressure - by using the BPro system or other 24-hour systems.

They should also seek optimal

medical treatment of their hypertension and this treatment should be monitored to ensure long-term optimal blood pressure.

Also, former stroke patients who are not known to have hypertension should have their blood pressure monitored regularly to pick up any undiagnosed cases of hypertension.

There will be a public forum today on Stroke: A Singapore Perspective, by Associate Prof Wong Meng Cheong, senior consultant neurologist (NNI, SGH campus) and senior clinician scientist investigator of the National Medical Research Council. Organised by the Singapore National Stroke Association, the session is from 3-5pm, at Golden Village Cinema, Tiong Bahru Plaza. Registration (\$5 per person, starts at 2.30pm) is on a first-come-first-served basis.

HealthStats International has also launched six BPro centres for those who want a 24-hour blood pressure measurement. The centres are located at Hoe Huat Industrial Building, New Industrial Road (Tel: 6858 3248); New Park Hotel Shopping Arcade (Tel: 6293 4873); Kinesio Physio & Rehab, SMU (Tel: 6352 0800) and Novena Square 2 (Tel: 63972246); AsiaMedic Wellness Assessment Centre (Tel: 6789 8888); and Thomson Lifestyle Centre (Tel: 6352 6550).