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Effects of *UGT2B7, SCN1A* and *CYP3A4* on the therapeutic response of sodium valproate treatment in children with generalized seizures

Running title genetic polymorphisms and effect of sodium valproate

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ABSTRACT:

Purpose: This study aims to evaluate the associations between genetic polymorphisms and the effect of sodium valproate (VPA) therapy in children with generalized seizures.

Methods: A total of 174 children with generalized seizures on VPA therapy were enrolled. Steady-state trough plasma concentrations of VPA were analyzed. Seventy-six single nucleotide polymorphisms involved in the absorption, metabolism, transport, and target receptor of VPA were identified, and their associations with the therapeutic effect (seizure reduction) were evaluated using logistic regression adjusted by various influence factors.

Results: rs7668282 (*UGT2B7*, T > C, OR = 2.67, 95% CI: 1.19 to 5.91, *P* = 0.017) was more prevalent in drug-resistant patients than drug-responsive patients. rs2242480 (*CYP3A4*, C > T, OR = 0.27, 95% CI: 0.095 to 0.79, *P* = 0.017) and