Positive influence of AT(1) receptor antagonism upon the impaired celiprolol-induced vasodilatation in aorta from spontaneously hypertensive rats

Titre	Positive influence of AT(1) receptor antagonism upon the impaired celiprolol-induced vasodilatation in aorta from spontaneously hypertensive rats
Type de publication	Article de revue
Auteur	Sauvaget, Frédérique [1], Mallem, Mohamed Yassine [2], Bucas, Véronique [3], Gogny, Marc [4], Desfontis, Jean-Claude [5], Noireaud, Jacques [6]
Pays	Pays-Bas
Editeur	Elsevier
Ville	Amsterdam
Type	Article scientifique dans une revue à comité de lecture
Année	2010
Langue	Anglais
Date	Oct 2010
Numéro	1-3
Pagination	169 - 175
Volume	644
Titre de la revue	European journal of pharmacology
ISSN	1879-0712
Mots-clés	Aorta [7], Celiprolol [8], rat [9], SHR [10], Vasodilatation [11], β-Adrenergic receptor [12]

Résumé en anglais	We evaluated celiprolol-induced vasodilatation in aorta taken from 12-week-old spontaneously hypertensive rats (SHR) and the effect of AT(1) angiotensin II receptor antagonism on the vasodilatory action of celiprolol in Wistar Kyoto (WKY) rats and SHR. In WKY rats, the celiprolol-induced relaxation was greatly decreased in denuded aorta, and completely abolished in intact aorta by N_{ω}-nitro-l-arginine methyl ester (|-NAME, 100 microM). In SHR, celiprolol-induced relaxation was reduced compared to WKY rats (E_{max} (value obtained for the highest concentration, 300 µM)=39.1+ or - 3.78%, n=21 vs. 80.4 + or - 3% in WKY rats, n=10; P<0.0001). Endothelium removal or pre-treatment with |-NAME did not alter celiprolol-induced relaxation in SHR. In both strains, relaxation to celiprolol was decreased in the presence of nadolol (a β_1/β_2-adrenoceptor antagonist, 10 µM). N-[[3-[(2S)-2-hydroxy-3-[[2-[4-[(phenylsulfonyl)amino] phenyl]ethyl]amino] propoxy]phenyl]methyl]-acetamide (L748337, a β_3-adrenoceptor antagonist, 7 µM) had no effect. A 12-day treatment with candesartan cilexetil (an AT(1) receptor antagonist, 0.37 or 1mg/kg/day) reduced systolic blood pressure in both strains, but only improved relaxation to celiprolol in SHR, and only at the highest dose (E_{max}=64.2+/-3.9%, n=10, P<0.0001 vs. SHR control). In both strains, local aortic AT_1 receptor antagonism with candesartan CV11974 (100 µM) had no effect. The endothelial β_1/β_2 relaxation induced by celiprolol was therefore impaired in SHR aorta and AT_1receptor antagonism improved the response to celiprolol, in conjunction with a reduction in blood pressure. This work highlights the need to analyse the potential benefit of a combination of celiprolol/AT_1 receptor antagonist in the treatment of hypertension.
URL de la notice	http://okina.univ-angers.fr/publications/ua358 [13]
DOI	10.1016/j.ejphar.2010.07.003 [14]
Lien vers le document	http://dx.doi.org/10.1016/j.ejphar.2010.07.003 [14]

Liens

[1] http://okina.univ-angers.fr/publications?f[author]=1177
[2] http://okina.univ-angers.fr/publications?f[author]=466
[3] http://okina.univ-angers.fr/publications?f[author]=1178
[4] http://okina.univ-angers.fr/publications?f[author]=468
[5] http://okina.univ-angers.fr/publications?f[author]=469
[6] http://okina.univ-angers.fr/jacques.noireaud/publications
[7] http://okina.univ-angers.fr/publications?f[keyword]=1155
[8] http://okina.univ-angers.fr/publications?f[keyword]=1630
[9] http://okina.univ-angers.fr/publications?f[keyword]=7136
[10] http://okina.univ-angers.fr/publications?f[keyword]=19939
[11] http://okina.univ-angers.fr/publications?f[keyword]=1615
[12] http://okina.univ-angers.fr/publications?f[keyword]=19938
[13] http://okina.univ-angers.fr/publications/ua358
[14] http://dx.doi.org/10.1016/j.ejphar.2010.07.003