

Carbamazepine Induced Rashes with DRESS Syndrome: A Case Report

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Abstract

Background: Drug rash with eosinophilia and systemic symptoms (DRESS) syndrome is an uncommon but potentially fatal condition that develops in response to anticonvulsants that produce arene oxide, such as phenytoin and carbamazepine. Upon first contact with the offending medications, there have been numerous reports of cross reactivity among the anticonvulsants. There are, however, few studies describing the emergence of DRESS syndrome following the discontinuation of previously well-tolerated carbamazepine and the DRESS-induced induction of CBZ hypersensitivity.

Method: We describe a rare complication that can be caused by the use of carbamazepine even at its normal dose in a patient suffering from seizures.

Result: Drug withdrawal procedure was started for the patient came to the hospital on drug withdrawal it was seen the rashes were not developed. The rashes were gone in 3-5 days of the treatment withdrawal and along with the treatment of the dermat department.

Conclusion: We experienced a case of 65 years male administrating CBZ for his treatment of seizure and on administrating CBZ the very next day the patient developed DRESS Syndrome along with the rashes on his whole body and the drug was then discontinued. An unusual, severe drug reaction known as hypersensitivity syndrome includes a rash, fever, involvement of several visceral organs, and other symptoms.as well as hematological abnormalities such as eosinophilia.

Keywords: DRESS Syndrome; Carbamazepine; Eosinophilia; Phenytoin; Hepatic Dysfunction; Trigeminal Neuralgia

Abbreviations

AHS: Anti-Hypertensive Suspected Disorder; CBZ: Carbamazepine;
CNS: Central Nervous System; CYP 450: Cytochrome P-450; DRESS
Syndrome: Drug Reaction Eosinophilia Systematic Symptoms

Introduction

The medicine carbamazepine is frequently used. Hepatic abnormalities, ranging from an asymptomatic increase in liver function tests to severe liver failure, are frequently linked to it. When a generalized reaction is present, it is the most severe.

Known also as a drug reaction, a hypersensitive reaction systemic symptoms with eosinophilia (DRESS) [1]. Due to the low occurrence of side effects after prolonged usage, carbamazepine (CBZ), an effective anticonvulsant for partial and secondary generalized seizures, has become a preferred medication. Skin rash, CNS symptoms like sleepiness and vertigo, hepatic dysfunction, and, very rarely, hematological disorders make up the majority of the documented negative effects of CBZ [2]. The skin rash and hematological abnormalities may be linked to an allergic reaction, although the CNS symptoms and hepatic dysfunction may be dose-

dependent. About 5% of individuals taking CBZ experience severe side effects that call for drug withdrawal. It is crucial to define both the clinical and epidemiological elements of CBZ's adverse effects in light of its rising use. The medicine carbamazepine is frequently used. Hepatic abnormalities, ranging from an asymptomatic increase in liver function tests to severe liver failure, are frequently linked to it. A generalised hypersensitivity reaction, also known as a drug reaction, eosinophilia, and systemic symptoms, includes the most severe reaction (DRESS) [5]. A rare but potentially fatal pharmacological reaction to medications like phenytoin, phenobarbital, carbamazepine, valproate, and allopurinol is known as the "DRESS" syndrome. The illness is distinguished by skin rashes, fever, haematological abnormalities, lymphadenopathy, and organ failure amazing as hepatic dysfunction [4]. Individual medication treatment hypersensitivity reaction and to differentiate the sensitivity response from drug-induced pseudo lymphoma, Bocquet, just published introduced the word systemic eosinophilia with medication rash (DRESS) syndrome symptoms.

The anticonvulsants primary substances to blame for this disease. Between them, aromatic anticonvulsants that produce arene oxide, carbamazepine are the specific medications most usually used. Anticonvulsant or DRESS syndrome suspected hypersensitive disorder (AHS) [3].

Case Report

A 65 year old male with the known case of hypothyroidism, was diagnosed with Trigeminal Neuralgia, but was on irregular medication for it and was administrating Zeptol (300 mg) (1-0-1) (Carbamazepine) for a month, for the treatment of seizures. CBZ was typically given for the treatment of seizure. The patient started developing breathlessness and rashes 10 days back, the patient then visited the local hospital and was then given Tab Avil (Pheneramine) (25 mg) as an anti-allergic drug for the rashes on his body. The patient when visited the tertiary health care hospital then the patient was treated by tapering the dose of CBZ and other medications which are mentioned in table 1.

| Sr No | Brand Name | Generic Name | Dose | Frequency | Indication |
|-------|--------------------|--|-------------------------|-----------|-------------------------|
| 1 | Inj Hydrocortisone | Hydrocortisone | 100 mg | BD | Allergic conditions |
| 2 | Inj Ceftriaxone | Ceftriaxone | 1g | BD | Antibiotic |
| 3 | Inj Forcan | Flucanazole | 400 | OD | Fungal Skin Infection |
| 4 | Tab Clindamycin | Clindamycin | 600 | 1-0-1 | Antibiotic |
| 5 | Tab Avil | Phenaramine | 2cc | BD | Allergic conditions |
| 6 | Inj NS | Normal Saline | 1 pint | OD | Electrolyte balance |
| 7 | Inj RL | Ringer Lactate | 1 pint | OD | Electrolyte balance |
| 8 | Inj Febrinyl | Acetaminophen | 2 amp | SOS | Analgesic |
| 9 | Tab Thyronorm | Thyroxine | 12.5 mg | 1-0-0 | Hypothyroidism |
| 10 | Syp Grilinctus-BM | Ammonium Chloride + Chlorpheniramine Meleate + Dextromethrophan Hydrobromide + Gusifenesin | 5 ml + 5 ml+ 5 ml+ 5 ml | 1-0-1 | Cough |
| 11 | L-Sys Cream | Luliconazole | - | - | Fungal skin Infection |
| 12 | Evera Lotion | Vitamin E | - | - | Nourishment of the skin |

Table 1: Medication chart.

Discussion

A spectrum of symptoms and signs occurring at the extreme end of drug hypersensitivity is known as the Drug Reaction,

Eosinophilia, and Systemic Symptoms (DRESS) syndrome reactions. It alludes to a particular, harmful, peculiar medicine. Response that has a papulo-pustular or erythematous appearance a cutaneous

outbreak that frequently develops into exfoliate dermatitis visceral involvement (hepatitis, lymphadenopathy, nephritis, colitis, myocarditis, pericarditis, and pneumonitis) [1,4]. Numerous cases involve eosinophilia and leukocytosis, either mononucleosis (40%) or both (90%) [4]. The flavorful Anticonvulsants like phenobarbitone, phenytoin, and CBZ have been known to trigger extremely sensitive reactions and are among the medications since the initial reports in 1950 most likely to produce DRESS syndrome. other medicines, such as Sulphonamides, nevirapine, dapsone, minocycline, allopurinol, and dapsone DRESS can also be brought on by and lamotrigine In our case the patient was a chronic bidi smoker since 30 years and hence developed seizures as a result of smoking the patient was then prescribed with carbamazepine with which he developed rashes which were partially blenchable at chest, bilateral thighs, legs, arms, bilateral palms [6]. Despite this, there is mounting data that suggests an immunological aetiology for several of the CBZ-related idiosyncratic symptoms, including the DRESS syndrome. Blood retroactively acquired lymphocytes from hypersensitive not from drug in patients a number of patients or persons received CBZ may proliferate with no detrimental effects that may be seen. This comprehensive case report highlights the substantial body of research linking psychotropic drugs to the emergence of DRESS syndrome. Anticonvulsants proved to be the psychiatric medicine most frequently linked to DRESS. The metabolic process used by CBZ is used by all hydroxylated aromatic molecules. The liver's cytochrome P-450 (CYP) enzyme system breaks it down into intermediate arene oxides, which are then detoxified by the enzyme epoxide hydroxylase. Some people may be predisposed to DRESS due to inherited or acquired anomalies in metabolite synthesis and/or faulty metabolite detoxification. Arene oxides have the ability to bind to cell macromolecules, resulting in cell injury or a subsequent immune reaction. Additionally, CBZ has the ability to auto-stimulate CYP3 A4 and CYP B6 to induce its own metabolism. The involvement of the liver and other organs in DRESS may also be attributed to the reactivation of herpes virus infections and the co-administration of other medications [8].

Conclusion

In conclusion, DRESS syndrome is a rare medication reaction that, if left untreated, could be lethal. It should be taken into account

Figure 1

when making a differential diagnosis for patients who have a common rash and are taking medication. Due to the widespread use of anticonvulsants in many disorders, DRESS syndrome is a clinical condition that, despite its rarity, should be treated as if it were a fatal sickness in situations where the same class of medications had been used previously. Because DRESS syndrome is a very uncommon occurrence. Numerous case reports in the literature discuss different therapy strategies, the foundations of which are quick discontinuation of the involved medicine and administration of corticosteroids. IVIG, cyclophosphamide, cyclosporine, and immunosuppressant's have all been successful in treating patients of corticosteroid-resistant DRESS [7]. The involved drug and other drugs in the same class (e.g., aromatic, nonaromatic) must be strictly avoided, and identification of a substitute drug is part of the management of concomitant psychiatric disorder (eg, VPA for CBZ-induced DRESS). Phenytoin was the most dominating proven drug for the treatment of carbamazepine induced rashes. DRESS Syndrome is a complex disorder which can only be recognised by rashes, redness, fever, facial puffiness. In this patient we can see rashes all over the body which lead to the diagnosis of DRESS Syndrome [8].

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