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Seasonality of Sarcoidosis: the 'heat' is on...

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Dear Editor

We read with interest the study by Gerke et al wherein the authors have nicely demonstrated that no seasonal variations could be demonstrated in diagnosis of sarcoidosis among the United States veterans population (1). Interestingly there are conflicting reports on the seasonality of sarcoidosis as noted themselves by the authors. Sarcoidosis was once considered rare in India, however it has being diagnosed with increasing frequency nowadays (2). We have observed that sarcoid patients are diagnosed more often in the summer months. The present study prompted us to look into our data systematically.

We retrospectively reviewed the case records between January 1, 2001 and December 31, 2012 from the data base of our bronchoscopy suite. Information on the de-identified records having final diagnosis of sarcoidosis was extracted. The diagnosis of sarcoidosis was made in the presence of all the following: (1) clinical features of pulmonary (dyspnea, dry cough, chest pain, fever, fatigue or crackles) involvement; (2) consistent radiological findings on chest radiograph and high-resolution CT of the chest; (3) compact non-caseating granulomas on bronchoscopic lung biopsy, which were negative for fungal smears or acid-fast bacilli (AFB) with broncho-alveolar lavage negative for mycobacterial culture and, (4) good clinical response to therapy with oral steroids. Total number of bronchoscopies performed and the frequency of sarcoidosis was computed for each month over the 12 year period. Repeat procedures were excluded. Based on the seasons, four quarters were identified, namely November to January (peak winters), February to April, May-July (Peak summers) and August to October. The difference in the number of patients in the four quarters was analyzed using Kruskal-Wallis test, followed by post-hoc pairwise comparisons using Dwass-Steel-Critchlow-Fligner test (3). Further a time series analysis was done by creating a seasonal model using Holt-Winter exponential smoothing on this data (4).

During the study period 13,436 bronchoscopies were performed and a diagnosis of sarcoidosis was made in 1,602 patients. Mean (±SD) number of sarcoidosis patients in the peak summers (43.2 ± 16.7) was were significantly higher than in peak winters (25.2 ± 7.2; p=0.020). Although the mean numbers in the summer quarter were higher compared to other two quarters, it was not statistically significant [(February-April quarter ([28.7 ± 10.5; p=0.11612)]; and August-October quarter ([36.5 ± 10.7; p=0.80781)].]). Seasonal modeling showed a consistent peak in number of sarcoid patients during the peak summer months of May to July (Fig 1). A similar seasonal trend was not apparent

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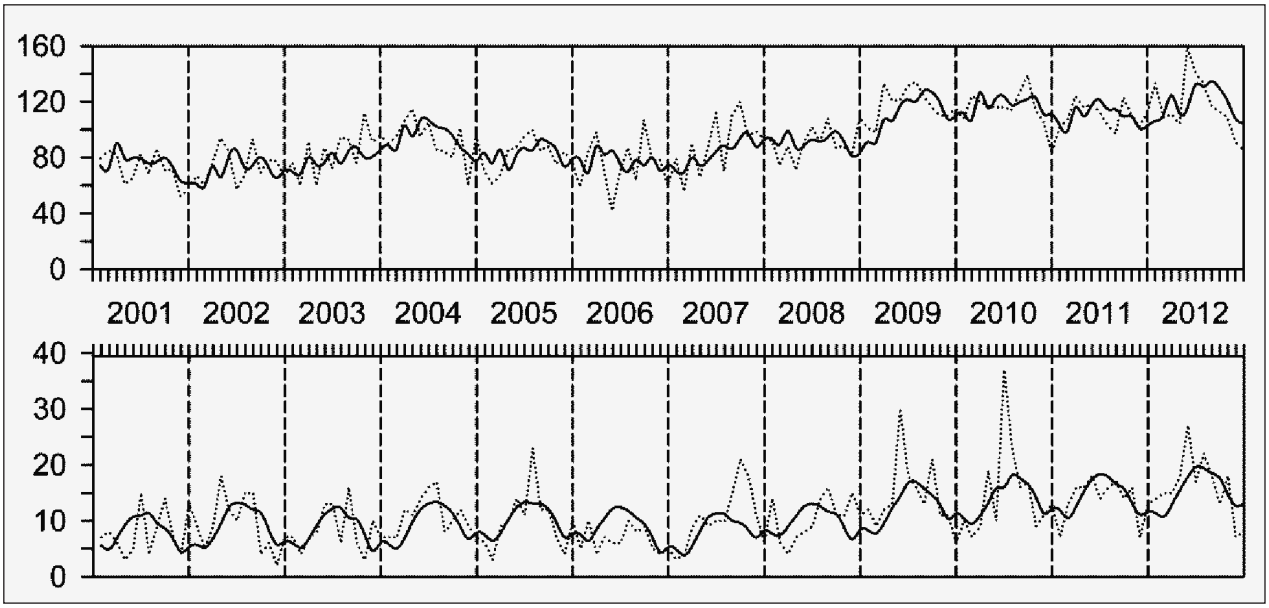

Fig. 1. Month wise distribution of total number of bronchoscopies (upper panel) and number of sarcoidosis patients (bottom panel) from 2001-2012. Dotted lines show the actual numbers and solid line shows exponential smoothing on this data. There is clear and consistent peak observed during the quarter of months 5-7 in the bottom panel and no seasonal trend is visible in total number of bronchoscopies

in the total number of bronchoscopies performed over this period (Fig 1).

Although a single center datareport, our data suggests a seasonal clustering of sarcoidosis during summer months. As noted by Gerke et al, similar trends have been earlier reported with a peak in spring.(5-8) There are also case reports of seasonal variations in hypercalcemia(9) or skin manifestations that are clearly exaggerated during summer months.(10) There are no central registries for sarcoidosis in India, therefore to know exact incidence or seasonal patterns of sarcoidosis for the entire country is not possible. Our institute is located in North India and we serve as a tertiary referral center for the Northern part of our vast country. Interestingly there are several reports on seasonality of tuberculosis where a clear increase in number of tuberculosis patients is seen during summer months and these differences are observed better in North India (with harsh winters and summers) as compared with southern parts of the country.(11, 12) One of the common reasons attributed to the seasonal trends in incidence of any disease is the health seeking behavior of the population which is influenced by several socio-cultural and economic activities that may have seasonal patterns. However, we found no seasonality in the number of bronchoscopies being performed in our lab which would negate bias due to health seeking behavior. Although Kruskal-Wallis test may not be the ideal, when assessing seasonality since the data points are linked in time rather than being totally independent of each other, yet since it is highly suggestive, and the time series also supports a summer season, therefore, our data supports the literature of seasonal trends in diagnosis of sarcoidosis. We concur with the conclusions of the authors that there is a need for a registry, both at national and international level to better understand the influence of seasonality on causation of sarcoidosis.

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