study. First, we had no patients with unstable angina. Second, the references cited by Dr. Jain do not refer to postoperative T-wave changes. Furthermore, while we have no long-term follow-up of our 71 patients with new postoperative T-wave changes, and it is possible that perioperative T-wave abnormalities due to ischemia may be associated with problems in the future, we believe that most asymptomatic postoperative T-wave abnormalities are not due to myocardial ischemia. This conclusion is based on our observation that the frequency of perioperative T-wave changes is similar in populations with considerably different incidences of coronary artery disease. The noncorrelation of T-wave changes and coronary artery disease suggests that the two events are not related. Accordingly, we would not predict an increased incidence of late complications in this group. Dr. Jain also suggests that our population may not have been large enough to detect perioperative ischemic events. Power analysis indicates an 80% probability that a two-fold difference in incidence in T-wave abnormalities would be found, given the study population size and the observed incidence of T-wave changes.

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## A Simple Technique for Remote Monitoring of Neuromuscular Blockade

*To the Editor:*—The problem of monitoring neuromuscular blockade during such operations as thyroidectomy, carotid endarterectomy, or other head and neck procedures is a familiar one. Typically, during these operations, the arms of the patient are tucked to the side and the head is inaccessible due to surgical drapes or its inclusion in the operative field.

We wish to describe a technique for remotely monitoring train-of-four responses, using equipment commonly available in the operating room. This technique is simple, reliable, and a single unit can be reused for many cases.

The equipment includes a pressure transducer (we use the disposable Gould® transducer; Model T4812AD), and a 250 ml bag of iv fluid in a soft plastic bag with a macrodrip primary solution administration set. The fluid bag is spiked with the solution administration set as usual, and the male end is attached to the transducer. Then, all air is removed from the bag and the tubing *via* the three-way stopcock. The bag is then placed in the patient's hand and the hand and bag are wrapped securely with a foam elbow pad (alternatively, a roll gauze may be used). Nerve stimulator electrodes are applied over the ulnar nerve at the elbow. At this point, the arm may be tucked at the patient's side in the usual fashion. Motor responses to the ulnar nerve stimulation will be seen as a deflection on the oscilloscope as the intrinsic muscles of the hand contract. If desired, the channel may be zeroed and calibrated, and a quantification of twitch strength may be estimated by observing the digital readout of the generated pressure. (Of course, the pressure will vary from patient to patient.) It is not likely that extreme accuracy of relative twitch strength can be expected; however, observing the decline in tetanus contraction strength or twitch strength with each pulse in the train-of-four with partial neuromuscular blockade can be of help in judging the need for redosing. In addition, "preload" adjustment (*i.e.*, bag pressure prior to stimulation) can be made by addition or removal of fluid in the bag *via* the stopcock near the transducer to obtain an optimal pressure trace.

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