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A Case Report of Phenytoin-Induced Stevens-Johnson Syndrome

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ABSTRACT

Stevens-Johnson syndrome and Toxic epidermal necrosis are acute, self-limited diseases, rare but life-threatening adverse drug reactions. Anti-epileptic drug-induced Steven-Johnson syndrome is a severe cutaneous adverse reaction, among anti-epileptic drugs carbamazepine and phenytoin are the major culprit. We report here a case of Steven-Johnson syndrome due to phenytoin. A 22-year-old female reported the chief complaint of fever and multiple rashes all over the body with skin peeling, gradual onset, and progressive in nature. The reaction was evoked after intake of T. Phenytoin for 1 ½ months. She started heavy skin eruption all over the body for 15 days. She was treated with corticosteroids, anti-microbial, and anti-fungal agents. Healthcare providers must carefully regard the adverse effect of the drug, especially the one that is Steven-Johnson syndrome which is a potentially fatal condition. The most commonly prescribed drug regimen should also be used and continuously monitored to prevent adverse drug reactions.

Keywords: Steven-Johnson syndrome, Adverse drug reaction, Phenytoin, Skin eruption

INTRODUCTION

Adverse drug reactions are one of the main causes of death for hospitalized patients, occurring in 0.3 to 7 % of all hospital admissions. These may vary from mild to severe reactions such as Stevens-Johnson syndrome (SJS). Between 5% and 8% of hospitalized patients experience serious adverse drug reactions.[1]

Steven-Johnson syndrome is an acute life-threatening mucocutaneous reaction characterized by severe necrosis and detachment of the epidermis. The first two examples of disseminated cutaneous eruptions linked to erosive stomatitis and significant ocular involvement were documented by Steven and Johnson in 1922.[2] SJS is linked to a 1-5% mortality rate, which rises to 25-35% in the case of TEN.[3]

CLASSIFICATION of SJS:

Grade 1- SJS mucosal erosions and epidermal detachment less than 10%
Grade 2- Overlap SJS/TEN epidermal detachment between 10% and 30%
Grade 3- TEN epidermal detachment of more than 30%.[4]

In 95% of cases, drugs are the most often involved factor. SJS and TEN occur in 0.05 to 2 people per million people annually. HIV patients experience a higher incidence than the general population.[5]

However, these may often go undetected and unreported. SJS is a severe life-threatening mucocutaneous syndrome caused by drugs like antimicrobials, antiepileptics, and analgesics.[6]

Antiepileptic medications are linked to serious skin responses like Toxic epidermal necrolysis (TEN) and Stevens-Johnson syndrome (SJS). Phenytoin is one of the most commonly prescribed antiepileptic agents and is known to cause a plethora of adverse effects.[7] With polymorphic lesions of the skin and mucous membranes characterized by acute blisters and erosions, SJS might manifest as a nonspecific febrile sickness (malaise, headache, cough, rhinorrhoea) [3]

We report the case of Stevens-Johnson syndrome brought on by phenytoin.

CASE DESCRIPTION

A 22 Years old female patient was brought to the emergency department with the chief complaint of fever for 5 days- intermittent, (high grade) and multiple rashes all the over the body with skin peeling × 4 days, gradual onset, progressive in nature. The patient had a history of Road traffic accident, so she had undergone an emergency left sided FTP burr hole and evaluation of SDH done in private hospital and Patient was prescribed with phenytoin for 1 ½ months, 15days later she developed heavy skin eruptions all over body which is severe for past 5 days then she was brought to the hospital. Past history patient recently diagnosed with type 2 diabetic mellitus for 1 month on insulin, SDH operated 2 months back prescribed with phenytoin.

On examination Patient was conscious oriented, febrile, and had rashes all over bodies. On systemic examination, BP-120/80 mm/hg, PR – 120/min CBG-107mg/dl, S1S2+, soft BS+, NFND (moves all limbs,) and local examination multiple erythematous purpuric rashes all over body & skin peeling, crusting were found. Furthermore, total counts and sodium levels are elevated. Based on the subjective and objective evidence the patient's clinical condition was diagnosed with a phenytoin-induced Steven-Johnson syndrome. Immediately all the anti-epileptic drug was withdrawn.

Fig1,2: Multiple erythematous purpuric rashes all over body and skin peeling

The patient was initially treated symptomatically and under the expert guidance of a dermatologist they had treated with Inj. Methylprednisolone 500mg IV bd for 5days followed by Inj. Dexamethasone 8 mg IV bd for 2 days, liquid Paraffin for 7 days, saline soak, and mupirocin ointment. On day 3 patient developed Oral mucosal candidiasis for that T. Fluconazole 150mg od and candid mouth paint l/b were given. The patient's recovery was achieved in 8 days and a Liquid & soft diet was advised. The steroid (methylprednisolone) doses were tapered appropriately with gradual resolution of the symptoms and the patient was discharged after complete ablation of rashes with proper instructions regarding the possible relapse with the use of aromatic antiepileptics.

CASUALITY EVALUATION:

To evaluate the relationship in between the causative drug and adverse reaction, causality assessment was done Naranjo's scale showed that phenytoin is the *probable* cause of the adverse reaction in this case (score=7).

DISCUSSION

Steven Johnson syndrome is a potentially fatal immune-mediated hypersensitivity response brought on by either drugs or infections. SJS cases brought on by drugs range from 50% to 80%. The most frequent drugs that cause this adverse reaction are anti-convulsant drugs like Antiepileptics, antibiotics like Sulphonamide and beta-lactams antibiotics, and analgesics like Diclofenac and Allopurinol. It is a delayed hypersensitivity reaction that affects the skin, oral mucosa, eyes, oesophagus, mouth, throat, larynx, skin, and sexual organs, and affects less than 10% of the surface area of the body. [8,9]

When the patient has a history of ingesting the offending substance within eight weeks after the onset of symptoms, SJS is categorized as secondary to drugs.[10]

In our case, we report a phenytoin-induced SJS Singh S *et al* reported that the oxidative reactive intermediates created by phenytoin's induction of cytochrome P450 3A play a role in the hypersensitive reaction. Additionally, epoxide hydrolases are hypothesized to be involved in the detoxification process for the aromatic chain in the chemical structure of phenytoin and other drugs.[11]

Early identification and immediate intervention with effective treatment and support are the key action points in this SCAR. Patients with SJS are treated initially to withdraw the causative drug and then with supportive care (fluids, electrolyte replacement), corticosteroids, immune suppressants, antibiotics, and antihistamines. Community education may raise public awareness of allergies and increase prompt health-seeking patterns in affected individuals. [12]

CONCLUSION

In our study, we identified that the patient developed SJS after taking phenytoin.

The report advises close observation of population-wide phenytoin use for the incidence of adverse effects of the SJS/TEN type. The patient may overlook the oral erythema and ulcerations, typically the first symptoms to show. A risk assessment is required for preventing additional tissue damage. Early detection, drug withdrawal, and early transfer to a specialized facility are all components of management. It is very important to be alert to severe hypersensitivity reactions and supportive care is an essential part of the therapeutic approach

The clinician can avoid secondary infection and ensuing consequences with the aid of an early diagnosis. The offending drug should be discontinued and never be rechallenged.

Abbreviation:

SJS- Steven-Johnson Syndrome, **TEN**- Toxic Epidermal Necrosis, **HIV**- Human Immunodeficiency Virus, **SDH**- Subdural Hematoma, **FTP**- Fronto Temporo Parietal, **OD**- Once in a day, **BD**- Bis in day **SCAR**- Severe cutaneous Adverse Reaction.

Declaration by Authors

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