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ABSTRACT

Impairment of platelet function can jeopardize normal hemostasis and increase the risk for patients undergoing surgery and anesthesia. This article reviews studies that have investigated the effects of anesthetic agents on platelet function. These studies suggest that volatile anesthetics such as halothane and sevoflurane can inhibit platelet aggregation in concentrations used clinically. Enflurane, isoflurane, and desflurane appear to have minimal or negligible effects. Barbiturates, benzodiazepines, ketamine, and etomidate do not seem to affect platelet function. One intravenous anesthetic, propofol, has dual effects on platelet aggregation: high concentrations of propofol suppress platelet aggregation, but low concentrations enhance platelet aggregation. The clinical significance of the inhibitory effect of these anesthetics on platelet function still needs to be validated. However, these anesthetics might affect the incidence of intraoperative bleeding or thromboembolic complications similar to that produced by other antiplatelet drugs. (N. Taipei J. Med. 2001; 3:7-12)

Hemostasis is an important physiologic process in which bleeding from a cut or injured vessel stops. Platelets play an essential role in hemostasis. Upon activation, platelets change shape, secrete the contents of their granules, and aggregate to form a hemostatic plug. This comprises an indispensable process in hemostasis during and after surgical procedures. Consequently, the interaction between platelet function and anesthetic agents used during surgery is a clinically important issue.¹

The effects of different kinds of anesthetic agents on platelet aggregation have been investigated for 30 years. Most previous studies examined perioperative platelet function by evaluating the effects of anesthetic agents on platelet aggregability. Platelet aggregometry was used to measure platelet activation upon stimula-

tion. Over the last 5 years, there have been considerable advances in the methodology for evaluating platelet function. Flow cytometry and analysis of intracellular second messengers have further elucidated the mechanism of platelet aggregation at the molecular level. The aim of this paper is to review previous studies that have examined the effects of volatile and intravenous anesthetic agents on platelet function. Due to the multitude of platelet function tests used in previous studies, a brief summary of the common platelet function tests is included.

PLATELET FUNCTION TESTS

In clinical practice, platelet count and bleeding

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