

Streszczenie w języku angielskim

“Cognitive Impairment in Patients with Alcohol-Related Liver Disease - Assessment Before and After Liver Transplantation”

Abstract

Introduction: Cognitive impairment (CI) in patients with liver cirrhosis is usually considered primarily in the context of hepatic encephalopathy. Previous studies have also been conducted in cohorts with mixed etiologies of liver failure, using various assessment tools. Alcohol-associated liver disease (ALD) represents a distinct population in which the risk of CI may be the highest, and the underlying mechanisms are complex and not fully understood.

Objective: The aim of this research cycle was to evaluate the prevalence, dynamics, and potential mechanisms of cognitive impairment in patients with ALD undergoing liver transplantation (LT).

Materials and methods: In the first study, cognitive function was compared between candidates for LT with ALD (n = 31) and patients with end-stage renal disease awaiting kidney transplantation (n = 31), using the ACE-III questionnaire.

In the second study, a prospective evaluation of cognitive function was performed in patients with ALD before (n = 101) and after LT (n = 55), analyzing changes across specific neuropsychological domains of ACE-III.

In the third study, associations were examined between blood ammonia levels, brain MRI findings, and severity of CI in the same cohort of ALD patients (n = 52).

Results: ALD candidates scored significantly lower on the ACE-III test than kidney transplant candidates (mean 70.9 vs. 91.6 points), and the prevalence of CI was markedly higher in the ALD group (90% vs. 26%).

In the prospective study, 86% of ALD patients had CI before LT, and more than half met criteria for high dementia risk. After transplantation, improvement was observed in memory, verbal fluency, and visuospatial functions; however, deficits did not fully resolve, and language function even deteriorated in some patients.

Analysis of potential mechanisms demonstrated that neither hyperammonemia nor MRI abnormalities fully explained the observed deficits, challenging previously simplified pathophysiological models.

Conclusions: ALD patients awaiting liver transplantation represent a high-risk group for cognitive impairment. LT leads to partial but incomplete cognitive recovery, with some deficits persisting or worsening postoperatively. Neither blood ammonia levels nor structural brain MRI findings fully account for the pathogenesis of CI, indicating a multifactorial etiology. These results emphasize the need for systematic neuropsychological assessment and long-term cognitive support in ALD patients both before and after LT.