A feature of the arterial hypotension produced by halothane is that it is associated with bradycardia. This suggests that the baroreceptor system is inactivated by the drug. Atropine prevents the bradycardia and may modify the hypotension to some extent (Johnstone, 1961). The overall cardiovascular effects of halothane indicate that at least two factors are involved in the causation of hypotension: one is the blockade of the sympathetic efferents to the heart and the peripheral blood vessels; the other is increased vagal tone with its negative chronotropic and inotropic effects.

It is not improbable that the "resistance" of some patients to the hypotensive effect of certain sympathetic blocking agents may be related to the constrictive effect of sympathetic blockade on the \( \beta \)-adrenergic blood vessels. This is most obvious in young adults with good muscle perfusion. For obvious reasons, the alterations in peripheral vascular tone caused by variations in sympathetic activity may not be reflected by changes in the total peripheral resistance in normovolaemic subjects.

Sodium nitroprusside is a vasodilator substance which acts directly on the smooth muscle of both the \( \alpha \) and the \( \beta \)-adrenergic vessels. It is not a sympathetic blocking drug. In patients with intact sympathetic reflexes, the hypotensive action of nitroprusside, like that of oxytocin (Johnstone, 1972), is antagonized by brisk baroreceptor activity with reflex adrenergic stimulation of the heart producing tachycardia and an increased cardiac contractility and output, provided that the venous return is not impeded. Undoubtedly nitroprusside potentiates the hypotensive effect of halothane by dilating the constricted \( \beta \)-adrenoceptive vessels. It remains to be seen whether or not this is a desirable procedure in anaesthetic practice, especially in view of the depression of the baroreceptor system by halothane. Unless considerable care is taken in their use, the combined effects of the two drugs may precipitate a serious failure of venous return in patients who are anaesthetized in the head-up position.

MICHAEL JOHNSTONE
Manchester

REFERENCES


ALGAE FOR MINOR GYNAECOLOGICAL OPERATIONS
Sir,—I write in relation to the paper on the combination of pentazocine and diazepam by Drs A. Schoenfeld, J. A. Goldman and E. Levy (1974).

The combination of these two drugs is indeed a form of neuroleptanalgesia and I was pleased to find that the authors, using exactly the same dose as we did, found the combination (Aldrete et al., 1971). In our publication, the mixture given i.v. was found to be a satisfactory supplementary agent for a variety of minor surgical and diagnostic procedures. Lately, we have used it in a similar manner for laparoscopic tubal ligations.

J. ANTONIO ALDRETE
Louisville, Kentucky

REFERENCES


NEUROLEPTANAESTHESIA FOR MAJOR SURGERY
Sir,—Is it not a sad comment on our specialty that a valuable clinical study like that of Morgan, Lumley and Gilles (1974) on neuroleptanalgesia can be published without any reference of any kind to what the patients thought about it afterwards?

One real disadvantage of the technique has often been described. The authors refer, for instance, to the paper by Edmonds-Seal and Prys-Roberts (1970), who wrote: "Although these drugs are generally potent tranquillizers, it must be emphasized that in some subjects acute administration of clinically effective doses may induce a state of mental restlessness and agitation. This may be completely masked to the observer by the overt appearance of tranquillity and dissociation".

In my experience, about 10% of patients find the period after surgery most unpleasant because of this. Pharmacological detachment is quite different from philosophical detachment: it is a physical cutting-off of a patient's feelings so that they no longer find expression in his face nor outlet in his speech. His ordinary means of communication are detached from him and he is shut up in the private world of his own fear and pain.

Where cardiovascular stability and postoperative tranquillity are essential this is an acceptable price to pay. How often are they essential in ordinary anaesthetic practice?

T. H. SPREADSBURY
Warwick

REFERENCES


PREDICTION OF \( \text{P}_\text{CO}_2 \) IN A CIRCLE SYSTEM
Sir,—I was interested to read the paper by Drs Schofield and Williams reporting \( \text{P}_\text{CO}_2 \) values in patients ventilated using large minute volumes and a circle system without carbon dioxide absorption (Schofield and Williams, 1974). I would like to suggest two additional explanations for the discrepancy between the predicted and observed \( \text{P}_\text{CO}_2 \) values that they found.

First, it is possible that their assumption that elimination of carbon dioxide from the system is directly related to the fresh gas flow, is not correct.

In the circuit shown in their figure 1, the spill valve is immediately adjacent to the reservoir bag. During the inspiratory phase of the ventilation, fresh gas will flow into the reservoir bag, but the composition of the gas spilt from the valve during the inspiratory phase will alter with the composition of gas in the bag,