Uncovering the Epidemiology of Idiopathic Pulmonary Fibrosis in the Veterans Affairs Health System

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The past decade has seen tremendous advances in the diagnosis and treatment of idiopathic pulmonary fibrosis (IPF). A particular area of limited information is IPF epidemiology within the Veterans Affairs (VA) Health System. It has been hypothesized that prevalence of IPF is elevated in the VA population. This is believed to be because of increased prevalence of IPF risk factors in veteran populations such as older age, smoking status, and exposures. However, despite this hypothesis, the epidemiology of IPF in the VA population has not been defined. The paucity of information on patients with IPF in the VA population limits efforts for advocacy in the VA population and also limits VA-centered research to improve the quality of care, access to advanced therapies, and clinical studies for veterans with IPF.

To address this deficit, in this issue of *AnnalsATS,* Kaul and colleagues (pp. 196–203) performed a study to define the incidence and prevalence of IPF within the VA population (1). Using the VA national electronic health record, the authors identified individuals with IPF based on *International Classification of Diseases, Ninth Revision* (ICD-9) and *International Classification of Diseases, Tenth Revision* (ICD-10) codes diagnosis over a 9-year period (2010–2019). They refined their cohort using an algorithm previously developed by this research group to assess the incidence and prevalence of IPF in the Medicare claims database (2, 3). They defined subgroups based on broad and narrow case definitions. Individuals met the broad case definition if they had one IPF ICD code without evidence of a subsequent diagnostic code for an alternative interstitial lung disease (ILD). To meet the narrow case definition, they also required evidence of a procedural code for a computed tomographic scan of the chest or a lung biopsy. Using these case definitions, the broad case IPF incidence from 2010 to 2019 ranged from 141 to 331 cases per 100,000 person-years and the annual prevalence from 582 to 1,160 cases per 100,000. Interestingly, the IPF incidence and prevalence in this cohort increased over time. They also considered risk factors in the cohort that were associated with higher odds of incident IPF. They identified that IPF incidence increased with age and was higher in White veterans (as opposed to African American, Asian, or Hispanic veterans) and smokers. Interestingly, rural residence was associated with increased odds for IPF. Finally, geographic data were used to determine IPF prevalence by individual state and noted wide differences in prevalence based on the individual state.

This study raises several important observations. An interesting claim by the study authors was that their reported incidence and prevalence was similar to a prior Medicare claims database study (2). Comparing data from a common time point (2011) in the two studies, the Medicare study reported an incidence of 90.6 per 100,000 person-years, whereas the VA study reported an incidence of 80 (narrow definition) to 154 (broad definition) per 100,000 person-years. This would suggest that the Medicare and veteran populations have a similar incidence of IPF. However, in the Medicare study, this reported incidence was derived from the entire cohort, whereas the present study only reported broad and narrow case definitions. The prior Medicare study performed a subanalysis in which IPF cases were restricted based on narrow and broad case definitions. In this case, the narrow and broad case definition incidence in the Medicare study decreased to 31.1 and 41.9, respectively, which is lower than reported in the present VA study. This suggests, contrary to the authors' claim, that there might be a difference in the IPF incidence between the Medicare and veteran populations. Certainly, this is a limited analysis as comparison between the two studies using somewhat different methodology and different time points is difficult. Whether veterans are at an increased risk of IPF relative to other cohorts, therefore, remains an outstanding question. A recent study by Bedoya and colleagues suggested that incidence and prevalence of ILD in the VA was higher than prior reported ILD cohorts (4). This could have important implications, particularly if veterans do in fact represent an "at risk" cohort for ILD and IPF.

Another interesting observation to note was that IPF incidence in the VA population rose each year in the study from 73 cases per 100,000 (using the narrow case definition) to 210 cases per 100,000. However, a similar rate of rise was not observed in the narrow definition cohort in the Medicare study (2) or in a population-based study from the United Kingdom where the incidence actually

DOI: 10.1513/AnnalsATS.202108-972ED

Ann Am Thorac Soc Vol 19, No 2, pp 161–170, Feb 2022
Internet address: www.atsjournals.org

declined over time (5). It is unclear why this was the case. As suggested, it could be due to an increased awareness in the community and by clinicians. It also likely represents comorbidities such as increased tobacco use, other comorbidities, and/or environmental and occupational exposures experienced at higher rates in veteran cohorts (6, 7). Beyond the potential importance of this increasing incidence, the overall higher prevalence of IPF within the VA suggests that this is a significant health issue. This requires a greater attention within the VA system to ensure that appropriate access to ILD centers is available to veterans, given the morbidity and mortality associated with IPF.

Two additional observations in the study are important to note. In the rural population, there was an increased odds ratio of incidence of IPF. The access to demographic data in the VA Electronic Medical Record (EMR) uniquely allows for this kind of analysis. The reason was unclear, but it would be interesting to note if this is a durable observation over time or if rural residence associates with increasing age, occupational exposure, or health conditions that increase the odds for IPF. In addition, as the VA EMR is a national database, they were able to define regional differences in IPF prevalence at the state level. The prevalence varied from the highest in Montana and West Virginia (prevalence of 2,848 and 2,282 per 100,000, respectively) to the lowest in Utah and Massachusetts (prevalence of 696 and 791 per 100,000, respectively). Similar to the rural residence, the rationale for the wide variation among states is not clear and raises similar questions. One exciting potential for these data is the ability to guide resources and efforts based on regional understanding of the prevalence of this disease. The potential is demonstrated by a study from Shull and colleagues in which mapping IPF prevalence across Spain allowed them to identify an association between increased prevalence and regions of increased particulate matter $\leqslant 2.5$ μm in aerodynamic diameter (8).

In summary, the study by Kaul and colleagues is the first step in exploring the epidemiology and care of IPF in the VA Health System. The incidence of IPF appears to be rising in this population. They identified that the prevalence of IPF varies considerably from state to state and that rural residence was associated with a higher risk of IPF. Future studies are needed to explore underpinnings of an increased IPF incidence and prevalence and why there is evidence of geographic differences in prevalence. Finally, an increased risk of IPF in individuals living in rural communities is intriguing, not only in understanding why this occurs but also in understanding its implications on providing high-quality care to these individuals. As with other aspects of IPF, there is still a lot of work that needs to be done. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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