Predictive Factors for Worse Outcomes in Patients with Coccidiomyocsis

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Introduction

- The Southwest, in particularly Arizona, has a high prevalence of patients who are diagnosed with Coccidiomycosis (Valley Fever), due to its geographical and environmental conditions[1]
- One study showed that 60% of people who inhale the Coccidioides spore remain asymptomatic, while the rest develop mild-to-severe symptoms of the fungal infection[2].
- The current literature states that pregnant women, people aged 60 years and older, and immunosuppressed individuals are at higher risk for severe symptoms of Coccidiomycosis[3].
- The purpose of this study is to identify additional predictive and/or risk factors that may be related to the development of a more severe case of Coccidiomyosis, specifically related to smoking, BMI variance, and co-morbidities.

Areas Endemic for Coccidioidomycosis

Highly endemic   Established endemic   Suspected endemic
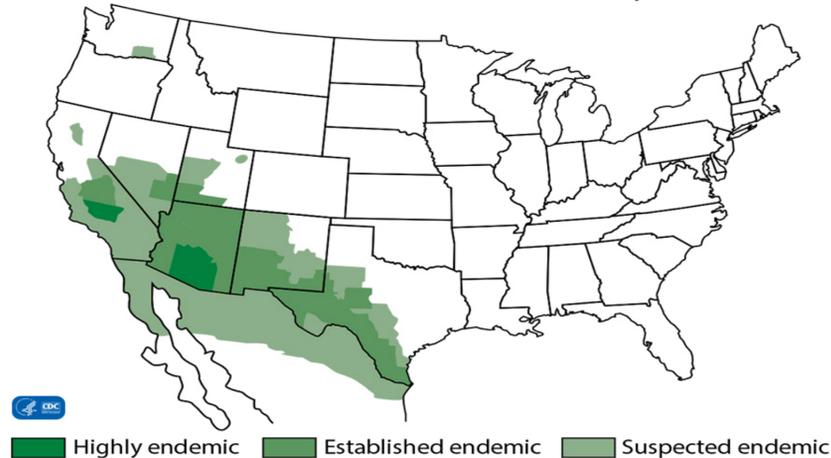
Methods

- This is a retrospective study that looked at patients at a single clinic who were diagnosed with primary pulmonary Coccidiomycosis from between 2005 to 2019
- Patients were classified into three different groups: mild if they had no symptoms, moderate if they developed typical symptoms, and severe if they had atypical or severe presentations.
- Data collected from patients included BMI, smoking history, and the number of comorbidities
- For statistical analysis, we used a univariate set of analyses that looked at the associations between each independent variable and the severity of the disease

Results

- In total, 30 patients were enrolled in the study, 12 (40%) were men and 18 (60%) were female. The median age was 38.7.
- The results of our study revealed there was no association between smoking (P>.99) and BMI (P=0.6345) with the severity level.
- However, there was a significant positive correlation with the number of comorbidities

Table 1: Statistical Results

Category	P-value
Smoking History	P>0.99
BMI	P=0.6345
Number of comorbidities	P=.03737*

Table 2: Patient Demographics

Characteristics	N (%)
Total Patients	30
Age	
Median, Range	38.7, 18-69
Gender	
Male	12 (40)
Female	18 (60)
Smokers	
Yes	3 (10)
No	27 (90)
BMI	
Mean, Range	26.79, 18.29-41.39
Classification	
Mild	22 (73.3)
Moderate	4 (13.3)
Severe	4 (13.3)

Discussion

- In areas where Coccidiomyosis has a high prevalence, it is important for primary-care physicians to identify and educate patients with high-risk factors for this disease.
- Early diagnosis of patients, in addition to recognizing these predisposing factors, can aid in the treatment, prognosis, and overall quality of care for these patients.
- While this study did not show correlation for two of the measured outcomes, smoking history and BMI, it did demonstrate a positive correlation with the number of comorbidities and severity of symptoms.
- One possible explanation is that an increased number of comorbidities weakens or overburdens the immune system
- The major limitations of this study were the overall small sample size and the limited number of individuals in the moderate and severe category.
- We propose that a future study with a larger sample size, as well as databases from multiple institutions be conducted to further answer this hypothesis.

References

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