MAC, MAP, and Euphony

To the Editor—Dr. Fink has suggested that "MAC" be altered to "MAP" (minimal alveolar pressure of anesthetic required to eliminate movement in response to a painful stimulus). We considered this in our original paper describing MAC: "It must be remembered that the concentrations determined in this study apply only at an ambient pressure of one atmosphere, or 760 mm of mercury. Our basic interest in MAC is not really in alveolar anesthetic concentration, but rather in anesthetic partial pressure. The latter is the real constant for any one gas, while the former varies with ambient pressure. Anesthetic partial pressure as opposed to concentration also has the advantage, at equilibrium, of being equal at all places. At equilibrium then, anesthetic partial pressure in the alveolus is identical to the pressure in brain or any other tissue. On the other hand, at equilibrium, concentration in the alveolus is almost invariably different from brain or other tissue concentrations because of differences in relative solubility."

Our thoughts then did not differ materially from those put forward by Dr. Fink. Why did we not suggest "MAP"? Several reasons emerged from long and sometimes vigorous discussions among our group. "MAC" is easier to say, and more euphonious. More important, the practicing anesthetist deals in concentrations of anesthetics, not in pressures: "I'm giving 1 per cent halothane" not "I'm giving 7.6 torr of halothane." We believed that using MAP instead of MAC would make the entire concept appear to be more of a scientific gimmick than one applicable to everyday practice.

Nonetheless, as noted above, we entirely agree with Dr. Fink's thoughts, if not his terminology. Regardless of the label, we are in agreement that MAC is to represent a percentage of one atmosphere absolute pressure. If desired, conversion to pressure (in atmospheres) is then accomplished, "... by moving the decimal point two places to the left." We might continue to call this pressure "MAC," leaving to the context the responsibility for defining the units (per cent or pressure).

Finally, had we selected "MAP" rather than "MAC," Dr. Louis Orkin would never have been able to note: "We've been using the MAC concept for a long time. If our patients are too light when the operation begins, our surgeons say: 'Hey, MAC...!'"

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References

Catecholamine Effects on Increased Shunting

To the Editor—Muneyuki et al., in their paper "The Effects of Catecholamines on Arterial Oxygen Tension and Pulmonary Shunting during the Postoperative Period in Man" (Anesthesiology 34:356, 1971), did not comment on their high control values for Qa/Qr in "patients without clinical evidence of cardiopulmonary disease." Increased shunting could be from inoperative changes in Vd/Q produced by atelectasis, for example. It could also result from the effects of general anesthesia on the lung's ability to minimize Vd/Q inhomogeneity which is physically induced and always present (such as the uneven distribution of perfusion because of gravity). Unless the origin of the high initial shunts is known, the mechanism of the responses to catecholamines must remain unclear. The reported responses to catecholamines could have occurred because of changes in pulmonary vaso-