



Current and novel P2Y₁₂ ADP receptor antagonists and bleeding risk in dental surgery

Sirada Srihirun¹, Nathawut Sibmooh²

¹ Department of Pharmacology, Faculty of Dentistry, Mahidol University

Email: Sirada.srh@mahidol.ac.th

² Department of Pharmacology, Faculty of Science, Mahidol University

Email: Nathawut.sib@mahidol.ac.th

Abstract

Adenosine diphosphate (ADP) receptor antagonists are anti-platelet drugs used for treatment and prevention of thromboembolism. Clopidogrel, a second generation P2Y₁₂ ADP receptor antagonist, has been used over past decade with or without aspirin in acute coronary syndrome (ACS). Clopidogrel has several drawbacks due to two-step bioactivation by cytochrome P450 (CYP) leading to delayed onset and inter-individual variation. These lead to development of newer ADP receptor antagonists with more predictable pharmacokinetics and pharmacodynamics. The newly approved ADP receptor antagonists include oral prasugrel and ticagrelor, and intravenous cangrelor. During tooth extraction, significant bleeding may occur in patients receiving anti-platelet drugs especially aspirin plus ADP receptor antagonist therapy. This article describes the pharmacological properties and risk of bleeding especially in dental surgery of newly approved ADP receptor antagonists.

Keywords: clopidogrel, prasugrel, ticagrelor, cangrelor, bleeding, dental surgery

How to cite: Srihirun S, Sibmooh N. Current and novel P2Y₁₂ ADP receptor antagonists and bleeding risk in dental surgery. M Dent J 2016; 36: 65-74.

Corresponding author:

Sirada Srihirun
Department of Pharmacology,
Faculty of Dentistry, Mahidol University
6 Yothi road, Ratchatewi, Bangkok 10400,
Thailand
Tel: 02-200-7833-4
Fax: 02-200-7832
Email: Sirada.srh@mahidol.ac.th

Received: 11 January 2016

Accepted: 23 February 2016