of intra-abdominal bleeding was overlooked initially since it did not present as abdominal distension, owing to the muscular build of the patient. Instead, it pushed the diaphragm up and presented as respiratory distress.

Hypotension following pheochromocytoma resection is generally attributed to a chronically low circulating blood volume[5] and to the abrupt fall in catecholamines following excision, a mechanism we held as the first possibility. Hence, we did not suspect, initially, that the hypotension resulted from the pressure exerted by clots on the IVC, though an elevated CVP should have alerted us.

Eventually, both respiratory distress and hypotension were found to be due to a common causative factor i.e., intra-abdominal blood clots, as their removal resulted in an immediate clinical improvement.

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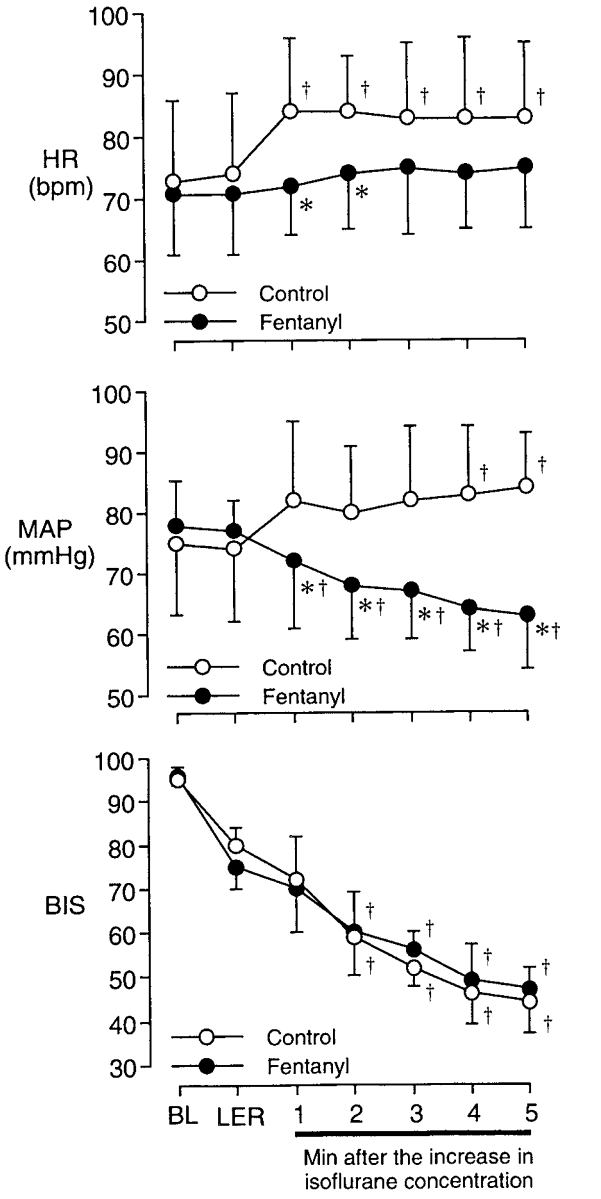

FIGURE Changes in heart rate (HR), mean arterial pressure (MAP), and bispectral index (BIS) after anesthetic induction with thiamylal and high concentrations of isoflurane with or without fentanyl pretreatment. Values are expressed as mean ± SD. BL = baseline; LER = loss of eyelash reflex. * $P < 0.05$ *vs* the control group; † $P < 0.05$ *vs* values at LER.

Fentanyl abolishes the hyperdynamic response to isoflurane without affecting the change in bispectral index

To the Editor:

A sudden increase in the inspired isoflurane concentration activates adrenosympathetic function, resulting in tachycardia and hypertension.[1–5] We studied the effect of fentanyl on the changes in hemodynamics and the hypnotic level, as measured by bispectral index (BIS), after a sudden increase in isoflurane concentration. Forty-two adult patients (ASA I–II) were anesthetized with either 2

$mg \cdot kg^{-1}$ thiamylal (control group, $n = 22$) or 2 $\mu g \cdot kg^{-1}$ fentanyl followed by 2 $mg \cdot kg^{-1}$ thiamylal (fentanyl group, $n = 20$). Mask inhalation of isoflurane at 0.5% in 100% oxygen began after loss of consciousness. Two minutes later, the vapourizer setting for isoflurane was suddenly increased to 3.5% and maintained for five minutes. Heart rate (HR), mean arterial pressure (MAP), and BIS (Model A1050; Aspect Medical Systems, Natick, MA, USA) were measured every minute. Statistical analysis was performed using ANOVA.

Anesthetic induction with thiamylal did not change HR or MAP but significantly reduced BIS in both groups (Figure). The increase in isoflurane concentration significantly increased HR and MAP in the control group. In contrast, in the fentanyl group, HR did not change and MAP decreased significantly. Two minutes after the isoflurane concentration had been increased, BIS significantly and progressively decreased to about 50 in both groups. There were no inter-group differences in the BIS value throughout the study period.

This result suggests that a small dose of fentanyl can abolish the airway-irritating effect of isoflurane without affecting the hypnotic action of isoflurane as measured by BIS.

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