Effect of Amino Acids on the Survival of Osteolastic Cells

Dongsan Kidney Institute, Keimyung University, Daegu, Korea

Eun-Ju Chang · Chul-Min Baek · Kyo-Cheol Mun · Hye-Jung Choi
Eun-Ah Hwang · Seung-Yeup Han · Sung-Bae Park · Hyun-Chul Kim

Cyanate, which is known as one of the uremic toxins and is derived spontaneously from urea at body temperature and pH, has several effect on the biologic substances include erythropoietin, antioxidant and ceruloplasmin. To find out the protective materials from the hazardous effect of cyanate, we added several amino acids in the culture media containing osteoblastic cells with cyanate. Osteoblastic ROS 17/2.8 cells, exposed to various concentrations of sodium cyanate, were used to analyze for the cytotoxicity. The cyanate-induced cytotoxicity was assessed by the MTT assay. The absorbance of the reaction solution were recorded at 570 nm. Viability of the treated cells was expressed as A570 of sample/A570 of control. Cell viability was calculated as follows: 100% in control, 67% in Ala, 58% in Arg, 69% in Gly, 56% in Met, 52% in Cys, 58% in His, 89 % ($p<0.01$) in Leu, 91% ($p<0.01$) in Trp, 73% in Val, 89% ($p<0.01$) in Asp, 72% in Tyr and 79% in Glu. Leu, Trp and Asp revealed significant protective effect against damage by cyanate. On the basis of these results, we suggest that Leu, Trp and Asp are useful tools for the protection against damages by cyanate in ESRD patients.