School of Medicine & Health Sciences
THE GEORGE WASHINGTON UNIVERSITY

Lamotrigine-induced drug reaction with eosinophilia and systemic symptoms (DRESS) exacerbated by COVID-19 infection

Erika T. McCormick, BS, Meghan Schott, DO, FAPA

Children's National

Background

Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS):

- Rare but potentially life-threatening drug reaction syndrome characterized by delayed-onset skin eruption, fever, hematologic abnormalities, and internal organ involvement.
- Managed with prompt withdrawal of the culprit drug, supportive treatment +/- immunosuppression

Massive systemic inflammation from COVID-19 infection promotes drug-related exanthems, including DRESS

Common Culprits DRESS

Anticonvulsants/ Aromatic anti-epileptics

~35% of all drug triggers

Estimated risk at 1st or 2nd prescription of aromatic antiepileptic 1:1000, 1:10,000

Most commonly:

- **Carbamazepine**
- **Lamotrigine**
- **Phenytoin**
- **Phenobarbital**

Allopurinol

Antibiotics

Sulfonamides

Case Description

12 YO M

Autism spectrum disorder, anxiety, depression, gender dysphoria

Lamotrigine 50MG
Risperidone 1.5MG
Started 1 month prior

Patient develops fever (Tmax 102F) and rash on chest and bilateral arms. Outpatient psychiatrist suspects drug reaction, discontinues lamotrigine. Fever subsides and rash begins to improve.

One week later…

Presents to ED for continued rash and new upper respiratory symptoms

Diffuse erythematous, blanching, maculopapular rash on entire body, sparing palms, soles of feet, mucosal surfaces, face, genitals
B/l non-tender LAD, periorbital edema/facial swelling

Leukocytosis, eosinophilia, high reactive lymphocytes, elevated transaminases, prolonged INR
COVID +

Presentation concerning for DRESS syndrome caused by lamotrigine exacerbated by COVID-19 infection
RegiSCAR score of 6= "definite DRESS"
Treated with prednisone 1mg/kg daily

Conclusions

Psychiatrists are essential to recognition of DRESS and management of co-morbid psychiatric conditions with non-offending medications

COVID-19 and DRESS

- **Growing evidence that SARS-CoV-2 increases risk of DRESS**
- **Italy: 340x increase in diagnosis compared to pre-pandemic numbers**

References

1. Cruz VB, Júnior LFFF, Kobal CR, da Silva NA. Does sensitization by SARS-CoV-2 immune complexes trigger DRESS syndrome? *Braz J Infect Dis*. 2022;26(2). doi:10.1016/J.BJID.2022.102337
2. Cucka B, Biglione B, Zhou L, et al. Drug reaction with eosinophilia and systemic symptoms in patients hospitalized with COVID-19: a case series from a large US healthcare system. *Br J Dermatol*. 2022. doi:10.1111/BJD.21706
5. Khosravi M. A Possible Type IV Hypersensitivity Reaction to Older Antiepileptic Drugs During and After Recovery from COVID-19 Infection. *Pharmacopsychiatry*. 2022;55(1):58-59. doi:10.1055/A-1678-7429
6. Mitamura Y, Schulz D, Oro S, et al. Cutaneous and systemic hyperinflammation drives maculopapular drug exanthema in severely ill COVID-19 patients. *Allergy*. 2022;77(2):595-608. doi:10.1111/ALL.14983
7. Ramirez GA, Della-Torre E, Tresoldi M, et al. Drug reaction with eosinophilia and systemic symptoms (DRESS) in patients with COVID-19. *Clin Microbiol Infect*. 2021;27(8):1190-1192. doi:10.1016/J.CMI.2021.05.023
8. Stirton H, Shear NH, Dodiuk-Gad RP. Drug Reaction with Eosinophilia and Systemic Symptoms (DReSS)/Drug-Induced Hypersensitivity Syndrome (DiHS)-Readdressing the DReSS. *Biomedicines*. 2022;10(5). doi:10.3390/BIOMEDICINES10050999