



Drug Reaction with Eosinophilia and Systemic Symptoms Sequelae



Jordon Jagers, MD¹ Upeka Samarakoon, PhD, MPH² Xiaoqing Fu, MS² Daniela Kroshinsky, MD, MPH^{3,4} Fatima Bassir, MPH⁵ Abigail Salem, BA⁵ Elizabeth Phillips, MD^{6,7} Liqin Wang, PhD^{4,5} Li Zhou, MD, PhD^{4,5*} Kimberly G. Blumenthal, MD, MSc^{2,4*}
¹Department of Medicine, Massachusetts General Hospital, Boston, MA, USA ²Division of Rheumatology, Allergy, and Immunology, Department of Medicine, Massachusetts General Hospital, Boston, MA, USA ³Department of Dermatology, Massachusetts General Hospital, Boston, MA, USA ⁴Harvard Medical School, Boston, MA, USA ⁵Division of General Internal Medicine and Primary Care, Department of Medicine, Brigham and Women's Hospital, Boston, MA, USA ⁶Department of Medicine, Center for Drug Safety and Immunology, Vanderbilt University Medical Center, Nashville, TN, USA ⁷Institute for Immunology and Infectious Diseases, Murdoch University, Murdoch, Western Australia, Australia *These authors contributed equally

DRESS syndrome survivors have medical and skin sequelae with a substantial impact on quality of life.

INTRODUCTION

- While many may fully recover from drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome, some have persistent morbidity.
- Health-related quality of life (QOL) after DRESS is not well characterized.

OBJECTIVE

- We aimed to characterize sequelae and QOL associated with DRESS survivorship.

METHODS

- DRESS cases from Mass General Brigham were identified utilizing informatics methods and manually confirmed with chart review and RegiSCAR scoring.
- We characterized sequelae and QOL using an electronic questionnaire.
- The Drug Hypersensitivity Quality of Life Questionnaire (DrHy-Q) was bidirectionally translated and adapted from Baiardini I, et al . *Ann Allergy Asthma Immunol.* 2011 for content and face validity.
- DrHy-Q includes 15 statements, following which participants identify as one of the following: “Extremely,” “Very,” “Moderately,” “Slightly,” or “Not At All.”

RESULTS

- Forty DRESS participants responded to the questionnaire (**Table 1**).
- Participants had acute DRESS syndrome a mean 5.6 years (SD 3.4 years) prior to completing the electronic questionnaire.

Table 1. DRESS Participants (n=40)

Demographics	n (%) (unless otherwise specified)
Age (years), Mean ± SD	54.4 ± 17.4
Female	25 (63)
Race	
White	35 (88)
Black	2 (5)
Asian	2 (5)

RESULTS

- Many DRESS survivors reported some degree of fear of being given a drug to which they are allergic (83%, **Table 2**). Many expressed fear (63%) and anxiety (50%) because of their problem with medications, and reported worry in context of taking a new drug even if not the one that caused DRESS (58%).
- Many organ problems were reported (**Table 3**). Skin problems were common, and included: pruritus (40%), rashes (35%), dry skin (33%), hives (23%), flushing (20%).

Table 2. DrHy-Q Results

DrHy-Q Statement	Response n (%)				
	“Extremely”	“Very”	“Moderately”	“Slightly”	“Not At All”
I am afraid that in an emergency I might be given a drug I am allergic to.	9 (23)	8 (20)	5 (13)	11 (28)	7 (18)
For every illness, I would like to be certain that there is a drug available that I may safely take.	8 (20)	10 (25)	8 (20)	5 (13)	9 (23)
I would like the opinion of an allergist before I take drugs prescribed by other specialists.	7 (18)	6 (15)	4 (10)	9 (23)	14 (35)
I feel afraid because of my problem with medications.	6 (15)	6 (15)	4 (10)	9 (23)	15 (38)
The problem of drug reactions affects my life.	6 (15)	2 (5)	6 (15)	10 (25)	16 (40)
I worry every time I have to take a drug, even if it's not the one that caused an allergic reaction.	6 (15)	3 (8)	3 (8)	11 (28)	17 (43)
The idea of taking a drug makes me feel anxious.	6 (15)	2 (5)	3 (8)	11 (28)	18 (45)
I feel anxious because of my problem of drug reactions.	4 (10)	4 (10)	2 (5)	10 (25)	20 (50)
I find every disease more limiting than other people do because I cannot take certain drugs.	4 (10)	2 (5)	5 (13)	9 (23)	20 (50)
Even a minor illness becomes a problem for me.	3 (8)	3 (8)	3 (8)	9 (23)	22 (55)
The fact that I can't safely take drugs makes me feel different from others.	4 (10)	3 (8)	2 (5)	7 (18)	24 (60)
I'm afraid of not being able to get treatment for pain.	3 (8)	4 (10)	3 (8)	5 (13)	25 (63)
I feel distressed because of my problem with adverse drug reactions.	3 (8)	2 (5)	4 (10)	6 (15)	25 (63)
I feel down or depressed because of my problem with drug reactions.	3 (8)	2 (5)	4 (10)	2 (5)	29 (73)
I've given up recreational opportunities (sports, holidays, trips...) because of my problem with drug reactions.	1 (3)	3 (8)	3 (8)	1 (3)	31 (80)

Table 3. Specific Sequelae

Regular Visit/Hospitalization for Problems Related to	n (%)
Skin	26 (65)
Infections	10 (25)
Heart/Blood Vessels	8 (20)
Breathing/Lungs	7 (18)
Kidneys	7 (18)
Thyroid	7 (18)
Digestive/Gastrointestinal	6 (15)
Liver	5 (13)

LIMITATIONS

- Drug Hypersensitivity Quality of Life Questionnaire (DrHy-Q) has not yet been validated in English.
- Participants may not be representative due to nonresponder bias.

CONCLUSIONS

- DRESS survivors report longitudinal health problems across diverse organ systems.
- Skin problems were most common, including drug rashes in over one-third.
- DrHy-Q responses indicate DRESS has substantial QOL impact.
- Detailed sequelae studies can inform DRESS follow-up care recommendations.