Antiplatelet and Antithrombotic Effects of ZLJ-6, an Inhibitor of Cyclooxygenase and 5-Lipoxygenase

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SUMMARY. Previous study has demonstrated that ZLJ-6, a novel cyclooxygenase (COX) and 5-lipoxygenase (5-LOX) dual inhibitor, potently inhibits the production of thromboxane A₂ (TXA₂) in human whole blood. Since TXA₂ is considered to be one of the most powerful agonists for platelet activation and thrombus formation, in the present study the antiplatelet and antithrombotic effects of ZLJ-6 were investigated. ZLJ-6 significantly reduced thrombus formation in ferric chloride-induced rat arterial thrombosis and plasma TXB₂, 6-keto-PGF₁α and LTB₄ levels in vivo. In vitro, arachidonic acid (AA) and collagen-induced platelet aggregation was inhibited by ZLJ-6 in a concentration-dependent manner. The inhibitory effect of ZLJ-6 on the conversion from AA to TXB₂ and PGD₂ in vitro further confirmed its COX-1 mediated antiplatelet mechanism. On the contrary, coagulation parameters were not altered by ZLJ-6. These results obtained in this study identify ZLJ-6 as a promising antithrombotic agent with potential clinical application in the modulation of thrombotic disorders.

KEY WORDS: ZLJ-6, Cyclooxygenase/5-lipoxygenase inhibitor, Platelet aggregation, Antithrombotic activity, Thromboxane A₂.

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