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Lithium-associated Kidney Failure: Predictors and Outcomes

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Objectives : Lithium is a widely used agent for bipolar disorders and depression that has been rarely associated with chronic tubulointerstitial nephropathy following long-term use. Despite its rising incidence in recent years, little is known regarding patient characteristics and outcomes in those with lithium-associated kidney failure receiving kidney replacement therapy (KRT).
Methods : A retrospective study evaluating the predictors and outcomes of patients with lithium-associated kidney failure receiving KRT was conducted using the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA).
Results : A total of 437 patients with lithium-associated kidney failure patients were compared to 1280 ANZDATA allocated controls at a ratio of 1:3. At KRT commencement, lithium patients were older (62±10 vs 58±15, p<0.001), more likely European (93% vs 68%, p<0.001), female (63% vs 40%, p<0.001) and living in a postcode with a higher socioeconomic status (SES) (p<0.001). Lithium patients were less comorbid, with lower rates of coronary artery disease (17% vs 37%, p<0.001), peripheral vascular disease (7% vs 25%, p<0.001), cerebrovascular disease (8% vs 14%, p=0.004) and diabetes mellitus (16% vs 47%, p<0.001). There were no differences between first KRT modality, although kidney transplantation and re-transplantation rates were lower (21% vs 27%, p=0.008; 0.2% vs 3%, p=0.001) and rejection rates were similar (21% vs 22%, p=0.85). There were shorter wait-times to first transplantation (20 months vs 29 months, p=0.02) in the lithium group. There were no survival differences regardless of KRT modality.
Conclusions : Lithium-associated kidney failure is uncommon, and affects an older age group, females, those with European heritage, and a high SES. Despite having less comorbidities, there were no differences in survival regardless of KRT modality compared to the control population. Further directions include exploration of barriers to transplantation and future prediction models to identify those at high risk of kidney failure.

Li toxicity - Visual abstract.jpg

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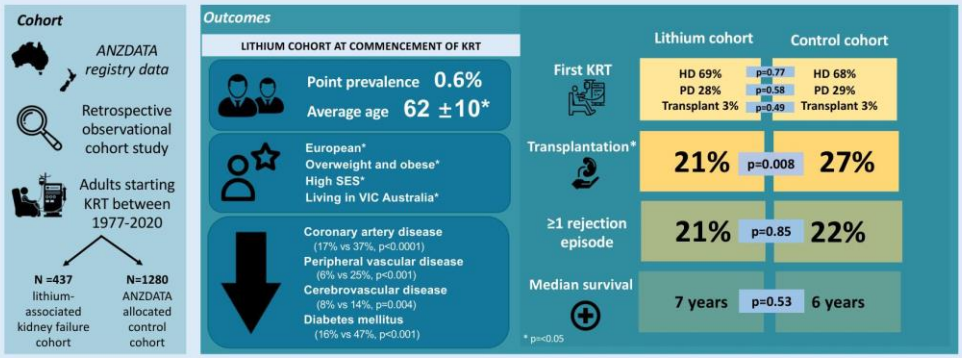

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CONCLUSION

Lithium-associated kidney failure is rare cause of kidney failure, and is represented by a unique cohort that is predominantly older, female, European, with less comorbidities and from a high SES. There was no significant difference in first KRT modality, however there were overall lower rates of transplantation. Despite being less comorbid, there were no survival differences compared to the control cohort.