



Conference Abstract

P.06 Comparison of Manual vs. Automated Haemodynamic Monitoring Systems in the Cardiac Catheterization Laboratory

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Keywords

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ABSTRACT

Background: Hemodynamic monitoring is an integral part of a cardiac catheterization procedure; however it is prone to many distortions, including damping and resonance [1].

Objectives: We sought to compare damping ratio, ascending aortic pressure waveform and invasive blood pressure between Manifold and ACIST CVi* devices in subjects undergoing cardiac catheterization.

Methods: This prospective randomised, single-blind, cross-over study was conducted in 81 adults subjects (mean age 59.2 ± 12 , 24% females) undergoing cardiac catheterization. The fast-flush test [2] was performed at the beginning of the procedure with both Manifold and ACIST. The square wave was analysed to calculate the damping coefficient. Data analyzed by JMP Pro (SAS for Windows, Version 13) $p < 0.05$ considered significant.

Results: The mean damping ratio was 0.63 ± 0.11 (range 0.34–0.95) with Manifold vs. 0.94 ± 0.25 (range 0.53–2.1) with ACIST, mean difference 0.30, $p < 0.0001$. The pressures were significantly different between the two devices; systolic -2.85 ($p < 0.05$); diastolic -5.2 ($p < 0.0001$) and mean pressure 3.5 ($p < 0.01$), mmHg. The inter-device BP difference showed a wide scatter; systolic, -24 to $+67$; diastolic, -44 to $+25$ and mean pressure, -24 to $+54$ mmHg.

Conclusions: To the best of our knowledge, this is the first study comparing a manual haemodynamic monitoring system to an automated one commonly used in the cardiac cath lab. The Manifold meets the international recommendations for accurate haemodynamic monitoring, compared with an overdamped ACIST which also underestimated pressures in our study. Manifold may be the preferred device for haemodynamic monitoring, particularly patients haemodynamically unstable, with cardiomyopathies and valvular heart disease.

REFERENCES

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