**RIFAMPIN-INDUCED NEPHROTOXICITY IN A TUBERCULOSIS CASE**

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**BACKGROUND AND RATIONALE**

- Rifampin causes an acute interstitial nephritis (AIN), an allergic response. It is idiosyncratic and non-dose dependent.
- Acute kidney injury due to rifampin is rare, occurring in 0.1% of TB patients, thus making diagnosis difficult (Mendel K et al, Rev Tubul Urol 2010).
- Neurotoxicity, early diagnosis is important to prevent progression to end-stage renal disease. Of the four drugs used in initial phase of TB treatment, namely isoniazid (INH), rifampin (rif), pyrazinamide (PZA), ethambutol (EMB)—two (rif and PZA) can cause AIN.

- We describe in this case report a TB patient who developed acute kidney injury and how we came to attribute this to rifampin.

**PRESENTATION OF CASE**

- A 38-year-old male from Mexico arrived in United States in 1996.
- Left sister and 2 year old child behind
- Worked as a painter
- Cigarette smoker for 15 years, one pack a day
- Was drinking beer, up to 10 cans a day
- Ill for 3 months
- Cough
- Night sweats, Fever
- Loss of appetite
- Hair loss, weight loss
- A 50 lb. weight loss

**Diagnosis**

9/08/14 Chest radiograph, Bilateral Infiltrations
9/08/14 Sputum, AFB smear +ve, Gondaopst MTB/RIF Positive
9/14/14 E.S.P.T.B.R Negative
9/14/14 Sputum Culture, M. tuberculosis
10/21/14 Drug susceptibility Testing
10/21/14 Genotyping, GNType G03500; MTB, Texas Lineage
11/24/14 HIV Negative

**Trends in Laboratory Results: Renal Function and Liver Function (1)**

**Guidance from Blood Count, Hepatitis Screening, and Urinalysis**

**BACKGROUND AND RATIONALE**

- Case initiated four drug therapy 8/29/14
- AST-101 on day he started treatment; AST -ALT at baseline 7 days earlier
- Although he was referred to TB clinic from a walk-in clinic 8/18/14, he delayed coming in
- Treatment was stopped 9/17/14 because AST = 118, ALT = 73
- Re-challenged with INH, EMB and Rifampin
- Organism was reported resistant to pyrazinamide on 10/2/14

**Developing Acute Kidney Injury (1)**

- Case received four drug therapy 8/29/14
- AST-ALT on day he started treatment; AST -ALT at baseline 7 days earlier
- Although he was referred to TB clinic from a walk-in clinic 8/18/14, he delayed coming in
- Treatment was stopped 9/17/14 because AST = 118, ALT = 73
- Re-challenged with INH, Ethambutol, and Rifampin
- Organism was reported resistant to pyrazinamide on 10/2/14

**Developing Acute Kidney Injury (2)**

- Case re-challenged with rifampin
- He had received 50 doses of rifampin before AKI manifestations
- Organism was reported resistant to pyrazinamide on 10/2/14

**DISCUSSION**

- A 38-year-old male developed AKI attributed to rifampin
- He had received 50 doses of rifampin before AKI manifestations
- A baseline complete metabolic panel (CMP) was essential in recognizing AKI, covers both liver and renal function.
- A CMP was not done at 59:90. Should this be routine, irrespective of risk factors indicated?
- Alcohol use likely contributed to abnormal AST and ALT the day he initiated treatment Fortunately he has abstained from drinking and smoking after counseling.
- This is a case of pulmonary tuberculosis due to Mycobacterium fortuitum.

**CONCLUSIONS**

- Rifampin-induced renal toxicity is a rare but serious adverse effect among patients on anti-tuberculosis treatment.
- Our patient has recovered his renal function upon discontinuation of the offending agent, rifampin, without using corticosteroids.
- More reports are needed.