Accuracy and Precision of the ClearSight™ Non-Invasive Monitoring Device in the New Zealand Population undergoing Trans-aortic Valve Intervention – A Prospective Observational Study

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Abbreviated Abstract

Background: The ClearSight™ (CS) device offers non-invasive blood pressure monitoring during transcatheter aortic valve replacement (TAVI). This study evaluated its accuracy compared with invasive monitoring in a New Zealand population. **Methods:** A prospective, single-centre study enrolled 25 patients undergoing TAVI. Simultaneous blood pressure measurements (systolic, diastolic, mean arterial pressure) were recorded using CS and invasive methods. **Results:** 4063 paired measurements were analysed. Bland-Altman analysis showed that CS had a moderate correlation with invasive mean arterial pressure (MAP), with a bias of -1.74 mmHg and a percentage error of 28.8%. In contrast, CS did not show a similar correlation with systolic or diastolic pressures. The device maintained accuracy pre- and post-valve deployment. However, in hypotensive patients, CS overestimated MAP. Furthermore, error grid analysis raises concerns that times of inaccuracy may have clinical implications. **Conclusion:** CS can be considered as a cautious alternative to invasive monitoring for MAP in TAVI patients, but not for systolic or diastolic pressures. Further research is needed in diverse populations and in true physiological hypotension.