Author's response to reviews

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

Authors:

Sakir Uen (suen@uni-bonn.de)
Rolf Fimmers (Rolf.Fimmers@ukb.uni-bonn.de)
Miriam Brieger (miriam.brieger@gmx.de)
Georg Nickenig (Georg.Nickenig@ukb.uni-bonn.de)
Thomas Mengden (mengden@uni-bonn.de)

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Author's response to reviews: see over
At first excuse me for the very delayed submission of the revised manuscript and I would thank you very much to give me the possibility to submit it. It was mostly caused by the statistical reevaluation, it was necessary, because one of the tables contends not the correct data (table 3). All changes made in the manuscript are marked by underlining.

We would like to thank Mr Sekip Altunkan and Mr Takayoshi Ohkubo for their review, which allowed us to increase the impact of the present manuscript.

Reviewer: Sekip Altunkan

1. „for the first time“ was deleted in the discussion and perspective section. The literature was actualised.

2. The standard deviations of the mean difference between two measurement periods can be used as an expression of individual measurement variability. As has been shown by previous studies, this standard deviation of the mean differences seems to be a better parameter for the reproducibility of blood pressure measurement as compared with the mean blood pressure values.


3. The word „therefore“ was corrected in the page 15, line 8
1. All subjects were consecutively recruited from the outpatients of Medical Policlinic of the University of Bonn.

2. Hypertensive subjects measured home BP before taking antihypertensive medication. The antihypertensive treatment regime (frequency and timing) was not changed during the study period.

3. SD of mean difference:
   a) Student’s t-test was used to statistically compare the mean difference between measurement methods?
   b) The data, which were expressed in table 3, did not represent the standard deviation of mean individual differences between the respective BP measurements. Therefore the statistician checked all of calculations and the new table 3 gives now the correct values for mean standard deviations and also for comparison of blood pressure measurement methods.

Table 3: Standard deviation of the mean differences between the two measurement periods

<table>
<thead>
<tr>
<th></th>
<th>systolic</th>
<th>diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD</td>
<td>95% CI</td>
</tr>
<tr>
<td>Home BP</td>
<td>3.81</td>
<td>3.34 – 4.44</td>
</tr>
<tr>
<td>24-h ABPM</td>
<td>7.83</td>
<td>6.90 – 9.17</td>
</tr>
<tr>
<td>Office BP</td>
<td>8.10</td>
<td>7.10 – 9.43</td>
</tr>
</tbody>
</table>

p- value

<table>
<thead>
<tr>
<th></th>
<th>systolic</th>
<th>diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home vers. 24-h ABPM</td>
<td>p&lt;0.001</td>
<td>p=0.127</td>
</tr>
<tr>
<td>Home vers. Office BP</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Office vers. 24-h ABPM</td>
<td>p=0.80</td>
<td>p=0.10</td>
</tr>
</tbody>
</table>

SD: Standard deviation of mean differences. 95% CI: 95% confidence interval.
c) Because the new table 3 shows now better the degree of reproducibility we have not added Bland Altman plot to the manuscript.

4. Squared differences (Figure 1a and 1b) are descriptive. The lower error bar indicate the minimum, the upper error bar the maximum of the data presented with the boxplot.

5. Explanation on Table 4 was provided 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 text is added to the limitation section of the manuscript.

Minor Essential Revisions

1. Abstract, Results:

   ABMP was changed to ABPM.

2. Patient characteristics:

   55 men and 42 women was added in the section about the study population

3. References

   Reference 6, 7 were formatted appropriately.

A competing interests section and an Authors’ contributions section are added to the manuscript.