**Supplementary Figure 1. A flowchart of the number of patients who were included in the study and their outcome.**

**Supplementary Figure 2. Residual plots of predicted-actual on chronic eGFR vs actual lithium concentrations at 36 hours.**

These plots compared the eGFR or Cockcroft Gault predicted-actual lithium concentrations versus actual lithium concentrations at 36 hours in acute on chronic and chronic lithium toxicity. The predictions of concentrations 36 hours later were excellent for chronic toxicity (Mean bias: 0 mmol/L, SD: 0.3, 95% limits of agreement: -0.7 to +0.6), but poor in acute on chronic toxicity (Mean bias +0.4 mmol/L, SD: 0.4, 95% limits of agreement: -0.5 to +1.2).

**Supplementary Table 1. EXTRIP criteria met by patients treated with haemodialysis and those with neurological sequelae and outcome at discharge.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Toxicity | Age  /Sex | Li Conc (mmol/L) | Predicted Li>1@36h | Li>5 mmol/L | Li>4 mmol/L & eGFR<45 | Severe toxicity | GCS<15  /GCS | Seizure | Confused | Outcome |
| Haemodialysis: | | | | | | | | | | |
| Chronic | 58/M | 4.1 | Yes | No | Yes | Yes | No/15 | No | No | Home |
| Chronic | 37/F | 3.3 | Yes | No | No | Yes | Yes/14 | No | Yes | Home |
| Chronic | 38/F | 4.8 | Yes | No | Yes | Yes | Yes/14 | No | Yes | Home |
| Chronic | 56/F | 2.8 | Yes | No | No | No | Yes/14 | No | Yes | Home |
| Acute | 36/F | 7.1 | Yes | Yes | No | No | Yes/15 | No | Yes | Home |
| Acute | 25/F | 5.1 | Yes | Yes | No | No | No/15 | No | No | Home |
| Acute | 51/M | 8.6 | Yes | Yes | Yes | No | No/15 | No | Yes | Home |
| Acute | 63/F | 3.2 | Yes | No | No | Yes | Yes/13 | No | Yes | Home |
| Acute | 23/F | 5.3 | Yes | Yes | No | Yes | Yes/13 | No | No | Home |
| Neurological Sequelae: | | | | | | | | | | |
| Chronic | 84/F | 1.9 | Yes | No | No | No | Yes/14 | No | Yes | Nursing home |
| Chronic | 86/M | 2 | Yes | No | No | No | Yes/14 | No | No | Home |
| Chronic | 65/F | 3.2 | Yes | No | No | Yes | Yes/14 | No | NR | Back to Nursing home |
| Chronic | 64/F | 1.8 | Yes | No | No | Yes | Yes/14 | Yes | Yes | Supervised home |
| Chronic | 64/M | 2.2 | Yes | No | No | No | No/15 | No | Yes | Nursing home |
| Chronic | 74/M | 2.0 | Yes | No | No | No | Yes/10 | No | Yes | Rehab to home |