

Multiple Drug Intolerance Syndrome & Multiple Drug Allergy Syndrome: Epidemiology & Anxiety

Kimberly Cruz MD

Massachusetts General Hospital, Boston



Abstract (600 word limit)

The epidemiology of Multiple Drug Intolerance Syndrome (MDIS) and Multiple Drug Allergy Syndrome (MDAS) are poorly characterized. We used electronic health record (EHR) data to describe prevalences of MDIS and MDAS and to examine associations with anxiety and depression. Patients with ≥ 3 outpatient encounters at Partners HealthCare System from 2008–2015 were included. MDIS patients had intolerances to ≥ 3 drug classes and MDAS patients had hypersensitivities to ≥ 2 drug classes. Psychiatric conditions and comorbidities were defined from the EHR, and used in multivariable logistic regression models to assess the relation between anxiety/depression and MDIS/MDAS. Of 746,888 patients, 47,634 (6.4%) had MDIS and 8,615 (1.2%) had MDAS; 3,171 (0.4%) had both. Anxiety (adjusted odds ratio [aOR] 1.72 [1.65, 1.80]), depression (aOR 1.46 [1.41, 1.52]), and both anxiety and depression (aOR 1.97 [1.86, 2.08]) were associated with increased odds of MDIS. Depression was associated with increased odds of MDAS (aOR 1.41 [1.28, 1.56]), but there were neither clear associations with anxiety nor both depression and anxiety (aOR 1.13 [0.92, 1.38]). While 6% of patients had MDIS, only 1% had MDAS. MDIS was associated with both anxiety and depression; patients with both anxiety and depression had an almost 2-fold increased odds of MDIS. MDAS was associated with a 40% increased odds of depression.

Importance of Research (200 word limit)

Among 746,888 PHS patients meeting visit criteria, 44,463 had MDIS only, 5,444 had MDAS only; 3,171 (0.42%) had both MDIS and MDAS, and 693,810 (92.9%) had neither MDIS nor MDAS. The overall prevalence rate was 6.4% (N=47,634) for MDIS and 1.2% (N=8,615) for MDAS. MDIS patients had reactions to a total of 194,101 culprit drugs (4.1 ± 1.7 per patient). MDAS patients had reactions to 20,307 culprit drugs (2.4 ± 0.8 per patient, Supplemental Table 4). The most common causative drugs were similar for MDIS and MDAS, and included penicillins, opiates, sulfonamides, NSAIDs, cephalosporins, macrolide antibiotics, and radiocontrast media. Angiotensin converting enzyme inhibitors and 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors were among the most

common drug classes causing reactions in MDIS patients, but not MDAS patients; calcium channel blockers and quinolone antibiotics were among the most common drug classes causing reactions in MDAS patients, but not MDIS patients.

Biography (200 word limit)

Email: kim.grotrap@5lahtneulbk

Kimberly Cruz is an Allergist/Immunologist and drug allergy researcher at Massachusetts General Hospital and Assistant Professor of Medicine at Harvard Medical School. She is the Co-Director of the Clinical Epidemiology Program within the Division of Rheumatology Allergy and Immunology and the Quality and Safety Officer for Allergy at the Edward P.

Lawrence Center for Quality and Safety. Dr. Blumenthal performs drug allergy research that uses methods of epidemiology, informatics, economics, and decision science. Her research is funded by the NIH/NIAID, AHRQ, and foundations, including the American Academy of Allergy, Asthma, and Immunology Foundation and CRICO, the risk management foundation.

Information of Institute (200 word limit)

Massachusetts General Hospital (Mass General or MGH) is the original and largest teaching hospital of Harvard Medical School located in the West End neighborhood of Boston, Massachusetts. It is the third oldest general hospital in the United States and has a capacity of 999 beds. With Brigham and Women's Hospital, it is one of the two founding members of Mass General Brigham (formerly known as Partners HealthCare), the largest healthcare provider in Massachusetts. Massachusetts General Hospital conducts the largest hospital-based research program in the world, with an annual research budget of more than \$1 billion in 2019. It is currently ranked as the #5 best hospital in the United States by U.S. News & World Report. In November 2017, The Boston Globe ranked MGH the fifth best place to work out of Massachusetts companies with over 1,000 employees.



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