Liver disease in cystic fibrosis

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Evidence suggests that cystic fibrosis liver disease (CFLD) does not impact on mortality or morbidity in patients with Cystic Fibrosis (CF). However, the selection of an appropriate comparison group is central to the interpretation of any differences in mortality and morbidity in CFLD. The aim of this study was to examine differences in mortality and morbidity 10 years after the baseline data was collected on 42 children with CFLD and their 42 age and sex matched controls described elsewhere [1]. Participants were interviewed at a routine hospital visit or by telephone to determine hospital admissions, medication use and current well-being. Clinical data was collected from medical records. No clinical assessment was performed. Medical records of the deceased (n = 20) were reviewed to determine cause of death. Ethical approval was obtained, and participants provided informed consent.

Eighty-five percent (72/84) or the original cohort were available for follow-up; 36 participants with CFLD and 36 CF controls. At follow-up 15/36 (41.7%) participants with CFLD had died compared to 5/36 (13.9%) CF controls. Relative risk was 3.15 (95% CI 1.7–5.4). Females with CFLD had a 4.83 times higher mortality risk than males. In a logistic regression model lung function defined as FEV1 < 70% was predicted (adjusted odds ratio 4.3 95% CI 1.1–17.3), female gender (adjusted odds ratio 6.5 95% CI 1.5–27.4) and liver disease (adjusted odds ratio 4.3 (1.1–17.3) were all independent risk factors for mortality in CF.

Participants with CFLD have a decreased mortality risk compared to CF controls without liver disease, and females with CFLD have a poorer outcome than males with CFLD.

Reference(s)

Rate of decline in serum trypsinogen as a validation for the PIP score

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Background: Despite >1800 identified CFTR mutations and increasing availability of genetic sequencing, the clinical consequences of most mutations remain uncertain. Since exocrine pancreatic function is the best phenotypic barometer of CFTR function, we developed and validated an alternative surrogate marker of CFTR severity using phenotype data, known as the pancreatic insufficiency prevalence (PIP) score. We evaluated this rating system in 2 cohorts by calculating the decline in longitudinal serum trypsinogen measurements as a marker of the rate of pancreatic acinar cell destruction.

Methods: The first cohort consisted of Toronto patients who were evaluated longitudinally since 1980 and the second consisted of newborn screen (NBS) positive patients with either a confirmed or uncertain diagnosis of CF enrolled from the Toronto and Verona CF clinics. Patients were excluded if their first trypsinogen measurement was below the lower limit of the reference range or if their first and last measurements were less than one year apart. The rate of decline was calculated as Atryptsinogen/Nage. CFTR mutations were classified by mild (<0.25) or severe (>0.25) PIP scores.

Results: 292 patients were included from the older Toronto cohort and 39 from the NBS study. In both cohorts those with higher PIP scores (>0.25) had a significantly more rapid decline in their trypsinogen values as compared to the mild group (P < 0.001).

Conclusion: PIP scores can be used as a tool for predicting the rate of pancreatic acinar cell destruction and for determining the severity of CFTR mutations.