

Vancomycin Induced DRESS Syndrome Leads to Diffuse Maculopapular Rash and Acute Kidney Injury Requiring Hemodialysis, a Rare Life-threatening Condition

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Abstract Drug hypersensitivity syndrome or drug reaction eosinophilia and systemic symptoms are a rare but potentially life-threatening condition. The incidence ranges from 1/1,000 to 1/10,000 drug exposures with 10 % overall mortality. Allopurinol, sulfonamides and antiepileptics are notorious for causing the DRESS syndrome; vancomycin is less common. Symptoms are mostly rash, atypical lymphocytosis, eosinophilia, and often lymphadenopathy. There may be hepatic, renal, and/or pulmonary involvement. In this article, we present a rare case of 66 years old male who recently had MRSA bacteremia four weeks ago, was on Intravenous vancomycin presented to us secondary to disseminated rash involving more than 70 percent of his body surface area along with high-grade fever, lymphadenopathy and hypotension. Blood work showed eosinophilia, elevated lactic acid and high creatinine. The patient was started on intravenous linezolid and piperacillin/tazobactam but his rash and kidney function were getting worse to an extent of hemodialysis. Suspicion was raised drug induced rash along with systemic involvement due to recent use of vancomycin. All antibiotics were stopped and the patient was started on intravenous fluid and intravenous steroid with significant improvement in two weeks. The main treatment of the DRESS syndrome is supportive therapy along with intravenous steroids.

Keywords: DRESS syndrome, vancomycin, rash, eosinophilia, steroids

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Cutaneous Adverse Reactions (RegiSCAR) scoring system has been most commonly used [4,5].

1. Introduction

Drug rash with eosinophilia and systemic symptoms (DRESS) syndrome characterized by fever, rash, eosinophilia, atypical lymphocytes, and multiorgan involvement has a significant mortality. Allopurinol, antiepileptics and sulphonamides are notorious for causing the DRESS syndrome. [1] Vancomycin is less common, but due to excessive use of vancomycin in an inpatient facility, vancomycin appears to be emerging as an important etiology of the DRESS syndrome. [1] Adverse severe cutaneous reactions (SCARs) are rare, and DRESS is a distinct SCAR which includes life threatening hypersensitivity reaction along with fever and multiorgan involvement [2] DRESS should be suspected if symptoms occur within 2 to 6 weeks of starting the offending drug. [3] Three scoring system used by clinicians in the diagnosis of DRESS and among them The European Registry of Severe

2. Case Report

Herein, we present a case of 66 years old male with past medical history of recent MRSA bacteremia secondary to ureterolithiasis and hydronephrosis, underwent left ureteral stent four weeks ago was on intravenous vancomycin at home presented to us secondary to disseminated rash involving more than 70 % of the BSA started 3 days ago along with fever 102.2 F, chills, malaise, lymphadenopathy and hypotension. Patient blood pressure was 90/50, heart rate 72 and respiratory rate 14. The patient completed a two week course of intravenous vancomycin 5 days before coming to the hospital. Blood work showed an elevated WBC 18.5 x 10³/UL along with 44% bands, eosinophils 14 %, elevated lactic acid of 3.4 mmol/L and high creatinine of 6.9 mg/DL with a baseline

of 1.1 mg/DL. Patient liver enzymes and hepatitis panel were normal. The patient was started on linezolid 600 mg intravenously every 12 hours along with piperacillin/tazobactam 3.375 g every 8 hours secondary to sepsis. Blood culture, urine culture and sputum culture were collected. Patient rash and kidney function were getting worse. ANA, C3 and C4 complement level was negative. All cultures were negative. TEE didn't show any vegetation. All antibiotics were stopped and suspicion raised for drug induced rash and systemic symptoms secondary to recent use of vancomycin. The patient was started on intravenous fluid and intravenous steroids. Patient kidney function was getting worse and eventually he got one hemodialysis. Neurologist recommended getting a kidney biopsy secondary to his worsening kidney function and biopsy result was reported as acute interstitial nephritis. Supportive treatment was continued along with intravenous steroids and the patient started showing improvement after two weeks. Creatinine also started trending down, and the patient didn't require dialysis again. Biopsy result and timing of rash i.e. four weeks after starting vancomycin and systemic symptoms were suggestive of vancomycin-induced DRESS. The patient was discharged on a tapering dose of steroids. Treatment for DRESS is mainly steroids along with symptomatic management, and rarely patient need dialysis.

3. Discussion

The DRESS syndrome has a high mortality rate up to 10% [6] with most patients die from acute kidney failure, acute liver failure and multi-organ failure and hemophagocytosis [7]. Diagnosis is made by exclusion [8]. There are many scoring systems that were by physicians. RegiSCAR scoring system has been mostly used to grade DRESS cases as possible, probable and definite DRESS. Bocquet et al. Proposed three criteria in order to diagnose DRESS: 1) systemic involvement leading to hepatitis, interstitial nephritis, interstitial pneumonitis, carditis and adenopathy, 2) eosinophilia or atypical lymphocytosis and 3) skin rash [9] Most common indication for probable/definitive DRESS is delayed onset of symptoms 2-6 weeks [6] Mostly DRESS syndrome present with 8 weeks of drug exposure but there was one case reported 4 months after started carbamezipine [10]. The recovery period varies from patient to patient and the average time is between 6 to 9 weeks, which may include several flare-ups [6]. These flares up have been reported secondary to an ongoing disease course versus introduction of new drugs [11]. The most common cause of mortality is liver failure and continuous monitoring is warranted [9]. Although DRESS has been commonly reported due to anticonvulsant and allopurinol but due to increasing use of intravenous vancomycin and high trough secondary to high incidence of MRSA, vancomycin induced DRESS cases has been increasing recently [1]. Other common drugs causing DRESS include esomeprazole, atorvastatin, doxycycline and nitrofurantoin [12-17]. Treatment is mostly symptomatic, including intravenous steroids, antipyretics and topical moisturizer [18]. Relapse may occur once the steroids are tapered or discontinued and also due to repeated exposure [18].

4. Conclusion

As vancomycin is increasingly being used as an empiric drug for MRSA, we recommend raising awareness among healthcare professionals about this life-threatening condition. Rash two to six weeks after starting the drug along with fever, lymphadenopathy, eosinophilia, elevated liver enzymes and abnormal kidney functions should raise suspicion of the DRESS syndrome. Early recognition and discontinuing the offending drug can help in reducing the mortality and morbidity.

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