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Title: Adults with cystic-fibrosis related diabetes have lower pulmonary function and more infections

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Body: Background Life expectancy of the CF-patient has increased over the past two decades. As a consequence, more patients develop cystic-fibrosis related diabetes (CFRD). Previous studies showed that CFRD is associated with a stronger decline in pulmonary function. Aims The aim of this retrospective study was to examine whether in current times CFRD-patients have more infections and a stronger decline in both pulmonary function and Body Mass Index than non-diabetic CF-patients (NDCF). Research design and methods A population of 138 CF-patients aged 17–46 years from the UMCUtrecht Cystic Fibrosis Center was studied. Pulmonary function is measured on a three-monthly basis. All data on pulmonary function were reviewed in the period 1991–2011 using a mixed model analysis. BMI and infection frequency were reviewed in the period 2009–2011. Results The FEV1 at baseline was 57% of predicted in CFRD-patients compared to 74% in NDCF-patients ($p<0.001$). Both colonisation with Pseudomonas Aeruginosa and having CFRD were independently associated with a lower FEV1 at baseline ($p=0.025$ and $p=0.036$ respectively). The decline in FEV1 was similar in CFRD-patients and NDCF-patients (0.07 liters/year). There was no decline in BMI in either group. CFRD-patients had more infections requiring i.v. antibiotics than CF-controls, most notably in the group of patients with a FEV1< 45% of predicted ($p=0.034$). Conclusions Pulmonary function at baseline was worse in CFRD-patients than in non-CFRD patients. The decline in FEV1 in CFRD-patients was comparable to NDCF-patients. CFRD-patients with FEV1< 45% had the highest number of infections, possibly predisposing to pleural adhesions and more complicated lung transplantation.