CORRESPONDENCE

Anesthesiology
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"The Educated Hand"

To the Editor—For several reasons, I was surprised to read in a recent article that "the . . . belief that the "educated hand" permits clinicians to detect subtle changes in pulmonary compliance in neonates during anesthesia is not true." First, the circuits used by Spears et al. were disposable. The disposable pediatric circuits available in this country have the characteristic that the material of which the reservoir/ventilation bags are made is far more distensible than is the traditional black rubber and has caused us to abandon the routine use of such equipment in this hospital. Second, Spears et al. used circuits with compressible volumes many times the size of a pediatric tidal volume, which would decrease the ability to detect compliance changes.

It would be more interesting if the authors had investigated a non-disposable example of the standard pediatric anesthetic circuit (in this country), the Mapleson F, Jackson-Rees’s modification of Ayre’s T-piece. This, for a 30-cm reservoir tube, has a compressible volume of 38 ml plus a 500- or 750-ml bag. I would predict that occlusions of the endotracheal tube connected to that would be easily detectable, especially when connected to something that represents a lung rather than a model lung—an animal model. If I am correct, the proper conclusion would then be that the educated hand is the one that selects the correct circuit.

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In Reply—We agree with Heneghan’s assessment that the disposable circuits used in our study are too compliant to permit even skilled clinicians to detect occlusion of the endotracheal tube when connected to neonatal lung models. However, in the United States, these disposable, compliant circuits are used by most clinicians, including those who cite the “educated hand.” Our study demonstrated that the commonly used anesthetic circuits do not permit detection of even major changes in compliance.

During our preliminary trials, one emeritus clinician failed to detect occlusion with the Mapleson D circuit and the circle system. When explained the purpose of the study, he assembled a circuit consisting of a fresh gas hose and a reservoir bag but no corrugated hose. As Heneghan predicts, the markedly lower compliance of this circuit permitted detection of an occlusion; however, the circuit the clinician assembled is not one he used in his neonatal cardiac anesthesia practice. In this context, the current practice in the United States of using compliant, disposable circuits for neonates should possibly be reconsidered; less compliant circuits will permit more ready detection of changes in the patient’s compliance with both manual and mechanical ventilation. However, we still contend that the equipment commonly used in this country to provide anesthesia for neonates does not support the concept of the “educated hand.”

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Skin Hyperpigmentation Following Removal of Electrocardiogram Pads

To the Editor—I report a case of skin hyperpigmentation corresponding to the areas where electrocardiogram pads were placed. The electrocardiogram pads presently used throughout our institution are NDM (New Dimensions in Medicine, Dayton, OH; 01-8326, Fifa-Cell) diaphragmic electrodes.

The patient, who was a dark-skinned 41-yr-old woman of Asian-Indian origin, came to the hospital for a lumbar discectomy. She was healthy and was receiving no medications. The surgery and anesthetic were uneventful, and she was discharged 7 days postoperatively.

One day after surgery, while still in the hospital, she noted darkened circular areas over both her shoulders and her left chest. The skin was flat, and there was no irritation or itching. She described them as “tanned circles,” and these circles were as dark from the initial onset as they have been for the last 2 months, showing no signs of fading.

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Although the centers of these circles show some hyperpigmentation, it is the area corresponding to the outer adhesive portion of the pads that is most affected (fig. 1).

Given that we routinely use five-lead electrocardiogram monitoring in our operating room and that two leads are usually removed for recovery room monitoring in healthy patients, I hypothesize that the duration of exposure to the electrocardiogram pads might have played a role in this skin reaction. Only three areas of hyperpigmentation were noted, and they corresponded to the electrocardiogram leads used in the postanesthesia recovery room.

The normal skin barrier can be greatly reduced by damaging the horny layer by adhesive tape stripping, and this could have been a contributing factor in the absorption of a triggering agent. On the other hand, allergic reactions that trigger skin hyperpigmentation have a more gradual onset. Skin hyperpigmentation has been reported in patients receiving thiopeta (a chemotherapeutic agent) underneath skin occluded by electrocardiogram pads in circumstances unrelated to anesthesia and surgery.

Our patient was seen by a dermatologist at our institution. He believed that her skin type made her prone to postinflammatory hyperpigmentation because there were other hyperpigmented areas corresponding to sites of previous minor skin injuries. Although she was prescribed a topical treatment consisting of a combination of tretinoin, hydrocorrisone, and hydroquinone, she never followed the recommendations, and the lesions have not faded.

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ACCELEROGRAPHY IN NEUROMUSCULAR MONITORING

To the Editor— I read with interest the article “Accelographic Train-of-four at Near-threshold Currents.” The article cited Jensen et al. (ref. 3), who presented Accelograph® as a registered trademark for a new accelerometric neuromuscular transmission monitor. The correct common noun of the machine, however, should be “accelerograph,” not “accelograph.” “Acceleration” comes from ad + celerare, both Latin. Celer means swift; celerare means to hasten. Seismologists also use accelerographs.

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REFERENCES


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TORSION OF A DOUBLE-LUMEN TUBE IN THE LEFT BRONCHUS

To the Editor—Incorrect positioning of a double-lumen tube (DLT) occasionally occurs and may be undetected when the position of the DLT is checked only by clinical signs. Therefore, fiberoptic bronchoscopy is recommended to confirm the proper position of the DLT.

I report a case of improper placement of the DLT that occurred despite a routine examination of the tube’s position with a fiberoptic bronchoscope.

A 48-yr-old woman, height 160 cm, weight 56 kg, was scheduled