

Cardiac output measured by lithium dilution and transpulmonary thermodilution in patients in a paediatric intensive care unit

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Objective: To compare the results of cardiac output measurements obtained by lithium dilution and transpulmonary thermodilution in paediatric patients.

Design: A prospective study.

Setting: Paediatric intensive care unit in a university teaching hospital.

Patients: Twenty patients (age 5 days-9 years; weight 2.6-28.2 kg) were studied.

Interventions: Between two and four comparisons of lithium dilution cardiac output (LiDCO) and transpulmonary thermodilution (TPCO) were made in each patient.

Measurements and results: Results from three patients were excluded: in one patient there was an unsuspected right-to-left shunt, in two patients there was a problem with blood sampling through the lithium sensor. There were 48 comparisons of LiDCO and TPCO in the remaining 17 patients over a range of 0.4-6 l/min. The mean of the differences (LiDCO-TPCO) was -0.1 ± 0.3 (SD) l/min. Linear regression analysis gave $\text{LiDCO} = 0.11 + 0.90 \times \text{TPCO}$ l/min ($r^2 = 0.96$). There were no adverse effects in any patient.

Conclusions: These results suggest that the LiDCO method can be used to provide safe and accurate measurement of cardiac output in paediatric patients. The method is simple and quick to perform, requiring only arterial and venous catheters, which will already have been inserted for other reasons in these patients.