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Lithium Toxicity; Important Considerations When Treating a Medically Unwell Older Adult Prescribed Lithium

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Dear Editor,

Lithium is a well-established treatment for psychiatric disorders, including Bipolar Affective Disorder, Schizoaffective Disorder and often as an augmentation agent in Treatment Resistant Depression. Older adults are often excluded from drug trials resulting in a limited evidence base, however available research has consistently supported lithium's superior efficacy to other mood stabilisers and demonstrates that lithium is a safe and effective first line agent in this population[1].

The pharmacokinetics of lithium present numerous safety considerations for patients of all ages including the narrow therapeutic index, drug interactions and the necessity for regular monitoring of serum levels[2]. The "therapeutic window" or normal serum range, is often quoted as 0.4-1.0mmol/L, however this may be too high for older adults. It has been recognised that toxicity can occur in older adults at serum concentrations of 0.5-0.8mmol/L, although the majority of this evidence has been published in case reports[3].

The presence of acute medical illness and multiple comorbidities pose significant risks for toxicity. Lithium toxicity can present with a variety of signs and symptoms which are non-specific and range from mild to severe. Although most patients recover well following the management of lithium toxicity, there is a risk of chronic kidney damage, neurological injury, and rarely death.

Data was collected on all patients with lithium toxicity referred to the Old Age Liaison Psychiatry service over a 5-year period to explore common precipitating factors of toxicity and identify any barriers to prompt recognition and treatment.

In total ten patients were diagnosed with lithium toxicity over this period. On admission five patients had lithium levels taken, which ranged from 1.4-1.8mmol/L, a diagnosis of toxicity was made, and their lithium was held. Three patients were likely toxic on admission, however as their levels were <1.00mmol/L there was a delay in diagnosing lithium toxicity and stopping the offending agent.

The two other patients developed lithium toxicity during their admission. The serum concentration of lithium when toxicity was diagnosed ranged from 0.7-2.0 mmol/L.

Patients presented with a range of symptoms of toxicity, the most common being malaise (100%), confusion (80%), dehydration (70%) and anorexia (60%). There were multiple risk factors for toxicity noted in each patient, the most common being polypharmacy (100%), dehydration (60%), infection (50%) and falls (50%).

Our findings highlight the importance of lithium serum level measurement on admission but also the need for regular monitoring during an admission. One of our most striking findings was the number of presentations of toxicity whose lithium levels were within the "normal therapeutic window" (30%). Lithium toxicity should be considered in any patient prescribed lithium presenting with a prolonged delirium and otherwise non specific symptoms[4]. Additionally, the symptoms of lithium toxicity can be vague and often difficult to distinguish from other comorbid medical syndromes, which may contribute to delayed diagnosis.

Although lithium can be a safe and efficacious drug in this population, the risk of toxicity must always be considered during acute illness and expert advice should be sought if there are any doubts on appropriate management.

Ethical Approval:
Ethical approval was obtained from the Research and Innovation Office, St James's Hospital, Dublin.

Declaration of Conflicts of Interest:
There are no conflicts of interests to declare.

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