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glycopyrrolate and neostigmine (Mirakur and Dundee, 1983). Many well controlled studies have now established that neostigmine and the anticholinergic give greater cardiovascular stability when administered together.

Regarding the use of atropine for assessment of stress in anaesthetized patients, it would appear to be more relevant to measure this in terms of hormonal changes rather than the response of the heart rate to atropine.

Administration of an atropine-neostigmine mixture does not produce detectable bronchospasm in healthy patients (Hammond, Wright and Sale, 1983) although asthmatics may be at some risk. There is also only anecdotal evidence to show that the control of secretions is better when atropine is given before neostigmine, unless it is done perhaps 15-20 min before it. It is unlikely that atropine administered 3-5 min before neostigmine makes any difference in secretions. Mirakur, Jones and Dundee (1981) were unable to detect any difference in the incidence of unacceptable secretions between patients given atropine or glycopyrrolate before or with neostigmine.

The effects of atropine and neostigmine on bowel activity are perhaps more complex and equivocal. While Bell and Lewis (1968), in a retrospective study, showed that barium enema demonstrated a 36% incidence of anastomotic leak following neostigmine in comparison with only 4% in those not given neostigmine, Wilkins and his colleagues (1970) showed an increase in bowel activity in only 20% of patients irrespective of whether atropine was given before or mixed with neostigmine, and they showed that this increase in bowel activity could be prevented by halothane anaesthesia. There are few reported cases of leakage from intestinal anastomosis in recent years, either because it is not as easy to demonstrate as heart rate effects, or because it is not a real problem. In high risk patients such as those having surgery for diverticular disease, it may be better to avoid neostigmine altogether or else to administer it under halothane anaesthesia.

In conclusion, the effects on heart rate of neostigmine and atropine are important and are minimized by administering the two drugs together. Heart rates are even more stable when atropine is given before or mixed with neostigmine, and they showed that this increase in bowel activity could be prevented by halothane anaesthesia. There are few reported cases of leakage from intestinal anastomosis in recent years, either because it is not as easy to demonstrate as heart rate effects, or because it is not a real problem. In high risk patients such as those having surgery for diverticular disease, it may be better to avoid neostigmine altogether or else to administer it under halothane anaesthesia.

In conclusion, although it is indeed encouraging to find an increasing interest in closed circuit anaesthesia, it is somewhat disappointing that little or no scientific progress appears to have been made in the intervening five years.

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