

題名:Antiplatelet effect of sanguinarine is correlated to calcium mobilization, thromboxane and cAMP production

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摘要:Sanguinarine is a plant alkaloid present in the root of *Sanguinaria canadensis* and *Poppy fumaria* species. Sanguinarine has been used as an antiseptic mouth rinse and a toothpaste additive to reduce dental plaque and gingival inflammation. In this study, we investigated the antiplatelet effects of sanguinarine, aiming to extend its potential pharmacological applications. Sanguinarine inhibited platelet aggregation induced by arachidonic acid (AA), collagen, U46619 and sub-threshold concentration of thrombin (0.05 U/ml) with IC(50) concentrations of 8.3, 7.7, 8.6 and 4.4 microM, respectively. Sanguinarine (5-10 microM) inhibited 10-31% of platelet TXB(2) production, but not platelet aggregation induced by higher concentration of thrombin (0.1 U/ml). SQ29548, a thromboxane receptor antagonist, inhibited the AA-induced platelet aggregation but not TXB(2) production. Sanguinarine suppressed cyclooxygenase-1 (COX-1) activity (IC(50)=28 microM), whereas its effect on COX-2 activity was minimal. Sanguinarine (8, 10 microM) further inhibited the AA-induced Ca(2+) mobilization by 27-62%. In addition, SQ22536, an adenylate cyclase inhibitor, attenuated the inhibitory effect of sanguinarine toward AA-induced platelet Ca(2+) mobilization and aggregation. These results suggest that sanguinarine is a potent antiplatelet agent, which activates adenylate cyclase, inhibits platelet Ca(2+) mobilization, TXB(2) production as well as suppresses COX-1 enzyme activity.

Sanguinarine may have therapeutic potential for treatment of cardiovascular diseases related to platelet aggregation.