

Respiratory Syncytial Virus Associated Severe Transaminitis in Elderly Female with Moderate Respiratory Presentation

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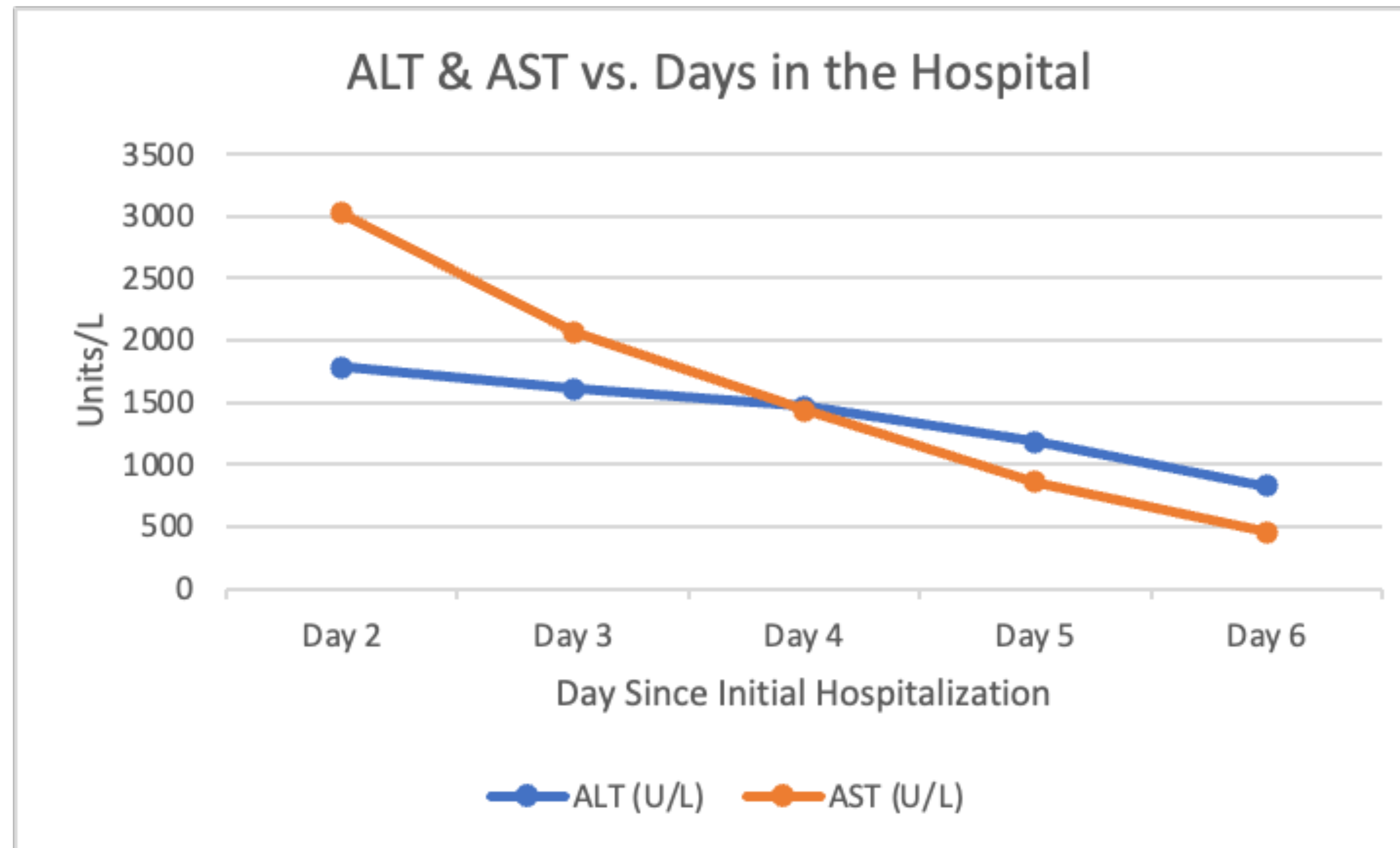
INTRODUCTION

- Respiratory Syncytial Virus (RSV) is a significant problem in the adult population, especially in immunosuppressed individuals, the elderly, and those with underlying cardiopulmonary issues (Falsey 2000).
- Problem: Much research only focuses on pulmonary manifestations of this virus
- This case report describes a patient that initially presented to the emergency room with moderate pulmonary symptoms secondary to RSV infection, who subsequently developed severe transaminitis as a result.

CASE PRESENTATION

- Patient:** 85 y/o female; PMHx: HFrEF, CAD, A. Fib., & prior hospital stay with COVID-19 complicated by multisystem organ failure due to septic shock
- Symptoms:** Increasing dyspnea on exertion and at rest for 4 days, cough with sore throat, and chest congestion
- Exam:**
 - Respiratory: diminished breath sounds of lower lobes bilaterally with faint wheeze
 - O2 Sat: 90-97% on room air for duration of stay
- Medications Received:**
 - IV azithromycin 500 mg (for possible 2° CAP); switched to Augmentin 875mg-125mg for CAP + UTI coverage
 - Benzonatate 200 mg, budesonide respule 0.5 mg, DuoNeb 0.5 mg-2.5 mg/3 mL, montelukast 10 mg, & 1 dose of 2.5mg tiotropium inhalation spray
- Patient gradually improved. ALT and AST levels trended down. Patient was cleared for discharge and left the hospital with instructions for home care.

RESULTS



Pertinent Labs on Admission:

- ALT / AST (U/L): 1794 / 3022
- Lactic Acid: 5.1
- INR: 1.87
- Total Bilirubin: 2.1 mg/dL
- Alkaline Phosphatase: 90 U/L
- Hepatitis A/B/C: All negative
- Urinalysis w/ Culture: + for E. coli & E. faecalis

Pertinent Imaging on Admission:

- CT Lungs: Mildly scattered bilateral opacities
- CTA Chest: Contrast reflux into the hepatic veins
- U/S Abdomen: Mild hepatic steatosis

Differential Diagnosis for ALT/AST > 1000

ISCHEMIC
HEPATITIS

ACUTE VIRAL
HEPATITIS
(HEPATITIS A &
B)

DRUG-INDUCED
LIVER INJURY

CONCLUSION

- Severe transaminitis in adults with RSV is an infrequent occurrence that is not well-documented.
- Proposed mechanisms of RSV-Induced Hepatitis:
 - Direct virus-induced hepatitis
 - High viral load in the lungs spilling into systemic circulation
 - Hepatic congestion/ischemia secondary to right heart failure/strain
- This case presentation suggests a link between RSV and the patient's transaminitis.
- More research needed to understand the pathogenesis of transaminitis in RSV-affected adults

REFERENCES

- Eisenhut M. (2006). Extrapulmonary manifestations of severe respiratory syncytial virus infection--a systematic review. *Critical care (London, England)*, 10(4), R107. <https://doi.org/10.1186/cc4984>
- Falsey, A. R., Cunningham, C. K., Barker, W. H., Kouides, R. W., Yuen, J. B., Menegus, M., Weiner, L. B., Bonville, C. A., & Betts, R. F. (1995). Respiratory syncytial virus and influenza A infections in the hospitalized elderly. *The Journal of infectious diseases*, 172(2), 389-394. <https://doi.org/10.1093/infdis/172.2.389>
- Galvin, Z., McDonough, A., Ryan, J., & Stewart, S. (2015). Blood alanine aminotransferase levels >1,000 IU/l - causes and outcomes. *Clinical medicine (London, England)*, 15(3), 244-247. <https://doi.org/10.7861/clinmedicine.15-3-244>
- Gkentzi, D., Dimitriou, G., & Karatza, A. (2018). Non-pulmonary manifestations of respiratory syncytial virus infection. *Journal of thoracic disease*, 10(Suppl 33), S3815-S3818. <https://doi.org/10.21037/jtd.2018.10.38>
- Thorburn, K., & Hart, C. A. (2006). Think outside the box: extrapulmonary manifestations of severe respiratory syncytial virus infection. *Critical care (London, England)*, 10(4), 159. <https://doi.org/10.1186/cc5012>
- Thorburn, K., Fulton, C., King, C. et al. Transaminase levels reflect disease severity in children ventilated for respiratory syncytial virus (RSV) bronchiolitis. *Sci Rep* 8, 1803 (2018). <https://doi.org/10.1038/s41598-018-20292-6>