

Nitric oxide-insensitive soluble guanylate cyclase-mediated vasorelaxation in smokers

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Cigarette smoking is known to be accompanied with a decrease in nitric oxide (NO) bioavailability in the vascular system. A shift of soluble guanylate cyclase (sGC) from the NO-sensitive form to the NO-insensitive form could decrease NO bioavailability. Therefore, this study investigated whether NO-insensitive sGC-mediated relaxation is augmented in smokers. The right gastroepiploic artery was isolated from patients undergoing gastrectomy or coronary artery bypass grafting. BAY 60-2770 (NO-insensitive sGC stimulant) evoked a concentration-dependent relaxation of the artery, which was not different between non-smokers and smokers. In addition, there was also no significant difference in the concentration-response curve for sodium nitroprusside (NO-sensitive sGC stimulant). These findings suggest that NO-insensitive sGC-mediated vascular tone regulation is not affected by cigarette smoking. It is considered that the balance between the two forms of sGC is maintained even in the blood vessels damaged by cigarette smoking.