β-Blockers With Vasodilatory Actions

To the Editor:

We have read with interest the article by Dart et al (January 2003) and would like to make a few comments. The authors have grouped atenolol, labetalol, nebivolol, and doxazosin into a class of β-blockers with additional α-receptor-blocking action. It is known that labetalol, celiprolol, carvedilol, and nebivolol are β-blockers, but they also have an additional arteriolar vasodilating action. The mechanism by which they produce this action is diverse, whereas atenolol does not have any additional vasodilatory property. Labetalol and carvedilol (now called third-generation β-blockers) produce vasodilatation by their α-receptor-blocking effect. Labetalol has a higher affinity for α receptors than for β₁ and β₂ receptors, whereas carvedilol has twofold to threefold selectivity for β₁ receptors vs α receptors. Nebivolol is a racemic mixture of d-enantiomers and l-enantiomers, and d-nebivolol is a highly selective β₁-adrenergic receptor antagonist. In addition, nebivolol also produces direct vasorelaxation in humans and animals by endothelial β₂-adrenergic receptor ligation with subsequent endothelial nitric oxide (NO) synthase-dependent NO production. This effect can be abolished by inhibitors of NO synthase.

Studies about doxazosin show that it selectively blocks the postjunctional α₁-adrenergic receptor, which is the primary mediator of the pressor effects of noradrenaline, thereby producing vasodilatation. However, there is also evidence of its interaction with adenosine receptors (adenosine, through its interaction with adenosine receptors, inhibits α₁-adrenoceptor responses to various stimuli). Some of the pharmacologic properties of doxazosin cannot be fully explained by its α-blocking effect, and a direct effect on adenosine receptors cannot be excluded.

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REFERENCES


Interleukin-6, Obstructive Sleep Apnea, and Obesity

To the Editor:

Carpagnano and colleagues recently reported in CHEST (October 2002) a significant increase in 8-isoprostanate and interleukin (IL)-6 levels in the exhaled breath condensate of obstructive sleep apnea (OSA) patients compared with that of obese subjects. In the article, they referred to a close correlation between IL-6 and the severity of OSA. This finding is consistent with reports indicating that IL-6 is associated with the severity of OSA. However, the mechanism by which IL-6 increases in obstructive sleep apnea is unclear, and more research is needed to fully understand the role of IL-6 in OSA.