Antithrombotic effects of tetramethylpyrazine in in vivo experiments

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摘要

Abstract

In this study, tetramethylpyrazine (TMPZ) was effective in reducing the mortality of ADP-induced acute pulmonary thromboembolism in mice when administered intravenously at doses of 40 and 80 μg/g. In addition, intravenous injection of TMPZ (10 μg/g) significantly prolonged the bleeding time by approximately 1.5-fold compared with normal saline in severed mesenteric arteries of rats. Continuous infusion of TMPZ (1 μg/g per min) for 10 minutes also significantly increased the bleeding time approximately 1.6-fold, and the bleeding time returned to baseline within 60 minutes after cessation of TMPZ infusion. On the other hand, platelet thrombi formation was induced by irradiation of mesenteric venules with filtered light in mice pretreated intravenously with fluorescein sodium (10 μg/kg). When it was intravenously injected, TMPZ (250 μg/g) significantly prolonged the latent period of the induction of platelet plug formation in mesenteric venules. TMPZ (250 μg/g) prolonged occlusion time approximately 1.4-fold (183 +- 18 seconds) compared with that of normal saline (132 +- 14 seconds). Furthermore, aspirin (300 μg/g) showed similar activity in the prolongation of occlusion time in this experiment. In conclusion, these results suggest that TMPZ has effective antithrombotic activity in vivo and may be a potential therapeutic agent for arterial thrombosis but must be assessed further for toxicity.