

Pharmacokinetics of venlafaxine and its major metabolite O- desmethylvenlafaxine in freely moving mice using automated dosing/sampling system

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To assess the pharmacokinetics of venlafaxine (VEN) and its major metabolite o-desmethylvenlafaxine (ODV) in freely moving mice using automated dosing/infusion (ADI) and automated blood sampling (ABS) systems. In addition, concentration of VEN and its metabolite ODV were also measured in brain by microdialysis. Venlafaxine was administered directly via jugular vein or gastric catheterization and blood samples were collected through carotid artery. A series of samples with 10 µl of blood was collected from the mouse using ADI/ABS and analyzed with a validated LC-MS/MS system. Extracellular concentrations of VEN and ODV in brain were investigated by using microdialysis procedure. The bioavailability of VEN was 11.6%. The percent AUC ratios of ODV to VEN were 18% and 39% following intravenous and intragastric administration, respectively. The terminal half-life of venlafaxine was about two hours. Extracellular concentration of VEN contributed 3.4% of the blood amount, while ODV was not detected in dialysate. This study suggests that besides rapid absorption of VEN, the first-pass metabolism is likely to contribute for its lower bioavailability in the mouse. The proposed automated technique can be used easily to conduct pharmacokinetic studies and is applicable to high-throughput manner in mouse model.

Biography

Bijay Aryal pursued his Ph.D. in Clinical Pharmacology from College of Medicine, Dankook University, South Korea. Presently, he is working as an Associate Professor of Clinical Pharmacology in Department of Pharmacology, Chitwan Medical College P.Ltd, India. He is the one of the most emerging young scientist of Nepal. He has published more than 35 original research papers in reputed international journals.

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