

**DRUG INDUCED SYNDROMES: AN OVERVIEW****Sanjusha Ankathi\*, Mounika Padishala and Shivani Bandari**

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Accepted on 12 Jan. 2021DOI: <https://doi.org/10.17605/OSF.IO/5VK76>**\*Corresponding Author****Sanjusha Ankathi**Pullareddy Institute of  
Pharmacy, Telangna, India.**ABSTRACT**

Over the past few years a great number of drugs come into the market which may give rise to polypharmacy and many drug related problems. Such incidence is called drug induced syndrome. In recent years these incidence increased a lot. This overview article is used to bring awareness of certain drug induced syndromes which include its causative agents, clinical manifestations and treatment.

**KEYWORDS:** Drug induced syndrome, causes, clinical manifestations, treatment.

**INTRODUCTION**

The name “syndrome” is taken from the Greek word syndrome which implies a group of symptoms that together are characteristic of a specific disorder, disease or the like. In medical language syndromes are categorized as syndromes caused due to infections, cardiovascular, environmental, renal, neurological, gastrointestinal, and neoplastic and others.

Drug induced syndromes are the side effect caused by medicated drugs and treated by cessation or reducing the dose or change of drugs with other drugs which has same pharmacological action. Broadening of medical knowledge brought different kinds of drugs into market and the cause some undesired effect on patients. To ensure safety of patients one should have the knowledge of these side effects and these knowledge is gained from health care professionals such as pharmacist etc. Drug induced syndromes should be identified and brought to medical professionals to be treated. So this review article here by is used to acquire some information on some drug induced syndromes such as its causative agents, signs and symptoms and therapy.<sup>[1,2, and 3]</sup>

**Red Man Syndrome:** it is a triggered hypoallergic reaction by the rapid administration of some antibiotics.

**Causes:** vancomycin, ciprofloxacin, amphotericinb, rifampicin and teicoplanin.

**Signs and Symptoms:** purities, erythema of face, neck and upper torso, burning itching, agitation, hypotension and angioedema .chest pain, dyspnea and evanescent purities are seen in severe cases.

**Treatment:** management is procured through administration of antihistamines, hydroxyzine which acts on erythema and pruritus, preadministration of diphenhydramine before vancomycin infusion, H1 receptor blocker, and H2 receptor blocker such as cimetidine prevent risk.<sup>[4,5]</sup>

**Hand foot Syndrome:** it is also called as planar plantar erythrodysesthesia which is an undesirable or unexpected reaction of chemotherapeutic agents.

**Causes:** liposomaldoxorubicin, capecitabine, 5-flourouracil, cytarabine, docetaxel, sorafenib, sunitinib, cyclophosphamide, etoposide, vinorelbine, methotrexate, hydroxyurea, tegafur, mercaptopurine and paclitaxel.

**Signs and Symptoms:** erythema, burning pain, edema with flaking and limitation of daily activities.

**Treatment:** reduction of chemotherapeutic drug dose or by replacing the drug with another which has same therapeutic activity and symptomatic treatment reduces the adverse reactions.<sup>[6,7]</sup>

**Neuroleptic Malignant Syndrome:** it is an adverse reaction seen immediately after administering dopamine receptor antagonist.

**Causes:** most typical and atypical antipsychotics cause NMS. Some others like lithium, carbamazepine, antidepressants and antiemetics cause NMS like symptoms.

**Signs and Symptoms:** autonomic nervous system instability, muscle rigidity, extrapyramidal motor findings, dysphagia, dyspnea, abnormal reflexes, mutism and seizures.

**Treatment:** Discontinuation of medication, treating with bromocryptine mesylate and dantrolene sodium. Others like amantadine hydrochloride, levodopa, apomorphine, benzodiazepines may include in management of NMS.<sup>[8,9]</sup>

**Sweet syndrome:** Sweet syndrome (the eponym for acute febrile neutrophilic dermatosis) is an uncommon skin condition. It causes fever and painful skin that appears mostly on the arms, face and neck.

**Causes:** Antibiotics (Trimethoprim-Sulfamethoxazole), NS-AIDS, All-Trans Retinoic acid (ATRA), Most commonly occurs in patients treated with Granulocyte-colony stimulating factor therapy.

**Signs and symptoms:** Tender Erythematous skin lesions (papules, nodules and plaques), Neutrophilia, painful small red bumps on arms, neck, back and face.

**Treatment:** Systemic, corticosteroids are the First line therapy and in addition, treatment with Topical or Intralesional corticosteroids, oral corticosteroids like Prednisone may be effective as either Monotherapy or Adjuvant therapy. Oral therapy with either Potassium iodide or page Dapsone or Colchicine can be given. Withdrawal of Dermatitis causing medication can be effective.<sup>[10,11]</sup>

**Purple glove syndrome (PGS):** PGS is a rare complication of IV Phenytoin therapy. It is defined as Edema, discoloration and pain occurring in the distal limb where intravenous phenytoin has been administered.

**Causes:** Anticonvulsant (Phenytoin) Signs and symptoms: Edema, pain, discoloration of skin, blistering of skin.

**Treatment:** Recommend discontinuing of the use of Phenytoin and heat therapy is also used to relieve the pain at the site of injection.<sup>[12,13]</sup>

**Rabbit syndrome:** Rabbit syndrome is an Antipsychotic induced rhythmic motion of the mouth or lips, resembling the chewing movements of the rabbit. The movement consists of a vertical motion only, at about 5HZ, with no involvement of tongue. Rabbit syndrome may be due to a hyper cholinergic state resulting from the blockade of dopaminergic neurons in the extra pyramidal system.

**Signs and symptoms:** Involuntary, fine, rhythmic motion of the mouth along a vertical plane (oral dyskinesia), anxiety and fatigue, popping sound produced by opening and closing of lips.

**Causes:** Antipsychotics; (Older - perphenazine, Chlorpromazine, Trifluoperazine, Thioridazine). (Newer - Risperidone, Olanzapine, Clozapine, Aripiprazole).

**Treatment:** Treatment is empirical, first step is to reduce the amount of antipsychotic treatment as much as possible. However, full withdrawal of antipsychotic treatment is impossible; the syndrome cannot be completely abolished without additional measures. The next stage of treatment involves specific drugs that aim to control the syndrome.

Anticholinergic drugs like Trihexyphenidyl and procyclidine are the known treatment. Rabbit syndromes do not respond to Levodopa and Dopamine antagonist in some cases. First generation antipsychotics (Haloperidol) and second generation antipsychotics (quetiapine) which is serotonin dopamine antagonist was effective as a monotherapy for the management of both Rabbit syndrome and Psychotic symptoms.<sup>[14,15,16, and 17]</sup>

**Lyell Syndrome:** It is also known as Toxic Epidermal Necrosis, It is defined as an epidermal detachment of more than 30% of body surface area, Most commonly it is due to an Idiosyncratic.

**Causes:** Immuno - allergic reaction to a drug.

**Signs and symptoms:** sheets of Erythema, necrosis and bullous detachment of the epidermis, which is closely resembling to that of scalding of the skin, fever, malaise, rhinitis, cough and arthralgia along with mild inflammation of eyelids, conjunctiva, and oral mucosa of the mouth may occur, followed by skin tenderness and erythema.

**Causes:** Drug related allergic reactions, found of increased HLA-B12 variant.

**Treatment:** patients should be admitted in dermatologic-in-patient, regional burn centre and plastic reconstructive surgery could also be improvised. Therapy should be based on three core stones like: (a) Identification and Elimination of provocative agents, (b) Active therapy, (c) supportive therapy. Active suppression of the disease is equally important. Corticosteroids,

Plasmapheresis, haemodialysis, and High dose of human Intravenous Immunoglobulin (ivig) at a total dose of 2gm/kg body weight have been recommended.<sup>[18,19, and 20]</sup>

**Nicolau Syndrome:** It is also known as livedo-like-dermatitis (LLD) / Embolia cutis medicamentosa (ECM). It is an infrequent complication followed by the Intra muscular and Intra-articular Injection of the various drugs.

**Signs and symptoms:** Erythematous-Ecchymotic Reticular Lesions at the injection site, which may lead to necrotic ulcers and scarring. Erythematous, Excruciating pain immediately after the injection.

**Causes:** Injection at intra muscular & intra articular sites of other drugs like benzathaline penicillin.

**Treatment:** After Intra-muscular Benzathaline penicillin injection the patient should be treated with hyperbaric oxygen and pentoxifylline in addition with supportive treatment.<sup>[23,24, and 25]</sup>

**Blue Grey Syndrome:** It is an amiodarone related hyperpigmentation considered as a skin storage disease secondary to drug deposition.

**Symptoms:** Blue-grey skin pigmentation, dyspnea, cough, and fever.

**Causes:** Amiodarone drug reaction due to its deposition.

**Treatment:** Discontinuation of the causative drug like amiodarone without introducing other medication is considered as the most used therapy in the clinics.<sup>[21,22]</sup>

## CONCLUSION

Due to adverse reactions of drugs patients may have to stay in hospital even after their therapy is completed and extra money is needed and mainly patient health is effected so awareness of drug induced syndromes is a must and should. Health care providers need to be extra careful of drug reactions for better patient care.

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