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Effects of novel 4-(1-benzyl-5-imidazoly1)-1,4-dihydropyridines on rat intestinal illeum smooth muscle contractions

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The influx currents of calcium through L Type voltage dependent calcium channels play a crudial role in modulation of smooth muscle contractions. Therefore, the dihydropyridine compounds as L type calcium channel bloockers have received much attention in therapeutics. Numerous investigations are carried out to design novel drugs of dihydropyridine class with more selectivity and less adverse effects. The main objective of the present study was to characterize the effects of seven recently synthesized dihydropyridine compounds on intestinal illeum smooth muscle contractions. seven novel dihydropyridines were assessed for their inhibitory actions on KCl induced contractions in isolated rat illeum . seven nifidipine analogues (4-(1-benzyl-5- imidazolyl)-1, 4- dihydropyridines) were synthesized at the medicinal chemistry laboratory of Mashhad School of pharmacy. Segments of 2- cm length removed from rat illeum and separatly mounted in a 10 ml organ bath. Contractile responses of illeum muscle to KCl were measured by an isometric transducer connected to a recorder. All of the analoges of dihydropyridine decereased the contraction of isolated rat ileum in a dose dependent manner. However, their potencies for inhibition of the contraction were different from each other. All tested compounds (except compound F) , were stronger than nifidipine. Since these compounds are analogues of nifedipine, their inhibitory effects are more likely due to blockade of the L type calcium channels.