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Title: The impact of airflow obstruction, P. aeruginosa infection and psychological factors on cognitive function in bronchiectasis patients

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Body: Introduction: Bronchiectasis is a chronic lung sepsis syndrome: whilst acute sepsis is associated with cognitive dysfunction, there is little data for chronic lung sepsis. We have compared cognitive function to relevant factors, e.g. airflow obstruction and P. aeruginosa infection. Methods: Adult Bronchiectasis patients from clinic (3 months) were screened. Cognitive function was determined by the Cognitive Failures Questionnaire (CFQ), a self-reported measure; poor memory has a high score and ≥40 is abnormal. We recorded airflow limitation (FEV_1), MRC dyspnoea (MRCD) and P. aeruginosa infection. The Hospital Anxiety and Depression Scale assessed anxiety (HADS-A) and depression (HADS-D). Fatigue was measured by Fatigue Impact Scale (FIS; abnormal >40). Results: We studied 69 patients (44F, 25M); mean age of 60 (SD 14.2). Mean FEV_1 % predicted was 69.0% (SD 30.2); 24 patients (35%) had chronic P. aeruginosa infection. Mean HADS-A score: 7.5, mean HADS-D: 4.4 and mean FIS: 38.7. Mean CFQ was 34.9 (SD 18.6); 30 patients (43%) reported a score of ≥40. No correlation was found between CFQ and FEV_1 % pred (linear regression, p=0.437) nor with MRCD or P. aeruginosa infection (p=0.292, p=0.587). HADS-A scores were significantly associated with high CFQ scores ($r^2 = 0.37$, $p<0.001$), as were HADS-D scores ($r^2 = 0.33$, $p<0.001$) and FIS scores ($r^2 = 0.37$, $p<0.001$). Conclusions: Cognitive dysfunction may be a co-morbidity in Bronchiectasis patients and is associated with anxiety, depression and fatigue. However, it does not appear to be related to objective markers of disease severity.