Antithrombotic effects of magnesium sulfate in in vivo experiments

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摘要

Abstract

In this study, magnesium sulfate was effective in reducing the mortality of adenosine diphosphate—induced acute pulmonary thromboembolism in mice, when it was administered intravenously at doses of 100 and 200 μg/g body weight. In addition, intravenous injections of magnesium sulfate (100 and 200 μg/g) significantly prolonged bleeding time in the severed mesenteric arteries of rats by approximately 1.7- and 1.9-fold, respectively, compared with normal saline. Continuous infusion of magnesium sulfate (20 μg/g per minute) for 10 minutes also significantly increased the bleeding time by approximately 1.7-fold, and the bleeding time returned to baseline within 60 minutes of cessation of magnesium sulfate infusion.On the other hand, platelet thrombi formation was induced by irradiating mesenteric venules with filtered light in mice pretreated with intravenous fluorescein sodium.When magnesium sulfate was administered at 300 μg/g during induction of platelet plug formation with 10 μg/kg fluorescein sodium, occlusion time was not significantly prolonged, but a dose of 600 μg/g did significantly prolong the occlusion time. Furthermore, aspirin (250 μg/g) also showed a similar activity in this experiment in prolonging the occlusion time. In conclusion, these results suggest that magnesium sulfate has an effective antithrombotic activity in vivo, and treatment with magnesium sulfate may lower the risk of thromboembolic-related disorders.