Effective Management of Refractory Restless Leg Syndrome in an Anemic Elderly Patient Using Intravenous Iron Therapy: A Case Report

Mani K. Askari[1], Ayda Fatallah Pour[2], Hoda Shabpiray[3], Michael Besly[4*], Nora Abdul-Aziz[4], Elizabeth Schumacher[4]

[1]Assistant Professor, Internal Medicine Clerkship Director, Division of Internal Medicine, Department of Medicine, 3000 Arlington Avenue, The University of Toledo, Toledo OH 43615

[2]Resident, Division of Internal Medicine, Department of Medicine, 3000 Arlington Avenue, The University of Toledo, Toledo OH 43615

[3]Assistant Professor, Division of Internal Medicine, Department of Medicine, 3000 Arlington Avenue, The University of Toledo, Toledo OH 43615

[4]College of Medicine and Life Sciences, 3000 Arlington Avenue, The University of Toledo, Toledo OH 43615

Email: Michael.Besly@rockets.utoledo.edu

Received: 2024-08-08

Accepted: 2024-09-16

Published: 2025-06-30

Background: Restless leg syndrome (RLS), also known as Willis-Ekbom disease, is a common neurological disorder characterized by an uncontrollable urge to move the legs, often accompanied by uncomfortable sensations such as creeping or tingling. These symptoms typically worsen during periods of inactivity and are temporarily relieved by movement. The prevalence of RLS is estimated to be 5-10% of the population, with higher rates observed in women and older adults. The pathophysiology of RLS is linked to brain iron deficiency and dysfunction in dopaminergic neurotransmission. Iron supplementation, and potentially intravenous (IV) iron, is an essential treatment, particularly for patients with iron deficiency.

Case Presentation: An 83-year-old female with a history of non-ischemic dilated cardiomyopathy, type 2 diabetes mellitus, chronic obstructive pulmonary disease (COPD), and RLS presented with worsening leg cramps and shortness of breath. She was found to be acutely anemic (hemoglobin 6.6 g/dL) due to a suspected upper gastrointestinal bleed. Initial treatment with oral iron was inadequate, leading to persistent severe leg cramps. Subsequently, the patient received IV iron therapy, resulting in significant symptom relief and resolution of her leg cramps. The patient's hemoglobin level stabilized, and she was discharged with continued oral iron supplementation and follow-up care.

https://dx.doi.org/10.46570/utjms-2025-1369

Conclusion: This case highlights the effectiveness of IV iron therapy in rapidly alleviating RLS symptoms in a patient with severe anemia. The transition from oral to IV iron therapy was crucial in achieving symptom resolution, suggesting that IV iron should be considered in patients with refractory RLS symptoms, particularly those with significant anemia. The improvement observed in this case underscores the importance of addressing underlying iron deficiency in the management of RLS. Further research is necessary to establish clear guidelines for the use of IV iron in clinical practice.

Keywords: Anemia, Restless Leg Syndrome, Intravenous Iron Therapy

---

References

1. Allen, R.P., Picchietti, D.L., Garcia-Borreguero, D., Ondo, W.G., Walters, A.S., Winkelman, J.W., Zucconi, M., Ferri, R., Trenkwalder, C., Lee, H.B.; International Restless Legs Syndrome Study Group. *Restless Legs Syndrome/Willis-Ekbom disease diagnostic criteria: updated International Restless Legs Syndrome Study Group (IRLSSG) consensus criteria—history, rationale, description, and significance*. Sleep Med. 2014;**15**(8):860-873. doi:10.1016/j.sleep.2014.03.025

2. Trenkwalder, C., Allen, R., Högl, B., Clemens, S., Patton, S., Schormair, B., Winkelmann, J. Comorbidities, treatment, and pathophysiology in restless legs syndrome. Lancet Neurol. 2018;17(11):994-1005. doi:10.1016/S1474-4422(18)30311-9

3. Silber, M.H., Buchfuhrer, M.J., Earley, C.J., Koo, B.B., Manconi, M., Winkelman, J.W.; Scientific and Medical Advisory Board of the Restless Legs Syndrome Foundation. *The Management of Restless Legs Syndrome: An Updated Algorithm*. Mayo Clin Proc. 2021;**96**(7):1921-1937. doi:10.1016/j.mayocp.2020.12.026

4. Connor, J.R., Boyer, P.J., Menzies, S.L., Dellinger, B., Allen, R.P., Ondo, W.G., Earley, C.J. *Neuropathological examination suggests impaired brain iron acquisition in restless legs syndrome*. Neurology. 2003;**61**(3):304-309. doi:10.1212/01.wnl.0000078887.16593.12

5. Trenkwalder, C., Allen, R.P., Högl, B., Paulus, W., Winkelmann J. *Restless legs syndrome associated with major diseases: a systematic review and new concept*. Neurology. 2016;86(14):1336-1343. doi:10.1212/WNL.0000000000002542

6. Earley, C.J., Jones, B.C., Ferré, S. *Brain-iron deficiency models of restless legs syndrome*. Exp Neurol. 2022 Oct;**356**:114158. doi:10.1016/j.expneurol.2022.114158. Epub 2022 Jun 30.

7. Gossard, T.R., Trotti, L.M., Videnovic, A., St Louis, E.K. *Restless Legs Syndrome: Contemporary Diagnosis and Treatment*. Neurotherapeutics. 2021 Jan;**18**(1):140-155. doi:10.1007/s13311-021-01019-4. Epub 2021 Apr 20.

