

## C145146 : INTERDEPARTMENT PHARMACOLOGY

KEYWORD : BOVINE RENAL ARTERY/VASOACTIVE SUBSTANCE/ENDOTHELIUM/  
DOPAMINERGIC RECEPTOR

NISAKORN KRAISOON : STUDY ON THE RESPONSIVENESS OF ISOLATED  
BOVINE RENAL ARTERY TO VASOACTIVE SUBSTANCES. THESIS

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An in vitro preparation of bovine renal artery was undertaken to investigate the responsiveness of the vessel to nine vasoactive agents and the integrity of vascular endothelium in modulating tone of blood vessel to these agents.

Noradrenaline, histamine, serotonin and calcium chloride contracted resting renal artery whereas acetylcholine, hydralazine, isoproterenol and papaverine relaxed the tissue. Specifically, dopamine was found to have a biphasic action; relaxation with low doses and contraction with high doses. These effects were antagonized by their specific antagonists.

By mechanical removal of the endothelium attenuated the contraction caused by histamine. In contrast, the dopamine-induced contraction was enhanced. The contraction caused by noradrenaline and serotonin was unaffected. Endothelial-removal diminished the relaxation caused by acetylcholine and hydralazine, but did not markedly changed those caused by isoproterenol. The relaxation caused by papaverine was unaffected. In the presence of specific antagonists, the responses of de-endothelial tissue to their agonist were changed. Prazosin and ketanserin showed their stronger antagonistic effects to noradrenaline and serotonin, respectively than in the intact preparation. By contrast, increasing of de-endothelial tissue responses to histamine, acetylcholine and hydralazine were also found in the presence of chlorpheniramine and cimetidine, atropine and propranolol, respectively.

It may be concluded that the responsiveness of bovine renal artery to vasoactive agents is a unique and varied pattern that is different from other (blood vessels) examined and the integrity of vascular endothelium is essential for modulating the responsiveness of renal blood vessel to some vasoactive drugs. It is, therefore, that the intriguing to contemplate whether the relevant pharmacological effects of the drugs used in the patient with functionally-impaired endothelium.