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CARBAMAZEPINE INDUCED DRUG RASH: A CASE REPORT

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Abstract: ***Carbamazepine is a tricyclic Compound that is most efficient against partial seizures with it without secondary generalization. The introduction of carbamazepine into the area of epilepsy specified a new phase to control epileptic attacks. The variability in response to carbamazepine may be due to differences in pharmacokinetics, pharmacodynamics of drugs and ethnicity of individuals. ADRs due to Carbamazepine range from mild maculopapular rash to severe anticonvulsant Hypersensitivity syndrome. An anticonvulsant , Carbamazepine is known to show incidences of cutaneous drug reactions(CDRs), including Steven-johnson syndrome(SJS), Toxic epidermal necrolysis(TEN) and drug induced hypersensitivity (DIHS). AHS is the triad of fever, rash, and internal organ involvement occurring 1-8 weeks after exposure to an anticonvulsant.***

KEY WORDS: Carbamazepine, seizures, pharmacokinetics, pharmacodynamics, Adverse reactions, Cutaneous drug reactions, Steven Johnson , Toxic epidermal necrolysis, Hypersensitivity reactions.

Introduction

Carbamazepine (C15 H12N2O) is a tricyclic Compound that is most efficient against partial seizures with or without secondary generalization. The introduction of carbamazepine into the area of epilepsy specified a new phase to control epileptic attacks(1). There is considerable interindividual variations in response to carbamazepine in clinical practice. The variability in response to carbamazepine may be due to differences in pharmacokinetics, pharmacodynamics of drugs and ethnicity of individuals(2). The cutaneous adverse reactions more frequently seen in our allergy section because of anticonvulsant drugs are rashes with fever(3). An anticonvulsant, carbamazepine is known to show incidences of cutaneous adverse drug reactions, including Steven-johnson syndrome, toxic epidermal necrolysis and drug induced hypersensitivity Syndrome(4). Carbamazepine is one of the routinely prescribed drugs for the treatment of epilepsy and neuropathic pain. ADRs due to Carbamazepine range from mild maculopapular rash to severe anticonvulsant Hypersensitivity Syndrome. AHS is the triad of fever, rash, and internal organ involvement occurring 1-8 weeks after exposure to an anticonvulsant(5). Although serious adverse reactions, such as hematologic toxicity , may occur rarely, we have found that carbamazepine rash is common(6). Rash after a mean of 12(range 9-83) days. The mean age and carbamazepine dose was not significantly different between those with and without rash. The types of Skin rashs are erythema multiform, macular, maculopapular rash, maculopapular with urticaria and maculopapular with pustules(7).

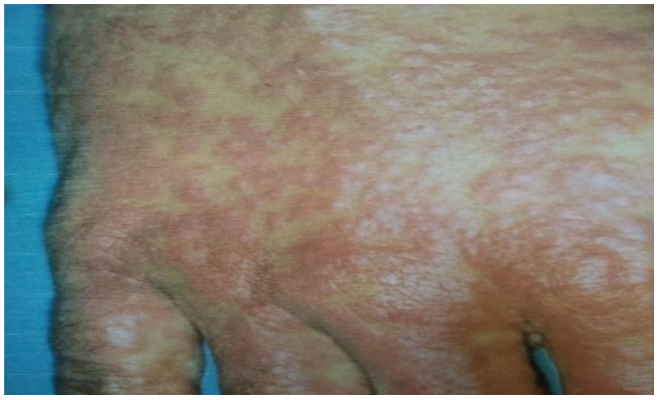
CASE:

In this case a 12 years old female subject was a known case of seizures. Came with chief complaints of itching and Rash all over the body since 20 days. On examination she was conscious and coherent, temperature was found to be normal, pulse rate was 86/min, BP was 110/70mmhg, Heart/Lungs-NAD. Cutaneous examination results Maculopapular rash all over the body. Erythema was present on oral mucosa, and tongue. Genitals were normal.

Past medication history is subject was on Tab. Carbamazepine 200mg twice a day, Tab. Prednisolone 10mg three times a day, Tab. B.Complex once daily, Tab.Albendazole 400mg twice a day as prescribed. Due to long-term usage of the drug Tab.Carbamazepine 200mg she developed itching and

Maculopapular rash all over the body from 20 days. TheADR was managed by discontinuing offending drug and initiating supportive therapy with topical applications Mucopaine gel BD, and JESS ointment BD after foodand Inj.Decardon 1cc-1/2cc IV BD, Inj. 1cc BD, Inj. Monocef 1gm IV BD, Inj. Pantop 40mg IV OD to recover the condition.

Based on Subjective and Objective data it is confirmed as Carbamazepine induced drug rash.



DISCUSSION:

Aromatic anticonvulsants are metabolized by the cytochrome P-450 enzyme to a common arene oxide metabolite that is normally detoxified by enzyme systems such as epoxide hydrolase. Genetically determined abnormalities in enzyme systems leading to inability to detoxify toxic metabolites may be involved in the pathogenesis of AHS(8). ADME process in individuals differs at various stages of life like infants, children, adults and elderly population. Higher concentrations of the drug and it's metabolites , cauindividuae individuals in vivo absorption, distribution, metabolism and elimination enzyme(ADME). Activity, or by way of drug-drug interactions, increase the risk for many Hypersensitivity reactions(9). As the subject continued medication for a prolonged period she developed rash all over the body. The criteria for DIHS diagnosis include a maculopapular rash developing >3 weeks after initiation of therapy with a limited number of drugs, prolonged clinical symptoms 2 weeks after initiation of therapy with a limited number of drugs, prolonged clinical symptoms 2 weeks after discontinuation of the causative drug, fever>38°C, liver abnormalities(ALT,>100IU/L), Leucocyte abnormalities including leukocytosis(>11000), atypical lymphocytes(>5%) or eosinophilia, lymphadenopathy and HIV-6 reactivation(10).

Discontinuing the causative drug and choosing suitable alternate drug for seizures will be more beneficial. -Treating Maculopapular rash with best topical medication will be helpful to recover the present condition.

CONCLUSION:

There is increase in the number of prescriptions for carbamazepine in recent years. In this case report there is the probable association between carbamazepine and generalized erythematous rash. This case has been reported to highlight the importance of using carbamazepine cautiously keeping in mind it's association with skin rash and other serious conditions.

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