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Drug hypersensitivity syndrome

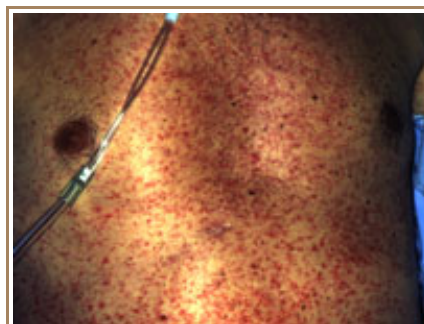
What is it?

Drug Hypersensitivity Syndrome (DHS) is sometimes also called Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS). This syndrome is a severe, unexpected reaction to a medicine(s), which affects several organ systems at the same time. It most commonly causes the combination of a high fever, a skin rash and inflammation of one or more internal organs including the liver, kidneys, lungs and/or heart. It generally starts one to eight weeks after taking the responsible medicine.

Early symptoms of Drug Hypersensitivity Syndrome

A high fever is usual noticed first. This is quickly followed by a widespread skin rash made up of redness, little bumps (papules) and pustules. The rash can last many weeks and may progress to [erythroderma](#) or exfoliative dermatitis, where all the skin peels off. The severity of the rash does not necessarily correlate with the extent of internal organ involvement. Later symptoms depend on the internal organs affected.

Drug hypersensitivity syndrome rash



What causes it?

The cause of the actual reaction is not known. A defect in the way the liver metabolizes drugs may be responsible. Another theory is that co-infection with the human herpes virus 6 (HHV6) is important. There certainly seems to be some genetic predisposition to Drug Hypersensitivity Syndrome.

The most common drugs to cause this reaction are the anti-gout drug, allopurinol, a number of anti-epilepsy drugs (particularly carbamazepine, phenobarbital and phenytoin) and the sulphonamide group of antibiotics. It has been estimated that 1 in every 10,000 patients treated with an anticonvulsant will develop Drug Hypersensitivity Syndrome.

Medicines more often reported to cause Drug Hypersensitivity Syndrome

- Abacavir
- Allopurinol
- Atenolol
- Azathioprine
- Diltiazem
- Gold salts
- Isoniazid
- Lamotrigine
- NSAIA*
- Phenobarbitone
- Phenytoin
- Sulfasalazine

- Captopril
- Carbamazepine
- Clomipramine
- Dapsone
- Mexiletine
- Minocycline
- Nevirapine
- Oxicam
- Sulphonamides
- Trimethoprim

*NSAIA = Nonsteroidal anti-inflammatory agents

Diagnosis of Drug Hypersensitivity Syndrome

The diagnosis is based on the clinical presentation of the triad of high fever, extensive skin rash and organ involvement, supported by a finding of eosinophilia (increase of eosinophil white cells in the blood) and abnormal liver function tests. As Drug Hypersensitivity Syndrome can occur up to eight weeks after first exposure to the responsible drug, a great degree of care is required when determining the responsible medicine. A temporal association between medicine use and the start of the syndrome is the strongest evidence. Patients who develop Drug Hypersensitivity Syndrome must avoid taking the causative medicine/s again.

Treatment and prognosis

Treatment consists of immediate withdrawal of all suspect medicines, followed by supportive care of symptoms. The mortality from Drug Hypersensitivity Syndrome is estimated at around 8%. It is very important for patients presenting with a high fever and a rash, where a diagnosis of Drug Hypersensitivity Syndrome is considered, to have blood tests as soon as possible. [Systemic steroids](#) (e.g. prednisone) are generally used in the more severe cases of Drug Hypersensitivity Syndrome involving significant exfoliative dermatitis, pneumonitis and/or hepatitis. However, the benefits of corticosteroids are unknown as controlled clinical trials are lacking.

Beware of cross-reactions

Cross-reactions are common between the three main aromatic anticonvulsant drugs (phenytoin, carbamazepine and phenobarbitone), and patients who have experienced Drug Hypersensitivity Syndrome with any one of these medicines must avoid all three. Because genetic factors are suspected in Drug Hypersensitivity Syndrome, first-degree relatives should be alerted to their elevated risk of developing hypersensitivity reactions to the same medicine(s).

Related information

References:

- [Drug hypersensitivity syndrome](#) Medsafe Prescriber Update article

On DermNet NZ:

- [Erythroderma](#)

Other websites:

- [Drug eruptions](#) - emedicine dermatology, the online textbook

Books about skin diseases:

See the [DermNet NZ bookstore](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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