

Eosinophilia in pre-anesthetic assessment: A guide to diagnosis of DRESS syndrome

Dear Editor,

Pre-anesthetic check-up (PAC) includes a pertinent medical and surgical history, a complete physical examination, and any indicated laboratory tests.^[1] We present the case of a patient with the clinical symptoms of drug reaction during review PAC wherein prompt measures were timely taken to stabilize the patient. In case the symptomatology had presented intra- or post-operatively, the etiology may not have been defined.

A 48 kg, 146 cm, 18-year-old woman was scheduled for corrective surgery of non-united, displaced fracture of radius bone under general anesthesia. Patient was conscious and well-oriented. Patient had a history of a fall a month back with injury to the right forearm and after which, she had loss of consciousness, seizure, and vomiting along. She was managed conservatively, and oral phenytoin 300 mg OD was started for seizures. The laboratory evaluation did not show any abnormality, except for the eosinophilia. History of asthma, food allergy, eczema, and parasitic infection were negative.

A course of anti-helminthic was started thereafter as per the institutional protocol. On reevaluation after 5 days, patient was found to be febrile with rash over chest, abdomen, and back. The hemoglobin of the patient was 11.3 gm/dl, total leukocyte count 14,800/ μ l, differential leukocyte count - P₆₄ L₂₀ M₃ B₀ E₁₃, platelet count- 90,000/ μ l, and absolute eosinophil count 1360/ μ l. Peripheral blood smear showed leukocytosis with eosinophilia. Liver function tests of the patient showed markedly raised alanine aminotransferase >100 U/L. Skin biopsy of the patient was taken, and internal medicine reference sought. A diagnosis

of severe idiosyncratic reaction or DRESS (Drug Reaction with Eosinophilia and Systemic Symptoms) Syndrome to drug phenytoin was made.

Eosinophilia can be idiopathic (primary) or secondary to another disease. In the developing world, parasites are considered the most common cause.^[2] Patients with eosinophilia when exposed to general anesthesia have a risk of developing complications like urticaria, bronchospasm,^[3] coagulopathy, and acquired respiratory distress syndrome during the peri-operative period.

DRESS syndrome is a severe form of drug reaction, which carries about a 10% mortality.^[4] It is caused by exposure to certain medications like phenytoin^[5] along with phenobarbitol, carbamazepine, lamotrigine, minocycline, sulfonamides, allopurinol, modafinil, and dapsone. The pathophysiology of DRESS syndrome remains unclear, but a defect in detoxification of causative drug, immunological imbalance, and infections such as human herpes virus type 6 (HHV 6) have been suggested.^[6] The clinical presentation usually starts with fever and rash, which begins several weeks after exposure to the offending drug, which may progress to symptoms of internal organ involvement like hepatitis, nephritis, myocarditis, or pneumonitis. We have used the RegiSCAR^[7] criteria for diagnosis, but there are no accepted criteria for diagnosis [Table 1].

Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are other similar forms of life-threatening skin conditions. To differentiate DRESS syndrome from these, the presence of eosinophilia and atypical lymphocytosis may be a helpful factor. The skin biopsy may also help as it shows denser eosinophilic infiltration of the papillary dermis.^[8]

On diagnosis, immediately the offending drug was stopped, and newer anti-epileptic levetiracetam was started orally. The patient was shifted to the intensive care unit. Eosinophilic accumulation is thought to account for internal organ involvement. Corticosteroids inhibit the effect of IL-5 on eosinophil accumulation, and

Table 1: The inclusion criteria for HSS/DRESS in RegiSCAR

Hospitalization
Reaction suspected to be drug related
Acute skin rash*
Fever above 38°C *
Enlarged lymph nodes at at least two sites*
Involvement of at least one internal organ*
Blood count abnormalities
Lymphocytes above or below the laboratory limits*
Eosinophils above the laboratory limits (in percentage or absolute count)*
Platelets below the laboratory limits*

*Three or more required

their use improves the clinical and laboratory outcome in patients with DRESS syndrome.^[8] Patient was given systemic corticosteroids along with the supportive therapy of anti-pyretics along with topical steroids for the skin rash.^[9] Therapies aimed at accelerating the elimination of the causative drug have also been mentioned.^[10] Systemic corticosteroid was tapered off slowly with clinical improvement of the patient, who recovered well over a period of 16 days and was later taken up for the surgery, which went uneventful.

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