**Protein restriction in patients with hepatic encephalopathy**

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**Introduction:** Hepatic Encephalopathy is a neuropsychiatric complication of liver failure. The pathogenesis has not been clearly defined and there are several factors that contribute to the development of an encephalopathy. Nitrogenous substances derived from protein metabolism, like ammonia, are one important factor in the pathogenesis of hepatic encephalopathy. These substances can induce disturbances in the central nervous system, if they are not metabolized by the liver.

Therefore protein restriction was established as treatment in patients with liver failure and hepatic encephalopathy in the 1950s.

But it has been shown that a protein-energy-malnutrition deteriorates the course of disease and that patients with liver cirrhosis have furthermore higher protein requirements than healthy people. Moreover most of the patients with hepatic encephalopathy can tolerate high amounts of protein.

**Materials and methods, experimental design, other methodological information:**

Clinical studies on patients with liver cirrhosis with or without hepatic encephalopathy, which examined the impact of protein on the course of disease were reviewed.

**Results and discussion:** Due to results from animal studies it was proposed that vegetable protein is better tolerated than animal protein. This hypothesis has been approved by several human studies. But the reviewed studies differ in protein amounts and sources, in the patient’s state of health and in the assessment criteria of hepatic encephalopathy and were mostly conducted with a small number of patients. It was also difficult to achieve compliance, because the patients had to eat large amounts of vegetables to assure an adequate protein intake.

In patients with hepatic encephalopathy the ratio of branched chain amino acids to aromatic amino acids is lower than in healthy people. Therefore it was proposed that a supplementation with branched chain amino acids could be used as treatment in patients with hepatic encephalopathy. Studies showed a positive effect especially in patients with subclinical encephalopathy and they also showed that protein intolerant patients tolerate branched chain amino acid supplementations better than nutritional protein. But there are also studies that could not confirm these findings.

Vegetable protein and supplementations with branched chain amino acids could therefore be used to assure a positive nitrogen balance in protein intolerant patients with liver cirrhosis.

**Conclusion:** Protein restriction in patients with hepatic encephalopathy should be avoided, because a protein deficiency could worsen the course of disease and beyond that patients with liver cirrhosis have higher protein requirements.

In protein intolerant patients vegetable protein or branched chain amino acid supplementations could be used to maintain a positive nitrogen balance. These findings are also implemented in the ESPEN Guidelines on nutrition in liver disease.
References:


