

**SCA 81
PREDICTORS OF HYPOTENSION FOLLOWING
INDUCTION OF GENERAL ANESTHESIA**

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Introduction: Hypotension following induction of general anesthesia is a common event. The purpose of the current investigation was to identify the predictors of clinically significant hypotension following the induction of general anesthesia.

Methods: Computerized anesthesia records of 4096 patients undergoing general anesthesia were queried for BP, demographic information, preoperative drug history, and anesthetic induction regimen. The median BP was determined pre- and for 0-5 and 5-10 min post-induction of anesthesia. Hypotension was defined as either: (1) mean arterial pressure (MAP) decrease >40% and MAP<70 mm Hg; or (2) MAP <60 mm Hg.

Results: Hypotension was more prevalent in the second half of the 0-10 minute interval after anesthetic induction than in the first half (p<0.001). (Table 1) In 2406 patients with retrievable outcome data, the proportions of adverse events (prolonged postoperative stay and/or death) in patients with and without hypotension post-induction were 13.3% and 8.6%, respectively (p=0.012). Statistically significant multivariate predictors of hypotension 0-10 minutes after anesthetic induction included: ASA 3-5, baseline MAP <70 mm Hg, age 50 years, propofol induction, and increasing fentanyl dosage. (Table 2) Preoperative drug use history did not yield additional independent predictors of post-induction hypotension.

Conclusions: A remarkably high number of patients experience clinically important hypotension in the period immediately following anesthetic induction in common clinical practice; the incidence and magnitude is greater than that reported previously in FDA-sponsored trials of healthy patients.(1) A better understanding of the predictors and consequences of these blood pressure abnormalities should enhance the safety of patients undergoing general

anesthesia. Given these preliminary data, it is prudent to consider alternatives to propofol anesthetic induction in patients over 50 years of age with ASA physical status 3. It is prudent to avoid propofol induction in patients who present with baseline MAP <70 mm Hg. The incidence of hypotension may be less when lower doses of fentanyl are used at the time of propofol induction.

Reference:

1. Hug CC Jr et al. *Anesth Analg*. 1993;77(4 Suppl):S21-9.

Table 1. Prevalence of Hypotension Following Induction of General Anesthesia

	Baseline prior to Induction	0-5 min after Induction	5-10 min after Induction	0-10 min after Induction
ASA 1-2	46/2962 (1.5%)	81/2882 (2.8%)	163/2904 (5.6%)	216/2824 (7.7%)
ASA 3-5	19/1134 (1.7%)	48/1104 (4.4%)	110/1110 (9.9%)	136/1080 (12.6%)

Note : The denominators vary within groups based upon completeness of data.

Table 2. Independent Predictors of Hypotension 0-10 Minutes Following Anesthetic Induction

Variable	OR [95% C.I.]	P-Value
Baseline MAP <70 mm Hg	5.00 [2.78-9.02]	<0.0001
Age ≥50 yrs	2.25 [1.75-2.89]	<0.0001
Propofol induction (vs. thiopental or etomidate)	3.94 [2.42-6.43]	<0.0001
Increasing fentanyl dosage*	1.32 [1.13-1.56]	0.0008
ASA 3-5 (vs. ASA 1-2)	1.55 [1.22-1.99]	0.0004

* Fentanyl dosing was coded into three categories: 1= 0-1.50 µg/kg; 2= 1.51-5.00 µg/kg; 3= >5 µg/kg