

# P60 Invasive Validation of Antares, a New Algorithm to Calculate Central Blood Pressure from Oscillometric Upper Arm Pulse Waves

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## ABSTRACT

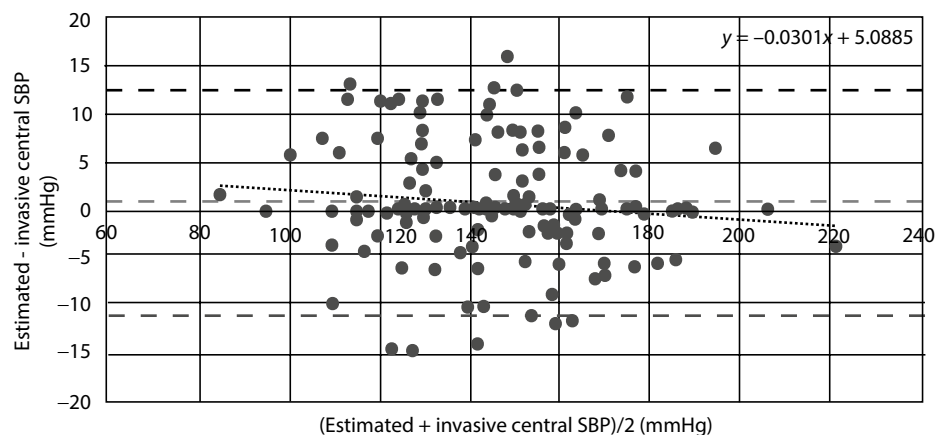
**Background:** Antares is an algorithm for pulse wave analysis (PWA) by oscillometric blood pressure monitors in order to estimate central (aortic) blood pressure (cBP). Antares aims to enable brachial cuff-based blood pressure (BP) monitors to be type II-devices, determining absolute cBP values independently of potential peripheral BP inaccuracies. The present study is an invasive validation of the Antares algorithm.

**Methods:** We followed entirely the 2017 ARTERY protocol for validation of non-invasive cBP devices, the 2013 ANSI/AAMI/ISO 81060-2 and 2018 AAMI/ESH/ISO validation standard protocols. In total, 191 patients undergoing cardiac catheterization were included, of which 145 patients entered analysis. Invasive cBP recordings were prospectively compared to simultaneous non-invasive cBP estimations using Antares, integrated into an oscillometric BP monitor. Antares analyses pulse waves during deflation of the cuff (patent of Redwave Medical GmbH). Generally speaking, pulse waves of a normal oscillometric BP measurement are taken for PWA with no need for altering standard BP pump operation.

**Results:** Mean difference between invasive and non-invasively estimated systolic cBP was 0.71 mmHg with standard deviation of 5.95 mmHg, fulfilling the highest validation criteria. Bland-Altman plot reveals good limits of agreement.

**Conclusion:** Antares is the first algorithm for estimation of cBP that entirely fulfills the 2017 ARTERY and AAMI/ESH/ISO validation protocols including criteria for high accuracy devices. The Antares algorithm turns the oscillometric upper arm blood pressure monitor into a type II-device for estimation of true cBP. Integration of Antares into BP monitors could enable the measurement of PWA parameters in virtually every practice in future.

**Bland altman of estimated vs. invasive central SBP**



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