

## **Comparison of the accuracy of the lithium dilution technique with the thermodilution technique for measurement of cardiac output**

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A new indicator dilution technique for measurement of cardiac output is described. Lithium chloride is injected via a central venous catheter and its dilution curve measured in arterial blood using a lithium-selective electrode. We assessed the lithium dilution cardiac output measurement (LiDCO) and a conventional thermodilution cardiac output measurement (ThDCO) by comparing the results of both with cardiac output determined by electromagnetic flowmetry (EMCO) under controlled laboratory conditions in 10 swine. They were monitored with a pulmonary artery catheter, femoral artery catheter and electromagnetic flowmeter placed around the ascending aorta. LiDCO, ThDCO and EMCO measurements were determined at baseline, in a hyperdynamic state produced by administration of dobutamine, at a second baseline and finally in a hypodynamic state induced by propranolol during deep anaesthesia. Data were analysed by linear regression analysis and the comparison method described by Bland and Altman; bias and precision of both LiDCO and ThDCO compared with EMCO were calculated by the method of Sheiner and Beal. The correlation coefficient between LiDCO and EMCO (0.95) was higher than that between ThDCO and EMCO (0.87). The precision value of LiDCO (0.04) was significantly less (i.e. better) than that of ThDCO (0.09). The results of this study indicated that LiDCO was more reliable compared with conventional ThDCO.