

Evidence Discussion (CH 15.1)

CH 15.1 Sarcoidosis evidence summary

Sarcoidosis is a multisystem disease of unknown etiology characterized by the formation of noncaseating granulomas in various organs.(1) The diagnosis is based on three major criteria: a compatible clinical presentation, the finding of nonnecrotizing granulomatous inflammation in a tissue sample, and the exclusion of alternative causes of granulomatous disease.(2) Imaging plays an important role in the diagnosis. Although chest x-ray (CR) is often the first imaging test used, high resolution chest CT (HRCT) is more sensitive than CR for the detection of nodules and subtle fibrosis.(1) Histologic examination of tissue remains the gold standard for reaching a definitive diagnosis.(3) However, in the appropriate clinical context, certain patterns of mediastinal and parenchymal involvement on HRCT are virtually diagnostic of sarcoidosis.(3) The American Thoracic Society (ATS) states that if asymptomatic bilateral hilar lymphadenopathy is found on chest imaging, histologic confirmation is not always required.(2)

The monitoring of patients with pulmonary sarcoidosis is not standardized. Changes in imaging along with clinical features have been used to assess changes in disease activity.(4) If spirometry and pulmonary symptoms are worsening, additional chest imaging may be useful to detect progression of pulmonary disease or an alternative diagnosis.(5) HRCT can also provide prognostic information by differentiating reversible from irreversible (ie fibrotic) lesions and show complications, such as mycetomas or evidence of pulmonary hypertension.(3)

There is interest in the use of FDG PET CT for the diagnosis and monitoring of sarcoidosis. PET CT may reveal a more easily accessible biopsy site which is not clinically evident.(1,4) It may detect multi-organ and/or extra-thoracic involvement and demonstrate active inflammation not easily recognized by physical exam or other methods.(4,6) Studies have shown that FDG uptake in sarcoidosis represents active granulomatous inflammation.(4) The evaluation of disease activity is valuable when there is doubt regarding the activity of lesions and a change in therapy is being considered.(3). Positive scans should be interpreted with caution, however, because FDG uptake can be present in other inflammatory processes and malignancy. A significant correlation between decreased metabolic activity in the lungs, increased pulmonary function tests and improved symptoms in response to immunosuppressive medication has been demonstrated.(4,6) Most of the data regarding PET CT and sarcoidosis come from retrospective studies. Prospective trials are needed to determine the role of PET CT in monitoring the efficacy of therapy and the importance of abnormal PET CT's in asymptomatic patients.(6) The threshold SUV that distinguishes active disease from fibrosis has not been determined. Few studies have compared the value of HRCT vs PET CT for diagnosis. Data on appropriate time intervals for follow up assessments and the role of PET-guided therapy are scarce.(6)

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