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Recent trends in antihypertensives based on their pharmacokinetic parameters

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One reason for the designing of a new drug entity is to improve pharmacokinetic parameters. Recent trends in drug discovery is giving much emphasis on Absorption, Distribution, Metabolism and Elimination (ADME) principles, bioavailability/bioequivalence issues, non-linearity in pharmacokinetics, and concepts related to Pharmacokinetic/ Pharmacodynamic relationships. Antihypertensive is the field of medicine where the pharmacokinetic aspects of a drug plays important role in its potency. Differences in antihypertensive responses within a pre-eclamptic population cannot be attributed to pharmacokinetic differences. It has also been observed that use in the elderly no dosage reduction is necessary in patients with clinically normal renal and hepatic function as no significant differences in the pharmacokinetic parameters or antihypertensive effect of fosinoprilat have been found compared with young subjects. There is evidence of reduced hepatic clearance of fosinoprilat with compensatory increase in renal excretion. Indazole amide 3 is a potent and selective ROCK1 inhibitor but possessed poor oral bioavailability. Optimization of this lead resulted in the discovery of a series of dihydropyridones, exemplified by 13, with improved pharmacokinetic parameters relative to the initial lead. Indazole substitution played a critical role in decreasing clearance and improving oral bioavailability. It has also been observed that the longer hypotensive effect of IRB observed in aortic coarctated animals could be explained by the slowest elimination of the drug. It was concluded that the formulated tablet microspheres provide an acceptable delivery for diltiazem hydrochloride over an extended period of time. Lack of pharmacokinetic interactions of aliskiren, a novel direct renin inhibitor for the treatment of hypertension has been reported with the antihypertensives amlodipine, valsartan, hydrochlorothiazide (HCTZ) and ramipril in healthy volunteers. This study concludes the diversified impact of pharmacokinetic parameters on the efficacy of different antihypertensives.

Biography

Dr. Sanjita Das has completed her PhD and M.Pharm in Pharmacology from Birla Institute of Technology. She is the Head of the Department of Pharmacology, Noida Institute of Engineering and Technology, Greater Noida, India. She has published 26 publications in reputed Journals an as serving as an editorial board member of repute. She has worked as a reviewer for many reputed journals. She is guiding six PhD scholars. She is a member of Indian Pharmacology Society, Indian Chemical Society, Indian Pharmaceutical Association, Indian Pharmaceutical Graduates Association, Association of Pharmaceutical Teachers of India, and Indian Technical Society. Now she is involved in exploitation of medicinal values of the traditionally used plant sources and bioavailability studies of different medicinal products.