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Title: Caspofungin to treat invasive pulmonary aspergillosis in sarcoidosis

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Body: RATIONALE Invasive pulmonary aspergillosis is a potentially life-threatening complication of sarcoidosis, with destructive fibrotic lung disease and immunosuppressive therapy contributing to its development. Optimal therapy is not known. We report a successful treatment protocol using cyclical intravenous caspofungin infusions. METHODS Consecutive patients with sarcoidosis and invasive pulmonary aspergillosis treated with caspofungin were identified from our pharmacy prescribing database. Clinical and radiological data were collected retrospectively prior to caspofungin treatment, and during follow-up. RESULTS Nine patients (5 men), with a mean age of 44.1 ± 11.3 years, and a median duration of sarcoidosis of 10 years (range 2-12), were treated with caspofungin. All patients had fibrotic pulmonary sarcoidosis (stage IV) on chest radiograph. Eight patients also received prednisolone. Six patients received prior oral antifungal therapy (voriconazole or itraconazole), and were converted to caspofungin due to lack of efficacy or side-effects. Median follow-up was 12.5 months (4-32) after the commencement of caspofungin. In eight patients, symptoms and inflammatory markers improved rapidly after the first dose of caspofungin, with a decrease in median CRP from 31 (3-94) to 15 (3-23) (p=0.02) within 3 months. In the 6 patients for whom a minimum of 6 months follow-up was available, chest radiographs improved in 4 (67%), and median BMI improved from 23.2 (17.0-31.0) to 25.2 (21.5-36.0) (p=0.4). CONCLUSION Invasive pulmonary aspergillosis associated with sarcoidosis may be refractory to conventional triazole antifungal therapy, and caspofungin appears to be a safe and effective therapeutic alternative in these patients.