Chronic Hypersensitivity Pneumonitis In The Southeastern United States: An Assessment Of How Clinicians Reached The Diagnosis

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Abstract

Background: Chronic hypersensitivity pneumonitis (cHP) is a disease caused by exposure to inhaled environmental antigens. Diagnosis of cHP is influenced by the awareness of the disease prevalence, which varies significantly in different regions, and how clinicians utilize relevant clinical information. We conducted a retrospective study to evaluate how clinicians in the Southeast United States, where the climate is humid favoring mold growth, diagnosed cHP using items identified in the international modified Delphi survey of experts, i.e., environmental exposure, CT imaging and lung pathology, Methods: We searched Duke University Medical Center database for patients over the age of 18 with a diagnosis of cHP (ICD-9 code: 495) between Jan. 1, 2008 to Dec. 31, 2013 using a query tool, Duke Enterprise Data Unified Content Explorer (DEDUCE). Results: Five hundred patients were identified and 261 patients had cHP confirmed in clinic notes by a pulmonologist or an allergist. About half of the patients lived in the Research Triangle area where our medical center is located, giving an estimated prevalence rate of 6.5 per 100,000 persons. An exposure source was mentioned in 69.3% of the patient. The most common exposure sources were environmental molds (43.1%) and birds (26.0%). We used Venn diagram to evaluate how the patients met the three most common cHP diagnostic criteria: evidence of environmental exposures (history or precipitin) (E), chest CT imaging (C) and pathology from lung biopsies (P). Eighteen patients (6.9%) met none of three criteria. Of the remaining 243 patients, 135 patients (55.6%) had one (E 35.0%, C 3.3%, P 17.3%), 81 patients (33.3%) had two (E+C 12.3%, E+P 17.3%, C+P 4.9%), and 27 patients (11.1%) had all three criteria (E+C+P). Overall, 50.6% of patients had pathology from lung biopsy compared to 31.6% with CT scan. Conclusions: Environmental mold was the most common exposure for cHP in the Southeast United States. Lung pathology was available in more than half of cHP cases in our tertiary care center, perhaps reflecting the complexity of referrals. Differences in exposure sources and referral patterns should be considered in devising future diagnostic pathways or guidelines for cHP.

Full-text

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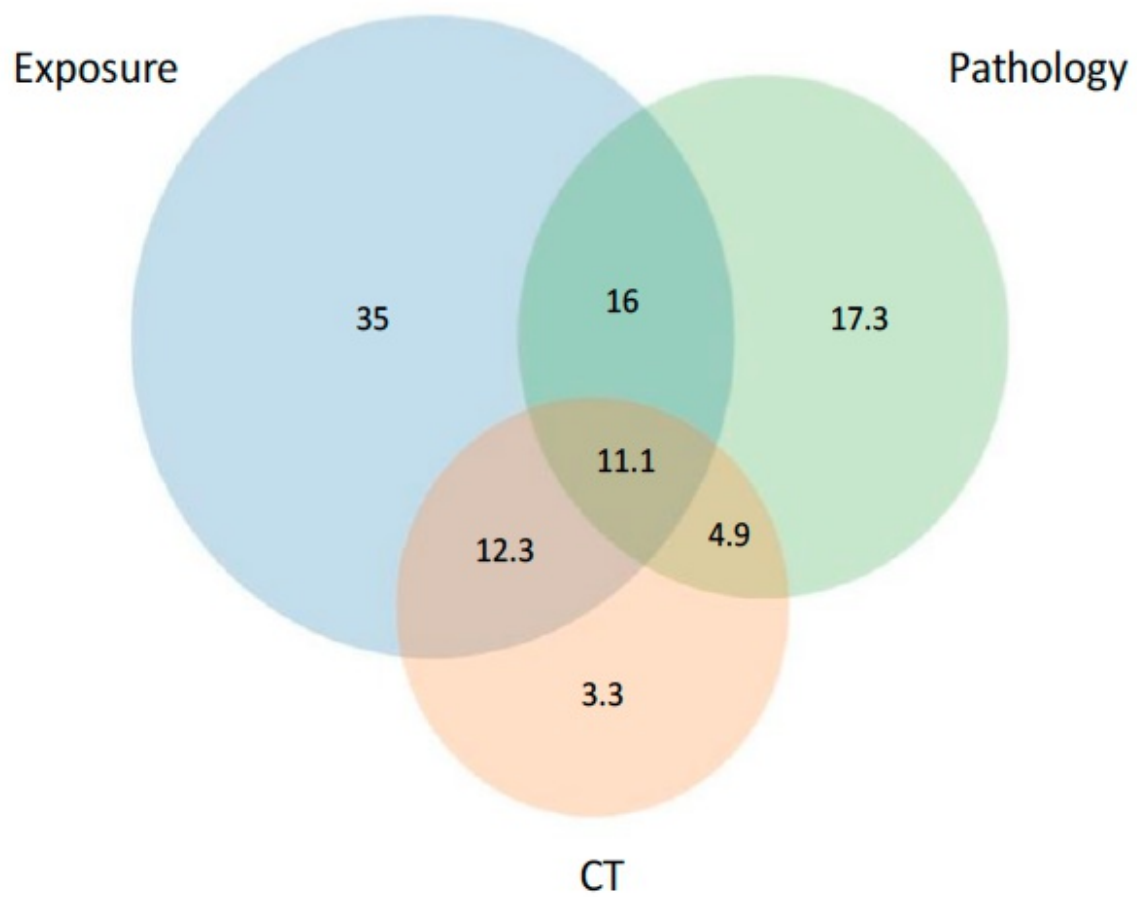
Figures

Figure 1

Venn diagram demonstrating the percentages of patients diagnosed by exposure

Figure 2

Map of the Carolinas and southern Virginia that shows the distribution of 238 cases of cHP whose addresses could be mapped using the geocoding software in DEDUCE. Each red dot represents one case of cHP. There is a major cluster around the Research Triangle area (circle). There also seemed to have more cases in other larger cities, such as Greensboro and Charlotte (black arrows) and in coast regions, such as Norfolk VA, Wilmington NC and Charleston SC (white arrows).