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May 5th, 12:00 AM


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Shekar, Seema; Garcia, Alexander; and Shmuts, Rachel, "Long-Term Lithium Use in the Younger Population: Do the Benefits Outweigh the Risks? - A Case Report" (2022). *Stratford Campus Research Day*. 86.

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Long term Lithium Use in the Younger Population: Do the benefits outweigh the risks? - A Case Report

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SIGNIFICANCE

For decades lithium has been the mainstay treatment for bipolar disorder. While its side effect profile is extensive and varied its most notable adverse effect, and one most feared by treating clinicians, is nephrotoxicity/ end-stage renal disease (ESRD). While the link between long-term lithium use and ESRD has been accepted by the medical community at large for many years, more recent scientific studies call the association into question. In fact, newer studies on the association between Li use and ESRD have shown a negative/inconclusive correlation¹. Despite this controversy the consensus still remains that ESRD secondary to long-term Li use is mostly found in the elderly population with decades of Li use². In this case, we present and discuss the case of a patient that appears to be an outlier to this trend: a young African-American patient who developed ESRD in her teens after only being on Lithium for half a decade.

CASE PRESENTATION

26-year-old African American female with a history of morbid obesity, end-stage renal disease (ESRD) on dialysis, bipolar disorder type I, and borderline personality disorder presented to a local emergency department after expressing suicidal thoughts with a plan. She reportedly had expressed her desire to end her life by walking into oncoming traffic. Given her psychiatric history and history of prior attempts she was considered high risk and involuntary committed to the psychiatric unit at her presenting hospital. Despite having a 24-hour sitter and being appropriately medically managed, the patient attempted to end her life on the psychiatric unit by removing her arteriovenous (AV) fistula with the goal of exsanguination. Self-removal of the fistula was unsuccessful, however, damage was severe enough that she quickly became hemodynamically unstable and medically decompensated which required lifesaving measures including blood transfusion and intubation. In light of her acuity the patient was subsequently transferred to our facility for surgical correction of the AV fistula and placement of Permcath for short-term dialysis use. Immediate post-operative course was uncomplicated, however, in light of her attempt and placement of Permcath (used for dialysis while her AV fistula healed) transfer to other facilities became difficult. As a result, it was determined that her stay at our hospital would last at least several weeks while her fistula healed.

Throughout her course of hospitalization she exhibited classic borderline personality traits including impulsivity and extreme emotional swings. She required 24 hour monitoring by security, and eventually had to be escalated to a 2:1 due to her agitation and failure to cooperate. Moreover, she began exhibiting splitting behavior and therefore had the clinical team disagreeing often as well. Fortunately, we were able to elicit a psychiatric history from her as she did often work well with our team. Below is her psychiatric illness course.

Early Diagnosis

Patient began having episodes of mood instability and suicidal ideations. She reportedly established care with a psychiatrist in her early teens and was trialed on a number of antidepressants to help control her symptoms, however, all attempts failed. At the age of 14-years-old she was formally diagnosed with Bipolar Disorder, type 1.

Initiation of Lithium

Patient was started on Thorazine and Wellbutrin initially. Shortly thereafter this regimen was discontinued secondary to inefficacy and she was started on the standard initiation dose of Lithium (Li). Finding no relief with initiation dosage she was reportedly titrated up to a high dose early on in her disease course where she remained for a number of years.

ESRD and Follow-up

Only five years into Li therapy she was diagnosed with ESRD and started on thrice weekly dialysis. Her follow up was very sporadic due to socioeconomic struggles. She feels she was not educated about follow up care and lab work required when treatment of lithium was initiated.

Figure 1 – Patient's psychiatric illness course

DISCUSSION

A plethora of early studies suggested a high association between lithium use and onset of ESRD in a dose dependent manner⁴. As a result, the medical community-at-large accepted this association and for some time this association was not called into question.

Here, we presented a patient that appeared to be an outlier on a couple of fronts. Firstly, the onset of ESRD with chronic lithium use was fairly rapid. Studies have shown that the mean age of onset of ESRD is 65 years old placing this patient as an extreme outlier⁵. Secondly, studies have shown average onset of ESRD and need for dialysis to be 20 years after initiation of chronic lithium therapy⁵. Unfortunately for this patient, onset of ESRD was a mere 5 years after the onset of therapy again placing her in an extremely small subgroup of patients who develop ESRD without decades of lithium use.

However rare this case may be there are a number of confounding factors that may have contributed to the early onset of ESRD. Patient had poor follow up and poor insight into her treatment. Moreover, social factors including poor social support, financial dependence and lack of transportation may have contributed to subpar management and early onset of ESRD. Despite this we thought her case was crucial to describe for a number of reasons.

1. As recommended by the APA, renal testing should be completed at 2-3 month intervals for the first 6 months at the onset of treatment followed by annual or semiannual testing indefinitely while on treatment. Our case shows that in certain contexts, more frequent testing may be ideal.
2. Patient insight into the side effect of lithium therapy is crucial. A study completed in 2018 showed that patients with ESRD 2/2 to lithium use felt that shared decision making at the onset of treatment to be inadequate. In fact, it was found that decision making regarding starting treatment was mainly unilateral (physician lead). Furthermore, patients reported not being told about alternative treatments.
3. Finally, presentation of this case is important because it indicates that more studies may be needed with regards to how and to what extent lithium affects the kidneys in younger patients.

CONCLUSION

ESRD has been widely feared as the long-term side effect of chronic lithium use. Our case, however, highlights the fact that ESRD need not require decades to set in and is not limited to the elderly. Clinicians should be keen on watching renal parameters closely not only in the elderly with decades of use, but also in the young or those on therapy for a short duration of time. Moreover, prior to starting lithium therapy, clinicians should offer alternatives, receive input from patients including preferences and ability to follow through with routine follow-ups, and determine patient insight into their disease. In light of this case, frequency of renal testing may also need to be shortened in patients who are high-risk and have confounding social factors. Overall, while lithium remains an effective first line therapy in the treatment of bipolar disorders, careful consideration into starting therapy and subsequent monitoring should be given in younger and high-risk patients.

REFERENCES

1. Azab, Abed N, et al. "Lithium Nephrotoxicity." *International Journal of Bipolar Disorders*, Springer Berlin Heidelberg, Dec. 2015, www.ncbi.nlm.nih.gov/pmc/articles/PMC4456600/.
2. Close, Helen, et al. "Renal Failure in Lithium-Treated Bipolar Disorder: A Retrospective Cohort Study." *PLOS ONE*, Public Library of Science, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0090169.
3. Kerckhoffs I, Angèle P. M., et al. "The Perspectives of Patients with Lithium-Induced End-Stage Renal Disease." *International Journal of Bipolar Disorders*, SpringerOpen, 2 June 2018, https://journalbipolar disorders.springeropen.com/articles/10.1186/s40345-018-0121-0.
4. Nielsen RE, Kessing LV, Nolen WA, Licht RW. Lithium and renal impairment: a review on a still hot topic. *Pharmacopsychiatry*. 2018
5. Nielsen, Rene Ernst, et al. "Lithium and Renal Impairment: A Review on a Still Hot Topic." *Pharmacopsychiatry*, U.S. National Library of Medicine, Sept. 2018, www.ncbi.nlm.nih.gov/pubmed/29346806