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## **ADDENDUM**

Two recently published papers describing assessment and management of perioperative risk from coronary artery disease in patients undergoing noncardiac surgery were published by Paida and Detsky of the American College of Physicians. These are important "position papers" describing clinical guidelines for this patient population. Based on the findings of Mangano  $et\ al.$  The American College of Physicians recommends the perioperative use of atenolol in patients with coronary artery disease or risk factors for coronary artery disease as originally defined by Mangano  $et\ al.$  The unless significant contraindications to the use of  $\beta$  blockers are present. — DCW

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## Anesthetic Drug Interactions

## An Insight into General Anesthesia—Its Mechanism and Dosing Strategies

IN this issue of Anesthesiology, Katoh and Ikeda<sup>1</sup> present a study describing the interaction of sevoflurane and fentanyl to achieve loss of consciousness and ablation of so-



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Key words: Alfentanil; fentanyl; isoflurane; mechanisms of volatile anesthetics; opiates; remifentanil; sevoflurane; sufentanil.

matic responses to skin incision. This is one of a few articles investigating the concentration response of the interaction between opiates and volatile anesthetics<sup>2</sup> or propofol.<sup>3,4</sup> What can we learn from these drug interaction studies?

The interaction between fentanyl, sufentanil, alfentanil, and remifentanil (analgesics) with either isoflurane, desflurane, sevoflurane, or propofol (hypnotics) for the prevention of purposeful movement at skin incision is remarkably similar. There is an initial steep decrease (40–50%) in the MAC/Cp<sub>50</sub> with low (analgesic concentrations) of an opiate. Thereafter, the decrease in MAC/Cp<sub>50</sub> with increasing opiate concentrations tends to flatten until a ceiling effect is observed. The interaction for loss of consciousness is different to that for skin incision, with only a 10–20% decrease in the MAC/Cp<sub>50</sub> awake value when combined with an analgesic concentration of an opiate. The different interaction for these two endpoints is strong evidence that loss of consciousness and response to skin incision are not a single continuum of increasing "anesthetic depth" but