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Keyword 1: Sarcoidosis **Keyword 2:** Lung function testing **Keyword 3:** Imaging

Title: Assessment of disease severity using imaging scores in pulmonary sarcoidosis

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Body: The value of imagistic methods in diagnosing and assessing the inflammatory activity in sarcoidosis is well known. The aim was to assess the association between imagistic findings (radiographic score, and HRCT score by Oberstein et. al.[SarcoidosisVasc Diffuse Lung Dis 1997,14:65–72]) and disease severity defined by functional disturbances in sarcoidosis. We have evaluated the clinical records of 70 patients with biopsy proven or highly suggestive of sarcoidosis, cases registered in a 3rd level medical institution, during year 2011, who underwent chest X-ray, HRCT, and pulmonary function tests. The HRCT images were scored by two readers. Spearman's rank correlation coefficients were calculated to estimate the association between imagistic scores and respiratory function disturbances. We found a relationship between both radiological staging and HRCT abnormalities with functional parameters.

Correlations between radiographic stages, HRCT scores and subscores and functional parameters

	Thickening of the bronchovascular bundle	Parenchymal consolidation	Intraparenchymal nodules	Septal/non-septal lines	Focal pleural thickening	Total HRCTscore	Radio score
FEV1	-0,34**	-0,16	-0,12	-0,38**	-0,31**	-0,37**	-0,38*
FVC	-0,23	-0,19	-0,13	-0,29*	-0,32**	-0,31*	-0,31*
DLCO	-0,26*	-0,41**	-0,36**	-0,53**	-0,12	-0,52**	-0,38*
MMEF25-75	-0,21	-0,17	-0,27*	-0,31**	-0,26*	-0,31**	-0,34*
TLC	-0,13	-0,07	0,02	-0,16	-0,26*	-0,23*	-0,12

* p<0,05; ** p<0,001

All HRCT subscores, except lymph node enlargement, correlated with FEV1, FVC, MMEF₂₅₋₇₅, and DLCO (p<0,001). Compared with radiological stages, HRCT findings appeared to be more sensitive in tracing abnormal gas exchange, with no significant difference in other functional parameters.