ELECTRICAL CARDIOMETRY COMPARES FAVORABLY WITH THERMODILUTION FOR POST-OPERATIVE HEMODYNAMIC MONITORING

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ABSTRACT

Methods: Post-operative patients with indwelling PACs (Continuous Cardiac Output catheters, Vigilance monitor, Edwards) underwent simultaneous, continuous hemodynamic monitoring with EC (Aesculon monitor, Cardiotronic). Comparisons were made between hourly PAC-TD and EC determinations of CI. EC CI values were averaged from one minute readings ± 6 minutes centered on the hour. Bland-Altman analysis was performed for each individual patient’s data. Bias (mean difference between PAC-TD and EC-derived CI) and percentage error (2SD of bias/mean CI) for each patient were calculated. Variance (coefficient of variation) over the entire monitoring period for each patient was calculated. Data are mean ± SD.

Results: 30 patients (cardiac surgery 29, vascular surgery 1) were monitored for 33 ± 19 hours. Bias was -0.7 ± 1.0 (L/min/m²) and percentage error was 39 ± 12%. 23 (77%) of 30 patients had a percentage error < 40%. Coefficients of variation for PAC-TD and EC were 0.15 ± 0.04 and 0.14 ± 0.05, respectively (P = NS). When compared simultaneously with PAC-TD, EC-derived CI showed a bias of -0.73 ± 1.1 L/min/m² and a percentage error of 39 ± 12%. 23 (77%) of 30 patients had a percentage error < 40%. EC variance was equally low compared to PAC-TD. EC monitoring of CI demonstrated good correlation with PAC-TD in post-operative ICU patients. While a percentage error ≤ 30% represents the ideal, clinically-acceptable limit of agreement between two hemodynamic monitoring techniques, EC monitoring of CI showed a bias of -0.73 ± 1.1 L/min/m² and a percentage error of 39 ± 12%. 23 (77%) of 30 patients had a percentage error < 40%.

SUMMARY & CONCLUSIONS

Our study supports EC as a reliable non-invasive method of continuous hemodynamic monitoring.

REFERENCES