CASE IN POINT

The Challenges of Delivering Allergen Immunotherapy in the Military Health System

Col Christopher A. Coop, MD, USAF[a]; Maj Graey M. Wolfley, DO, USAF[a]; Lt Col Brittanie I. Neaves, MD, USAF[a]

Background: Many military members suffer from allergic rhinoconjunctivitis, which causes burdensome symptoms such as rhinorrhea, sneezing, nasal congestion, and itchy, watery eyes. These symptoms are not controlled by medications, and many require aeroallergen immunotherapy. However, many patients in the military have difficulty remaining on immunotherapy due to frequent moves, deployments, and temporary duty assignments.

Case Presentation: A 34-year-old active-duty service member was referred to the Keesler Medical Center allergy clinic with severe allergic rhinoconjunctivitis. His symptoms included rhinorrhea, sneezing, nasal congestion, and itchy, watery eyes, which had been present for several years, occurring seasonally and when exposed to animals. The patient previously received aeroallergen immunotherapy but discontinued the therapy due to frequent military deployments and duty station changes. He restarted immunotherapy and received counseling on aeroallergen avoidance. However, a subsequent military deployment interrupted the continued aeroallergen immunotherapy.

Conclusions: The case highlights the difficulty of managing allergy immunotherapy in the military health system due to frequent moves, deployments, and temporary duty assignments. Access to allergists and others trained to administer immunotherapy in deployed settings may help alleviate this challenge to mission readiness.

Author affiliations can be found at the end of this article.
Correspondence: Christopher Coop (christopher.a.coop@gmail.com)

Fed Pract. 2024;41(6). Published online June 15. doi:10.12788/fp.0487

Allergic rhinoconjunctivitis causes onerous symptoms of sneezing, rhinorrhea, postnasal drip, nasal congestion, and itchy, watery eyes. It is a common condition that affects 10% to 25% of the US population and up to 23% of military members with increased symptoms during deployments.[1-3] Allergen immunotherapy (AIT), commonly known as allergy shots, is an effective treatment for allergic rhinoconjunctivitis, especially for patients whose symptoms are not controlled by allergy medications.[4] Many military personnel who would like to receive AIT cannot continue with their immunotherapy because of frequent moves, deployments, and temporary duty assignments. This case report highlights the difficulty of managing AIT in the Military Health System.

CASE PRESENTATION

A 34-year-old active-duty US Air Force male surgeon with a medical history of allergic rhinoconjunctivitis was referred to the allergy clinic for evaluation and consideration of AIT. His symptoms included rhinorrhea, sneezing, nasal congestion, and itchy, watery eyes. The symptoms had been present for several years, occurring predominantly in the spring and fall, but also perennially when exposed to animals such as cats, dogs, and horses. The patient was raised on a ranch where he was exposed to these animals.

The patient had prior skin testing at the University of Nebraska Medical Center (UNMC) for aeroallergens and was positive for trees, grasses, weeds, molds, dust mites, cats, dogs, and horses. He received AIT at UNMC with great success for 18 months. Regrettably, the patient discontinued AIT following a military move to Keesler Air Force Base in Mississippi. The patient's examination was notable for injected conjunctiva, nasal mucosa edema, and a cobblestone throat. His symptoms were not alleviated with oral cetirizine and nasal fluticasone.

His skin testing was positive for trees, weeds, mold, cats, dogs, dust mites, and horsehair (Table). The risks and benefits of AIT were discussed with the patient, who elected to proceed with restarting AIT and received counseling on aeroallergen avoidance. The patient was unable to continue AIT at Keesler Medical Center because of a military deployment.

DISCUSSION

There are several barriers to receiving AIT for active-duty patients with allergies. Due to previous skin test extracts, our patient had become desensitized to them. Though he had received aeroallergen immunotherapy with success for 18 months, the

patients had to restart the build up phase of AIT due to a military-related move.

For patients to benefit from AIT, they must build up and maintain their immunotherapy injections for at least 3 to 5 years.[4] The build-up period of immunotherapy lasts about 3 to 4 months. Patients typically receive weekly injections until they reach a maintenance immunotherapy dose of 0.5 mL of a 1:1 concentration ratio.[4]

Frequent deployments or temporary duty assignments are other barriers to AIT for active-duty patients. AIT is not usually given on deployments or temporary duty assignments unless the patient is located near a major military medical center. The US Air Force and Army operate allergy extender clinics at smaller bases and overseas locations to facilitate the maintenance of immunotherapy for military patients. Primary care physicians act as allergy extenders. These smaller allergy clinics are supervised by regional allergists at major military medical centers via telehealth and electronic/telephonic communication. These allergy clinics are not more widely available because there are not enough allergists and allergy medical technicians.

Allergen immunotherapy is not standardized, meaning civilian allergists use different aeroallergen immunotherapy formulations. While AIT is standardized in the US military through the Extract Laboratory Management System (ELMS), many active-duty patients are evaluated by civilian allergists in the TRICARE system who do not use ELMS, and when they move, AIT is not maintained.

Because up to 25% of active-duty personnel suffer from allergic rhinoconjunctivitis and AIT is not administered in many deployed settings, this issue could affect mission readiness and capabilities.[3-6] These personnel may suffer from frequent and severe nasal and ocular allergy symptoms without being able to continue AIT. There is the potential for adverse effects on the military missions because of these impaired military personnel.[5,6]

Potential steps to improve the availability of allergen immunotherapy in the deployed setting include training deployed physicians, medical technicians, and other health care practitioners in administering and treating AIT so deployed personnel can receive therapy. Additionally, AIT should be standardized and ordered via the ELMS. Civilian allergists should be highly encouraged to use ELMS. This would create standardization of AIT for all active-duty allergy patients. The allergy extender system could be expanded to all military treatment facilities to provide easy access to allergen immunotherapy. The US Navy has the fewest allergists and allergy extenders, and would need to expand its network of allergy extenders to provide AIT at its health care facilities.

TABLE Patient's Allergy Skin Test Results

	Wheal	Flare	Tested positive
Control			
Histamine	7	8	Yes
Environmental			
Cat	10	40	Yes
Dog	3	4	Yes
Horse	20	24	Yes
Cattle	0	0	No
Mite, Pteronyssinus	7	8	Yes
Trees			
American Beech	25	32	Yes
Birch	18	19	Yes
Box Elder	17	30	Yes
Mountain Cedar	27	45	Yes
Cottonwood	10	40	Yes
American Elm	35	50	Yes
Sweet Gum	10	40	Yes
Hackberry	5	6	Yes
Red Mulberry	4	10	Yes
Oak Mix	10	38	Yes
Pecan	5	6	Yes
Weeds			
Dock and sorrel	4	5	Yes
Wing scale	3	4	Yes
Molds			
Alternaria	25	45	Yes
Aspergillus Fumigatus	3	5	Yes
Hormodendrum	3	4	Yes

CONCLUSIONS

We present an active-duty servicemember with allergic rhinoconjunctivitis to trees, grasses, weeds, cats, dogs, dust mites, mold, and horses who had intermittent therapy that was interrupted by deployments. Our case highlights the difficulty of managing AIT in the military health system due to

frequent moves, deployments, and temporary duty assignments. We also suggest steps that could help expand AIT for military personnel, including those deployed internationally.

Author affiliations

[a]81st Medical Group, Keesler Medical Center, Biloxi, Mississippi

Disclosures

The authors report no actual or potential conflicts of interest or outside sources of funding with regard to this article.

Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of *Federal Practitioner*, Frontline Medical Communications Inc., the US Government, or any of its agencies. This article may discuss unlabeled or investigational use of certain drugs. Please review the complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.

Ethics and consent

Written and verbal consent was obtained from the patient.

References

1. Maciag MC, Phipatanakul W. Update on indoor allergens and their impact on pediatric asthma. *Ann Allergy Asthma Immunol*. 2022;128(6):652-658. doi:10.1016/j.anai.2022.02.009
2. Worldwide variation in prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and atopic eczema: ISAAC. The International Study of Asthma and Allergies in Childhood (ISAAC) Steering Committee. *Lancet*. 1998;351(9111):1225-1232.
3. Roop SA, Niven AS, Calvin BE, Bader J, Zacher LL. The prevalence and impact of respiratory symptoms in asthmatics and nonasthmatics during deployment. *Mil Med*. 2007;172:1264–1269. doi:10.7205/milmed.172.12.1264
4. Cox L, Nelson H, Lockey R, et al. Allergen immunotherapy: a practice parameter third update. [published correction appears in *J Allergy Clin Immunol*. 2011 Mar;127(3):840]. *J Allergy Clin Immunol*. 2011;127(1 Suppl):S1-S55. doi:10.1016/j.jaci.2010.09.034
5. Szema AM, Peters MC, Weissinger KM, Gagliano CA, Chen JJ. Increased allergic rhinitis rates among U.S. military personnel after deployment to the Persian Gulf. *J Allergy Clin Immunol.* 2008;121,S230. doi:10.1016/j.jaci.2007.12.909
6. Garshick E, Abraham JH, Baird CP, Ciminera P, et al. Respiratory ealth after military service in Southwest Asia and Afghanistan. An official American Thoracic Society Workshop report. *Ann Am Thorac Soc*. 2019;16(8):e1-e16. doi:10.1513/AnnalsATS.201904-344WS