**THE PHARMACOKINETICS OF INTRAVENOUS LITHIUM CHLORIDE IN PATIENTS AND NORMAL VOLUNTEERS**

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Objectives: To study the pharmacokinetics of lithium chloride administered intravenously to patients who had undergone cardiac surgery within the previous 12 h and to normal volunteers, since lithium is used in a new indicator dilution method for measuring cardiac output.

Methods: A prospective study was carried out in a London teaching hospital. Lithium chloride was administered intravenously and blood samples taken at intervals for up to one hour. Plasma lithium levels were measured by inductively coupled plasma optical emission spectrometry and standard pharmacokinetic parameters were calculated.

Results: Two groups of patients were investigated; the first (n = 10) received five doses of 0.6 mmol LiCl at 2 min intervals, the second (n = 10) a single dose of 0.6 mmol LiCl. A further group of six normal volunteers also received a single dose of 0.6 mmol LiCl. Biexponential curves were fitted to the data. For the three groups the half-lives of the first exponentials ($T1/2\alpha$) were 3.3, 4.2 and 3.9 min, respectively; the half-lives of the second exponentials ($T1/2\beta$) were 100, 83 and 102 min, respectively; the volume of distribution at steady state in all three groups was 0.2 l $kg^{-1}$.

Conclusion: Since lithium chloride is used diagnostically for measurement of cardiac output, knowledge of the rate constants for disappearance of lithium from the vascular compartment allows recommendations for the safe maximum frequency of lithium dilution cardiac output determinations to be made.