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**Title:** Strong correlation between 18F-FDG PET positive bone involvement and increased IL-2R levels in patients with untreated sarcoidosis under surveillance (Preliminary results)

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**Body:** Introduction: F-18 fluorodeoxyglucose positron emission tomography and computed tomography (FDG PET/CT) has been shown to be able to detect osseous involvement in patients with sarcoidosis. Aim: To use FDG PET/CT to assess bone involvement in therapy-naive sarcoid patients and determine if FDG-avid bone involvement correlates with biochemical markers. Methods: All patients with a diagnosis of sarcoidosis were identified from a local database in our hospital. Therapy-naive patients under routine surveillance were enrolled in this study, and prospectively underwent a whole-body combined FDG PET/CT scan, as well as biochemical lab tests at the same day, which included interleukin-2 receptor (IL-2R), C-reactive protein (CRP), serum angiotensin-I converting enzyme (SACE), serum calcium and urine calcium levels. Results: 23 patients (7 male, 49.6 ±10.4 years) were included. PET(+) bone lesions were identified in 26.1% of the patients (6/23), and all were negative on corresponding CT. SUVmax of the most FDG-avid bone lesion was 9.3 ±3.4. In patients with PET(+) bone involvement IL-2R was 3000 ±1588, while in the rest was 982 ±649. Significant correlation was found between PET(+) bone involvement and increased IL-2R levels only (Spearman's rho=0.621, p=0.002). Conclusions: The prevalence of FDG PET(+) bone involvement in untreated sarcoidosis is 26.1% in this preliminary series. There is strong correlation between PET(+) bone involvement and increased IL-2R levels and no correlation with abnormal CRP, SACE, serum or urine calcium levels in patients with untreated sarcoidosis.