

## Alterations in blood ammonium level and psychometric test in patients with liver cirrhosis after a tempe diet

Neneng Ratnasari, author

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### Abstrak

#### Background

Hepatic encephalopathy is found in 50-70% cases of liver cirrhosis. Management of hepatic encephalopathy is based on the hypothesis of ammonia and false neurotransmitters. A vegetable diet is the diet of choice, since vegetable proteins have a high biological value, contains non-ammonogenic essential amino acids, and contains fiber. The results of soy fermentation by *Rhizopus* sp can increase the nutritional value to make it easier for body digestion.

#### Study aim

To determine improvements in hepatic encephalopathy by measuring the ammonium level and determining the psychometric test in patients with liver cirrhosis receiving a tempe diet compared to those receiving a liver diet (conventional diet).

#### Method

This is a random open clinical trial with a proportional stratification according to the Child Pugh criteria. Study subjects are patients with liver cirrhosis who are hospitalized at the Internal Medicine Ward and ambulatory patients at the out-patient Gastro-hepatology Polyclinic of Dr. Sarjito Public General Hospital, from January 1999 to May 2000. The trial was conducted for 20 days, where the first (trial) group was given a tempe diet, while the second (control) group was given liver diet Will (conventional). Measured outcomes include peripheral blood ammonium level, and psychometric test using the Numeric Connection Test (NCT).

#### Results

In the first group, we found a significant reduction of ammonium level in Child-Pugh A patients and a non-significant reduction in Child-Pugh B/C patients, a non-significant psychometric test improvement in Child-Pugh A patients, and significant psychometric test improvement in Child-Pugh B/C patients. In group II: there is no significant difference in the changes in ammonium level or psychometric test in patients from both Child-Pugh categories.

#### Conclusion

A 20-day tempe diet can reduce ammonium levels and improve results on the psychometric test. Key words: liver cirrhosis, hepatic encephalopathy, tempe diet, numeric connection test, Child-Pugh criteria