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AVOIDING RASH DECISIONS: A GUIDE TO ADVERSE CUTANEOUS DRUG REACTIONS

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INTRODUCTION

Cutaneous adverse drug reactions (cADR) are common occurrences in the hospital, affecting 1-3% of all hospitalized patients.

Although most are benign, cADR can result in severe, life-threatening disease. Mild forms include maculopapular rash, fixed-drug eruption, morbilliform drug eruption, and urticaria. More severe reactions include Stevens-Johnson (SJS) and drug-induced hypersensitivity syndromes (DIHS).

CASE PRESENTATION

A 37-year-old woman with a past medical history of bipolar I on lamotrigine, PTSD, and IBS presented to the emergency department after developing a mildly pruritic red rash on her lower legs, abdomen, and chest. She had been diagnosed with bipolar disorder the month prior and had been slowly up-titrating her lamotrigine dose per her PCP's recommendations. Her last dose increase occurred one week prior. She also had a post-traumatic headache which was resistant to aspirin-acetaminophen-caffeine and propranolol and a recent UTI treated with trimethoprim-sulfamethoxazole.

In the ED, she was afebrile but hypotensive with BP 80/37. Exam was notable for diffuse erythematous macules and papules on the lower extremities, abdomen, and chest, without bullae or urticaria (images included below). Lymphadenopathy was absent. Mucous membranes were normal and she was otherwise in no acute distress.

The patient was admitted to the ICU for observation with concern for severe cADR. Her medications were held and the rash and hypotension resolved. She was discharged home the next day in stable condition with PCP follow up.

Hematology		
WBC	11.0	
RBC	4.12	
Hgb	13.3	
Plt	278	
Neu	9.0	81.7%
Lymph	1.1	10.1%
Mono	0.3	3.0%
Eos	0.5	4.5%
Baso	0.0	0.3%
Immature	0.04	0.4%

General Chemistry	
Na	138
K	3.8
Cl	103
CO2	26
BUN	13
Cr	0.67
Alb	3.9
Ca	9.3
ALT	37
AST	35

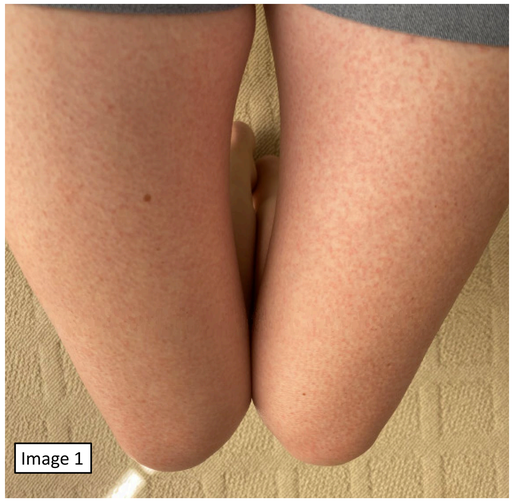


Image 1

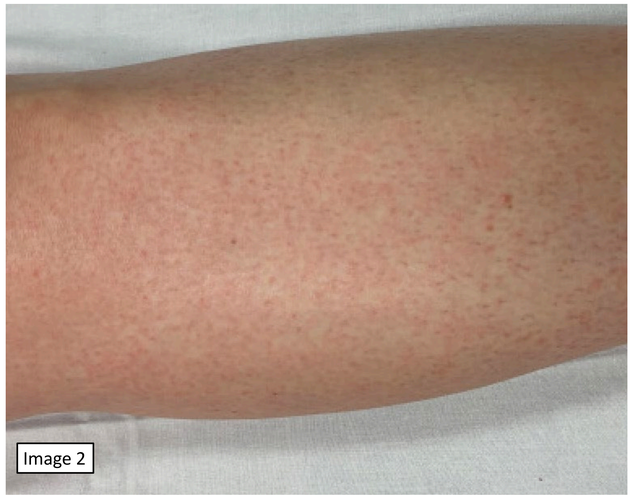
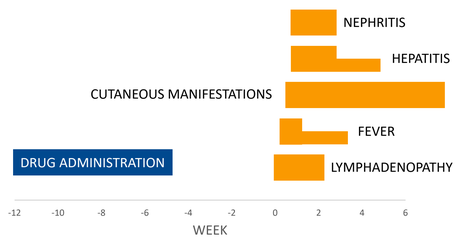


Image 2

DISCUSSION

Drug-induced Hypersensitivity Syndrome



Organ system	Finding	Patient population
Cardiac	Hypotension	41%
	Myocarditis	4%
	Troponin I elevation	0%
Cutaneous	Erythematous morbilliform eruption	81.5-100%
	Mucositis	29.6%
	Pustular eruption	7.4%
	Targetoid lesions	7.4%
	Erythroderma	7.4%
General	Fever	94%
HEENT	Facial swelling	25%
Hematologic	Eosinophilia (can be delayed 1-2 weeks)	30%
	Leukocytosis	58%
Hepatic	Elevated transaminases	70-95%
Lymphatic	Lymphadenopathy	75.0%
Neuro	Meningoencephalitis	Case reports
Renal	Interstitial nephritis	11%
Thyroid	Thyroid dysfunction	Case reports

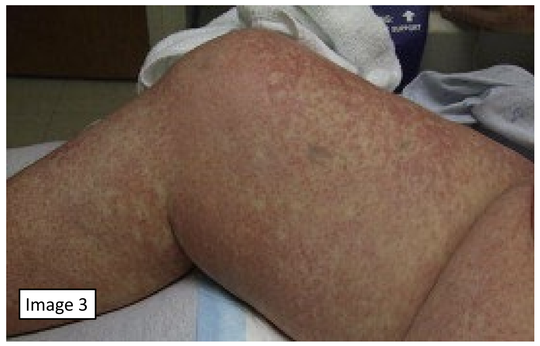
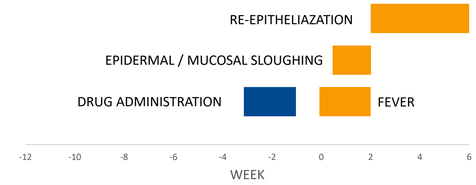


Image 3

Stevens-Johnson Syndrome / Toxic Epidermal Necrolysis



Organ system	Finding	Patient population
Cutaneous	Epidermal detachment / Pseudo-Nikolsky sign	100%
	Asboe-Hansen or "bulla spread" sign	100%
General	Fever	70%
Gastrointestinal	Inflammation of GI tract (gastritis, esophagitis, etc.)	60%
	GI bleed	36%
	Intestinal perforation	12%
	Strictures	8%
Hematologic	Anemia	22%
	Leukocytosis	22%
Hepatic	Elevated transaminases	37%
Lymphatic	Lymphadenopathy	30%
Mucosal	Lesions in 2 separate mucosal surfaces	90%
	Oral involvement	71-100%
	Ocular involvement	50-78%
	Genital involvement	40-63%
Pulmonary	ARF/intubation	25%
Renal	Elevated BUN/Cr	11%

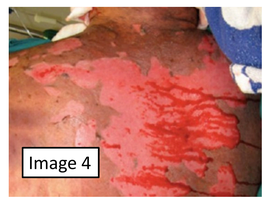
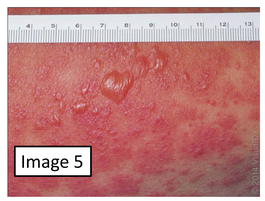


Image 4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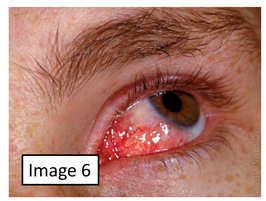
Image 6

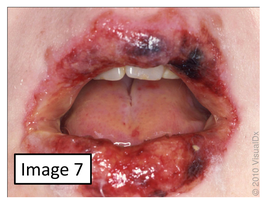
Image 7

CONCLUSIONS

Initial presentation of severe cADR can often mimic exanthematous drug eruptions; for example, a morbilliform eruption occurs in 80% of DIHS while SJS/TEN can be preceded by confluent purpuric macules before blisters and erosions.

Similarities in presentations, particularly early in onset, can make triage decisions difficult for PCPs and admitting physicians.

This patient was admitted to the ICU for, ultimately, a mild exanthematous drug eruption.

The cost of a single night in the ICU exceeds $5000. Recognizing the signs portending severe cADR will help physicians triage patients appropriately and conserve valuable resources.

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A full list of references is available upon request

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