Taurine Supplementation Improves the Utilization of Sulfur-Containing Amino Acids in Consecutive Alcohol Administration Rats

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The proposed study is to evaluate the effectiveness of taurine supplementation on the utilization of sulfur-containing amino acid (SCAA) in consecutive alcohol administration rats. Ninety Sprague Dawley rats (male and female 45 each) were consecutively treated with 20% alcohol water solution and taurine-fortified diets (2 g/kg BW taurine) for 4 weeks. Food and water were available *ad libitum*. In the beginning, ten animals (M 5, F 5) were sacrificed and the biological lesions (blood and brain, and liver) for basal level of SCAAs and other biochemical parameters. The other rats were then sacrificed every week for following four weeks. In results, there is no difference on alcohol-water solution consumption. During the experiment, the plasma alcohol concentration increased during the study, however, taurine-treated animals showed the lower plasma ethanol level in week 2 and 3 significantly. In! SCAA concentration, cystein and taurine were both lower after a week of alcohol ingestion in brain and plasma as well as in liver showed in week 2. Furthermore, homocysteine level of plasma and liver significant elevated in week 2. The plasma SAM/SAH ratio also increased in week 1. On the other hand, the key cofactor of transsulfuration, vitamin B6, significantly declined in plasma after a week of ethanol intervention whereas an increase was observed in brain tissue. Under the taurine supplementation, some recoveries of SCAA were shown significantly by delaying taurine depletion, increasing SAM/SAH ratio, and elevating plasma and brain level of vitamin B6 in week 2. No biochemical differences between genders were found. In conclusion, taurine supplementation could recover the brain and blood abnormal utilization of SCAA under consecutive alcohol administration in rat.