T2-P6

Renal Haemodynamic Regulation in Normotensive Wky Rats: Effects of Sympathectomy and Losartan

B. Fathihah[1], A.S. Munavvar[1], N.A. Abdullah[2], D. Aidiahmad[1], A.H. Khan[1], H.A. Rathore[1], N. Raisa[1], M.H. Nur Jannah[1], K.R.L. Anand Swarup[1], M.H. Abdulla[1], I.M. Salman[1] and E.J. Johns[3]

[1]*School of Pharmaceutical Sciences, University Sains Malaysia, 11800 Penang, Malaysia*
[2]*Department of Pharmacology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia*
[3]*Department of Physiology, University College Cork, Ireland*

This study assessed the impact of sympathectomy and losartan on the interaction of sympathetic nervous (SNS) and renin-angiotensin (RAS) system in renal haemodynamics regulation of normotensive WKY rats. The animals were grouped accordingly: sympathectomized with 6-hydroxydopamine (6OHDA) (WKY6OHDA), fed with losartan (10 mg/kg) orally for 7 days prior to the acute study (WKYLOS) and a combination of losartan and 6OHDA (WKY6OHDALOS). In acute study, the animals were anesthetized (60 mg/kg i.p. sodium pentobarbitone) and prepared for blood pressure and renal blood flow (RBF) measurements. Reductions in RBF to electrical stimulation of renal nerve (RNS) and intrarenal administration of noradrenaline (NA), phenylephrine (PE), methoxamine (ME) and angiotensin II (Ang II) were determined. Data were recorded using a computerized data acquisition system and expressed as mean ± s.e.m. and compared by 2-way ANOVA followed by Bonferronni post-hoc test with a significance level at 5%. Following RNS, a smaller vasoconstriction was observed in sympathectomized group ($p<0.05$) but no change was observed in WKYLOS and WKY6OHDALOS as compared to control. Administration of NA and PE produced significant drops ($p<0.05$) in vasoconstrictions in all groups in comparison with control and in WKYLOS as compared to WKY6OHDALOS. However, responses in WKY6OHDA did not differ from WKY6OHDALOS. ME caused minimal changes in vasoconstrictor responses in all groups, but there was a greater drop ($p<0.05$) in WKY6OHDALOS as compared to WKY6OHDA. Vasoconstrictor responses to Ang II were significantly attenuated ($p<0.05$) in WKYLOS and WKY6OHDALOS but in WKY6OHDA enhanced responses ($p<0.05$) were recorded. Responses in WKY6OHDALOS were significantly smaller ($p< 0.05$) than WKY6OHDA. Collectively, it can be suggested that the functions of postsynaptic α_1-adrenoceptor subtypes were influenced by binding of Ang II to postsynaptic AT_1 receptor and vice versa with possibility of greater participation of α_{1D} in sympathectomized rat indicating a positive cross talk relationship between SNS and RAS.