CALYCOSIN FROM ASTRAGALUS MEMBRANACEUS ROOT EXHIBITS ANTITHROMBOTIC ACTIVITIY

KUAN-HUNG LIN

Institute of Biomedical Sciences, College of Medicine, MacKay Medical University, New Taipei City, Taiwan
E-mail: linkh@mmu.edu.tw

Abstract - Cardiovascular diseases (CVDs) are the leading cause of death worldwide especially heart attack and stroke. Atherosclerosis, a chronic inflammatory disorder, is a major cause of heart attack and stroke. Previous studies have reported that platelets participate in the initiation and progression of atherosclerosis, suggesting the reduction of platelet activation may be a strategy to lower the progression of atherosclerosis. However, clinically used antiplatelet drugs are often associated with a bleeding tendency, which limits their use. Therefore, the development of novel antiplatelet agents with reduced bleeding risk remains an important unmet medical need. Calycosin is a flavonoid extracted from the root of Astragalus membranaceus that has a variety of biological effects, including anticancer, anti-inflammatory and antidiabetic effects. Previously, we also reported that calycosin possesses antiplatelet activity. However, whether calycosin can exert antithrombotic activity remains unclear. Therefore, the present study aims to investigate the effect of calycosin on thrombus formation using several thrombosis models. In this study, the models of pulmonary thrombosis and thrombus formation in mesenteric veins and arteries were used to determine the antithrombotic activity of calycosin. The data revealed that calycosin prevent collagen/epinephrine-induced pulmonary thrombosis and improve survival rate. Moreover, calycosin could delay thrombus formation in the mesenteric veins and arteries induced by UV radiation and FeCl3, respectively. These findings suggest calycosin may exert antithrombotic activity. Given that calycosin may provide a therapeutic potential for treating patients with cardiovascular diseases.

Keywords - Calycosin; Cardiovascular Diseases; Platelet Activation; Thrombus Formation