A new method of measuring cardiac output in man using lithium dilution

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We describe a new indicator dilution method of measuring cardiac output in man. A bolus injection of lithium chloride 0.6 mmol was given via a central venous catheter and arterial plasma [Li+] recorded using a specially developed sensor incorporating an Li(+)-selective electrode. Cardiac output was derived from the lithium dilution curve, with a correction for packed cell volume. Lithium dilution cardiac output (LiDCO) was compared with thermodilution cardiac output (TD) using 22 lithium sensors in nine patients. For each sensor, one LiDCO was measured immediately before and one immediately after three TD estimations and mean values of LiDCO and TD derived. The correlation coefficient, r, was 0.89; slope of the regression 0.84; y intercept 0.72; bias 0.3 (0.5) litre min-1 (mean (TD-LiDCO) (1 SD). LiDCO appeared to be a safe, simple and accurate technique which does not require insertion of a pulmonary artery catheter.