

Influence of S-mephenytoin Phenotype on the Lansoprazole Metabolism

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We studied the metabolic disposition of lansoprazole(LAN), a H⁺, K⁺-ATPase inhibitor, by measuring lansoprazole and its metabolites in plasma after a single oral dose of 30mg of LAN administered to 10 healthy(5 PMs and 5 EMs) Korean volunteers. There were statistically significant(p<0.01 to 0.001) interphenotypic differences between the two groups in the mean kinetic parameters of LAN and its metabolites.

	LAN		OH-LAN		LAN sulfone	
	EMs	PMs	EMs	PMs	EMs	PMs
C _{max} (ng/ml)	1033	2471	66	14	86	253
t _{1/2} (hr)	1.4	3.2	1.6	3.4	1.8	8.7
AUC(μg/ml/hr)	2.7	10.9	1.2	0.8	2.2	10.2
CL ₀ (l/hr/gk)	0.26	0.04				

Significant correlations existed between the log₁₀ urinary excretion of 4-hydroxymephenytoin and the elimination t_{1/2} and CL₀ of LAN(r_s= -0.81 and 0.76, respectively, p<0.01). Similarly, significant correlations existed between the capacity of 4-hydroxylation of S-mephenytoin and the t_{1/2} of OH-LAN and of LAN sulfone(r_s= -0.89 and -0.79, respectively, p<0.01). These results indicate that the metabolism of LAN is related to the S-mephenytoin hydroxylation polymorphism in a Korean subjects.