Mean of plasma concentration of taurine declined from 16.04 ± 2.39 mg/L in the first, to 12.41 ± 1.68 mg/L in the third, and to 7.22 ± 1.20 mg/L in the fifth days of hospitalization in the IS group. Whereas, it dropped from 10.51 ± 0.84 mg/L in the first, to 8.55 ± 0.84 mg/L in the third, and to 6.56 ± 1.00 mg/L in the fifth days of hospitalization in the ICH group. There was a significant difference between the plasma concentration of taurine in both groups in the first and third days (p<0.001) but not in the fifth day of the study (p>0.05) (Figure 2).

Mean of plasma concentration of glycine declined from 18.09 ± 2.48 mg/L in the first, to 15.23 ± 1.90 mg/L in the third, and to 9.61 ± 1.52 mg/L in the fifth days of hospitalization in the IS group. Whereas, it dropped from 12.13 ± 2.90 mg/L in the first, to 12.01 ± 0.99 mg/L in the third, and to 10.42 ± 0.97 mg/L in the fifth days of hospitalization in the ICH group. There were significant differences between the plasma concentration of glycine in both groups in the first and third days (p<0.05) but not in the fifth day of the study (p>0.05) (Figure 3).

Mean of plasma concentration of glutamate declined from 7.23 ± 1.14 mg/L in the first, to 5.57 ± 0.96 mg/L in the third, and to 2.32 ± 0.44 mg/L in the fifth days of hospitalization in the IS group. Whereas, it dropped from 5.95 ± 1.11 mg/L in the first, to 4.53 ± 0.82 mg/L in the third, and to 3.07 ± 0.49 mg/L in the fifth days of hospitalization in the ICH group. There was no significant difference between the plasma concentration of glutamate in both groups during five days of study (p>0.05) (Figure 4).

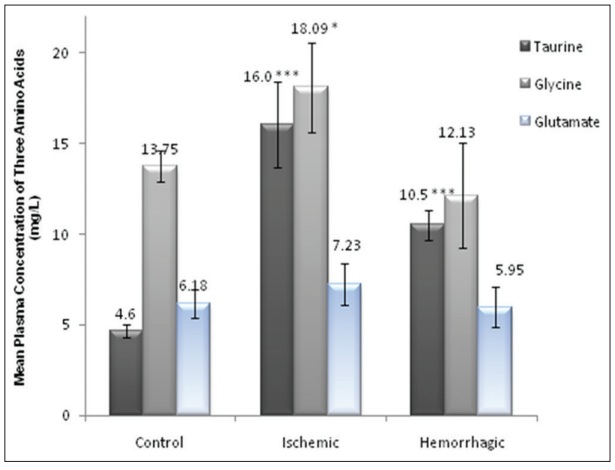

Figure 1. Means of plasma taurine, glycine, and glutamate concentrations in 30 IS and 30 ICH patients compared with 30 healthy control subjects: *** (p<0.0001), * (p<0.05).

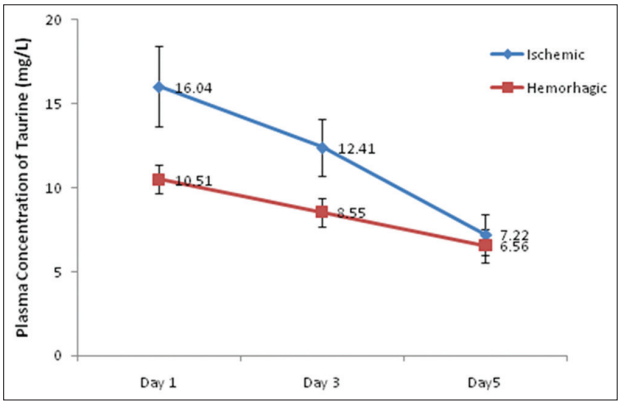

Figure 2. Mean of plasma taurine concentration in 30 IS and 30 ICH patients during five days of hospitalization. It was significantly higher in IS than in ICH in the first and third day of hospitalization (p<0.001) but not on the fifth day (p>0.05).

Discussion

The physiological role of Taurine is not entirely understood, but various cytoprotective properties have been attributed to taurine, including antioxidant [29], regulation of osmotic pressure [29, 30], and neuromodulator [15, 29]. Moreover, taurine deficiency is associated with various pathologies including heart dysfunction [31], abnormalities of brain development [32], and cardiomyopathy [33]. In the astrocytes and the neurons, taurine is the principal osmolyte which during hypotonic or hypertonic conditions it goes out from or accumulates inside

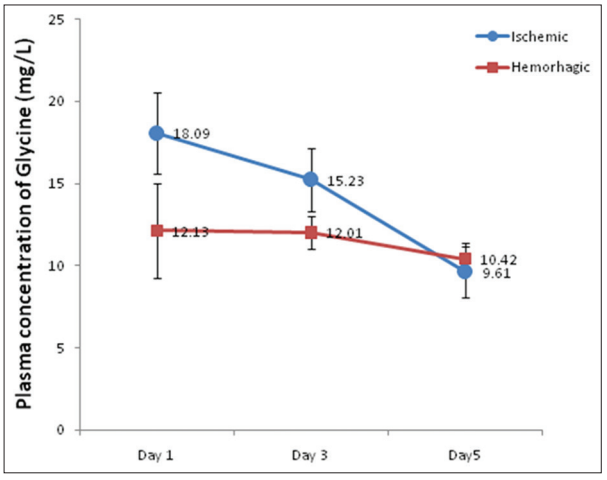

Figure 3. Mean of plasma glycine concentration in 30 IS and 30 ICH patients during five days of hospitalization. It was significantly higher in IS than in ICH in the first and third day of hospitalization (p<0.05) but not on the fifth day (p>0.05).

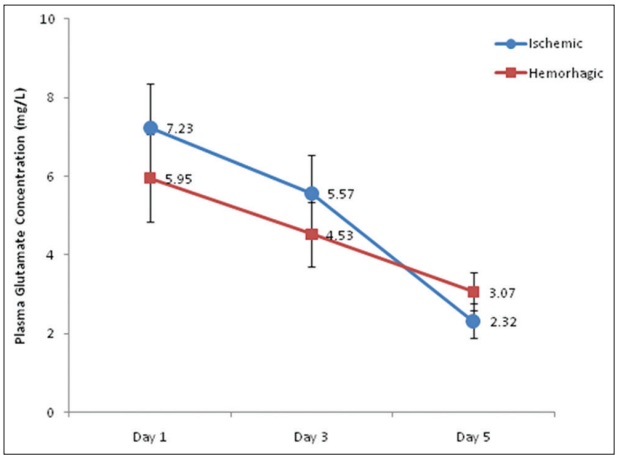

Figure 4. Mean of plasma glutamate concentration in 30 IS and 30 ICH patients during five days of hospitalization. There was no significant difference between glutamate concentration in both groups during five days of hospitalization (p>0.05).