SHORT COMMUNICATION

IN VITRO EFFECTS OF SOME ANESTHETIC DRUGS ON ENZYMATIC ACTIVITY OF HUMAN RED BLOOD CELL GLUCOSE 6-PHOSPHATE DEHYDROGENASE

Sayit Altikat¹, Mehmet Çiftçi², Mehmet E. Büyükokuroğlu³

¹Atatürk University, Medical Faculty, Department of Biochemistry, ²Atatürk University, Biotechnology Application and Research Center, ³Atatürk University, Medical Faculty, Department of Pharmacology, TR-25240, Erzurum, Turkey


The study investigated in vitro effects of halothane, isoflurane, ketamine, sevoflurane, prilocaine, diazepam, and midazolam on enzymatic activity of human red blood cell glucose-6-phosphate dehydrogenase (G6PD; E.C. 1.1.1.49). G6PD was purified from human red blood cells by 2',5'-ADP-sepharose 4B affinity gel. Enzymatic activity was spectrophotometrically measured at 340 nm according to the method of Beutler. \( I_{50} \) values were determined from drug activity (%) – drug concentration curves. \( I_{50} \) values were as follows: 0.72 mM for isoflurane, 1.82 mM for sevoflurane, 0.38 mM for diazepam, and 0.0019 mM for midazolam. But halothane, ketamine and prilocaine had no inhibitory effect on the G6PD activity in in vitro.

Key words: glucose-6-phosphate dehydrogenase, human red blood cell, general anesthetics, in vitro

*correspondence; e-mail: memin@atauni.edu.tr*