**TIME-DEPENDENT RELAXANT EFFECTS OF NITRIC OXIDE AND CARBON MONOXIDE INTERACTION ON ALBINO RATS AORTIC RINGS WITH SPECIAL EMPHASIS ON THE ROLES OF K+ AND CA++ CHANNELS**

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The current study included time-dependent interactive relaxant effects of a combination of IC50 doses of sodium nitroprusside (NO donor ) and dimanganese decacarbonyl (CO donor and the possible roles of K+ and Ca2+ channels in norepinephrine pre-contracted from male rats using PanLab tissue bath system. Most of the relaxant effect ( 61.77% ) induced by SNP+DMDC occurred during the first 10 minutes while in the presence of Nifedipine the relaxation rate was further enhanced to 74.15% and completed within 30 minutes. Pre-incubation of aortic rings with BaCl2 and 4-AP significantly reduced time-dependent relaxation after 30 min. This indicate that Kir and Kv channels play major roles in the process of hyperpolarization and aorta relaxation. Conversely, pre-incubation with GLIB enhanced time-dependent relaxation rate, while aortic rings treated with TEA did not show any significant change in the relaxation. Pretreatment of aortic rings with a combination of 4-AP+BaCl2, BaCl2+TEA and GLIB+BaCl2 produced highly significant reduction in time-dependent relaxation rate On the other hand, pretreatment of aortic rings with a combination of GLIB+4-AP and GLIB+TEA significantly enhanced relaxation rate where as pre-incubation with 4-AP +AEA showed no effect on the relaxation rate induced by a mixture of SNP+DMDC. From the current study, the following novel conclusions can be complied: 1. Ca++ channel plays no role in the relaxation of aorta. 2.When using K ion channels blockers individually, both Kir and Kv channels play important roles in the process of repolarization 3.When using any two combination of K channel blockers, in addition to Kir and Kv channels, other channels such as KATP and Kca channels also participated in the process of hyperpolarization and subsequent relaxation. Key words: CO, NO, Aorta, K and Ca channel blockers, hyperpolarization, relaxation