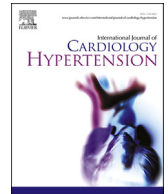




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journal homepage: www.journals.elsevier.com/international-journal-of-cardiology-hypertension/

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Measuring blood pressure by a cuffless device using the pulse transit time

Moharram MA et al. aimed to evaluate the SOMNObotouch NIBP device, which calculates blood pressure (BP) by using pulse transit time (PTT). They reported a mean difference of about 30 mmHg between PTT-based and intra-arterial measurements of systolic BP during heart catheterisation [3]. These data and conclusions are in contrast to several other studies, which showed offset values <6 mmHg for systolic BP in the Bland Altman plots [1,2,4,5].

The study by Moharram MA et al. suffers from several methodical weaknesses. Main concerns refer to calibration procedure in PTT measurement. To obtain accurate absolute BP values using PTT-based methods, calibration is the most critical step. Remarkably, BP measured by the two methods deviated as early as 10 min after calibration. Authors do not provide original measurements for the period between calibration and first BP measurement, which would be extremely helpful to evaluate the reason for the deviation. Furthermore, information about acute medication before catheterisation is missing. It is not clear how many data points (pulses, PTT) were processed for each time point, and how the problem with depression of pulse waves by cuff inflation at the same arm was resolved. Remarkably, the comparison between the first and the second BP measurements shows that changes in PTT-based BP (difference + 3.3 mmHg) follow the values of invasive measurement (+5.5 mmHg) closely (see table 1 in Ref. [4]). Taken together, these facts suggest that the observed deviation in the BP (PTT) is caused by calibration failure.

Declaration of competing interest

A.P. consults SOMNObotouch Company as an expert in cardiovascular physiology. He received payment for attendance of congresses and lectures.

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<https://doi.org/10.1016/j.ijchy.2020.100072>

Received 3 November 2020; Accepted 26 November 2020

Available online 8 December 2020

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