a possible spurious result. The operating manual of the co-oximeter will usually have a list of known interfering substances and of the behavior of the co-oximeter in their presence.

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REFERENCES

1. Kessler M, Eide T, Humayun B, Poppers PJ: Spurious pulse oximeter desaturation with methylene blue injection. ANESTHESIOLOGY 65:435–436, 1986
2. Scheller M, Unger R, Kelner M: Effects of intravenously administered dyes on pulse oximetry readings. ANESTHESIOLOGY 65:550–552, 1986

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Does Epidural Anesthesia Improve Ventricular Function?

To the Editor:—In their recent article,[1] Baron *et al.* conclude that ". . . lumbar epidural anesthesia improves left ventricular global and regional function in patients with a history of mild angina as long as volume loading is limited." However, do the presented data support their conclusion?

Following institution of epidural anesthesia, cardiac index (CI) and stroke volume index (SI) decreased by approximately 20%. The peak systolic pressure-end systolic volume (PSP/ESV) ratio, used as an indicator of myocardial contractility, remained unchanged. The only parameter of global left ventricular (LV) function that "improved" was LV ejection fraction (LVEF).

However, is radionuclide angiography really sensitive enought to reliably diagnose a change from 54 ± 2 to 59 ± 3? Even if it were, how physiologically and clinically relevant is such a change when end diastolic volume, CI, and SI decrease simultaneously by approximately 20%, the PSP/ESV ratio remains unchanged, and LV afterload tends to decrease?

Following volume loading, mean arterial pressure, CI, and SI all improved, and the PSP/ESV ratio remained unchanged. The only parameter which "worsened" was LVEF. But, again, the decrease was small, and it occurred in the presence of changing loading conditions.

As far as regional function is concerned, epidural anesthesia reduced the number of hypokinetic sectors from 19 out of 120 sectors analyzed to five out of 120. Upon volume loading, the number of hypokinetic sectors increased to 11. Although there is a significant difference between the initial 19 out of 120 and the five out of 120, there is no significant difference between five out of 120 and 11 out of 120 ($P > 0.15$), and between 19 out of 120 (*i.e.*, control) and 11 out of 120 (*i.e.*, following volume loading; $P > 0.15$).

We agree with the authors that ". . . lumbar epidural anesthesia appears to be a safe anesthetic method" (last paragraph). However, we would not interpret the data as showing that global LV function improved following induction of epidural anesthesia, and that volume loading had adverse effects on global or regional LV function. We would rather interpret the data as showing that cardiac function (as judged by the PSP/ESV ratio) remained unchanged throughout, that changes in LVEF reflect changes in loading conditions, and that volume loading restored coronary perfusion pressure and global cardiac performance (as judged by CI and SI) without worsening regional myocardial performance.

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REFERENCE

1. Baron JF, Coriat P, Mundler O, Fauchet M, Bousseau D, Viars P: Left ventricular global and regional function during lumbar epidural anesthesia in patients with and without angina pectoris. Influence of volume loading. ANESTHESIOLOGY 66:621–627, 1987

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