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# A Ternary Enigma: A Case Report and Literature Review of Myoclonus, Uremia, and Delirium in a Liver Transplant Recipient.

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## Introduction

- **Background**: Myoclonus is characterized by sudden, involuntary muscle jerks and can be associated with conditions such as uremia and delirium, especially in ICU settings. In this case report, we present a rare instance of myoclonus in a liver transplant recipient. This study aims to aid clinical recognition and management of this complex presentation.
- **Objective**: To describe the diagnostic and therapeutic complexities of myoclonus associated with uremia in a liver transplant recipient, emphasizing the role of Consultation-Liaison (CL) psychiatry.

## Case Presentation

**Patient**: 70-year-old female, history of alcohol use disorder, decompensated cirrhosis secondary to hepatitis C, underwent liver transplantation.

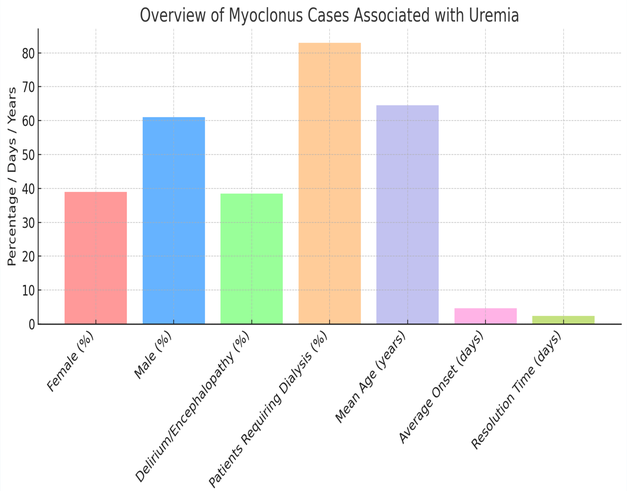
**Clinical Course**:

- **Post-transplant Complications**: ICU admission due to respiratory failure, vancomycin-resistant Enterococcus bacteremia.
- **Re-admission**: Blood drainage, hypotension, fever, unstable atrial fibrillation.
- **Key Symptoms**: Cognitive impairment, sleep-wake disturbances, agitation, anxiety, myoclonic jerks.
- **Diagnostics**: Neurological examination, EEG, laboratory testing indicating uremia.
- **Intervention**: Continuous renal replacement therapy (CRRT), stop neurotoxic drugs, symptom management with midazolam.

## Methodology

- **Systematic Review**: A review of relevant literature was conducted using PubMed and EMBASSE.
- **Criteria**: Articles from January 1990 to September 2023 focusing on uremia-associated myoclonus.
- **Findings**: 12 manuscripts were included, covering 13 cases of uremia-induced myoclonus, **with no prior reports in solid organ transplant (SOT) recipients**. Most of the articles were case reports, with one case series included.

## Systematic Review




## Results

- The mean age of the patients was 64.5 years (standard deviation 6 10.92), and 39% were female.
- Myoclonus was diagnosed clinically in all cases, with an average onset of **4.6 days associated with uremia (standard deviation +/- 3.2 days).**
- Notably, the most common accompanying clinical symptoms were delirium and/or encephalopathy, present in 38.5% of cases.
- Treatment with Hemodialysis resolved myoclonus in approximately 83% of reviewed cases.

## Discussion

- **Pathophysiology**: Uremia-related myoclonus might involve excitatory effects on NMDA receptors and inhibitory effects on GABA receptors. Metabolic disturbances such as electrolyte imbalances could contribute.
- **Role of CL Psychiatry**: Accurate diagnosis and distinction from other movement disorders are crucial for effective treatment. Management requires a multidisciplinary approach.
- **Implications**: Early identification and intervention, including dialysis, are critical in reducing morbidity.

## Diagnostic & Management

- **History/Differential:** Thorough patient history and physical examination. Consider toxic-metabolic, medications, seizures, infections.
- **Underlying Cause:** Address primary condition (e.g., dialysis for uremia). Test including Imaging, EEG, electromyography to determine etiology.
- **Medication Adjustment:** Modify or discontinue offending medications.
- **Symptomatic Treatment:** Benzodiazepines like midazolam for symptom control.
- **Multidisciplinary Approach:** Collaborate with neurology and other specialists.

## Conclusion

- **Key Insights**: This case illustrates the critical role of CL psychiatrists in identifying and managing complex presentations of myoclonus in transplant recipients. A multimodal treatment approach, including CRRT and medication management, is effective.
- **Future Directions**: Further research into the neurophysiological mechanisms of uremia-related myoclonus in transplant settings is needed to improve patient outcomes.

## References

- Okwuonu, E., & Sher, Y. (2024). Myoclonus, Uremia, and Delirium in a Liver Transplant Recipient: A Case Report and Literature Review. *Journal of the Academy of Consultation-Liaison Psychiatry*. https://doi.org/10.1016/j.jaclp.2024.07.004.