Reviewer's report

Title: Reproducibility of wrist home blood pressure measurement with position sensor and automatic data storage

Version: 1 Date: 19 February 2008

Reviewer: Takayoshi Ohkubo

Reviewer's report:

Major Compulsory Revisions

1. Study population:
No information was provided on the sampling scheme. How were the 101 subjects asked to participate? Were they consecutive outpatients in hospitals/clinics?

2. Antihypertensive treatment:
Although 23 participants with antihypertensive treatment were included in the analysis, no information was provided on the frequency and the timing of administration. Furthermore, it was not clearly described whether home BP was measured before taking antihypertensive medication. Also it was not mentioned whether antihypertensive treatment did not change during the study period or not.

3. SD of mean difference:
a) Which statistical method was used to statistically compare the SD of mean difference between measurement strategies?
b) In the Table 3, the magnitude of diastolic SD of mean difference was the smallest in 24-h ABPM (5.11) and the p-value of home versus 24-hour ABPM was less than 0.001. This reviewer is not a statistician, but it seems strange to consider the results as really indicating a significantly better reproducibility of home BP.
c) Bland and Altman plot would be better to graphically understand the degree of reproducibility.

4. Squared differences (Figure 1a and 1b):
Provide p-values for the difference between measurement strategies, together with the corresponding statistical methods. What do the error bars in figures 1a and 1b indicate?

5. Provide explanation on Table 4 in the methods and results section.

6. Discussion
Even though this wrist device was reproducible in the research setting, it may be inaccurate if the instructions are not strictly followed in the usual setting. This
should be included in the discussion as a study limitation. Mechanisms underlying the inaccuracy of the wrist BP measuring device should also be discussed.

Minor Essential Revisions

1. Abstract, Results: ABMP should be ABPM.
2. Patient characteristics: Information of the proportion of men should be provided in the Table1.
3. References 6, 7 should be formatted appropriately.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.