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Topic: Psychosocial Issues

Title: COGNITIVE FUNCTION IN ADULTS WITH CYSTIC FIBROSIS (CF): THE EFFECTS OF CF RELATED DIABETES AND TRANSPLANTATION.

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**Background and Objectives:** Deficits in cognitive function have been reported in people with diabetes (type 1 and 2). Changes in cognitive performance have been observed post transplantation. The aim of these studies was to investigate cognition in patients with cystic fibrosis (CF) and assess the impact of CF related diabetes (CFRD) and transplantation on various measures of cognitive function.

**Method:** Cognitive function was assessed using the Cambridge Neuropsychological Test Automated Battery (CANTAB). Pancreatic insufficient patients were recruited from the Leeds Adult CF Unit and healthy controls were recruited from the general population. Study 1: 49 people with insulin treated CFRD, 49 non-diabetic people with CF (who had received a normal oral glucose tolerance test in the past 12 months) and 49 healthy controls. Study 2: 18 people with CFRD who are post transplant, 18 people with CFRD who haven't undergone transplantation and 18 healthy controls. To date, 43 people with CFRD (35 who haven't undergone transplantation, 8 post transplant recipients) have been retested. For each study, groups were matched for age, gender and education level.

**Results:** Study 1 found that people with CF show some degree of cognitive impairment on tests of visual memory and new learning, verbal memory, sustained attention and executive function compared to healthy controls; those who have CFRD generally show greater impairment than non-diabetics. Study 2 found that people with CFRD who are post transplant show impairment on tests of sustained attention and working memory compared to healthy controls. Performance was similar for those who had and hadn't undergone transplantation. Preliminary findings from study 3 show that cognitive performance is stable over an 18(+/-6) month period, except for improvements in verbal memory.

**Conclusion:** Cognitive function is impaired in people with CF (with and without CFRD) relative to healthy controls. Transplantation does not seem to result in improved performance in those with CFRD. Compared to non-diabetic people with CF, those with CFRD show greater deficits on tests of verbal memory, sustained attention, working memory and processing speed.