Impact of CYP2D6*10 on venlafaxine and its desmethylated metabolite pharmacokinetics in Japanese psychiatric patients

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Purpose This study evaluated the impact of CYP2D6*10 alleles on the steady-state plasma concentrations of venlafaxine (VEN) and its metabolite O-desmethylvenlafaxine (ODV) in Japanese psychiatric patients. **Methods** All patients received VEN once daily before bedtime over 1 weeks to achieve a steady-state concentration. About 10 to 15 hours after the final dose, venous blood sampling was performed. Three patients with CYP2D6*5 allele [*1/*5 (n=1), *5/*10 (n=2)] were excluded from the analysis to eliminate the effect of the CYP2D6*5 allele. Finally, 41 data from 41 patients were included in the study. The plasma concentrations of VEN, ODV, S-VEN, R-VEN, S-ODV and R-ODV were measured using the high-performance liquid chromatography. The CYP2D6 genotypes were determined by polymerase chain reaction. **Results** Multiple regression analyses including sex and age revealed that positive and significant correlations were found between age, and the steady-state plasma concentrations corrected by body weight for VEN($p=0.004$), ODV($p=0.002$), S-VEN ($p=0.035$), R-VEN ($p=0.033$) and S-ODV ($p=0.015$), respectively. Positive and significant correlations were found between the number of CYP2D6*10 alleles, and the plasma concentrations corrected by body weight for VEN ($p=0.008$) and S-VEN ($p=0.001$), respectively. **Conclusion** CYP2D6*10 and age might influence the pharmacokinetics of VEN and its enantiomeric metabolites.