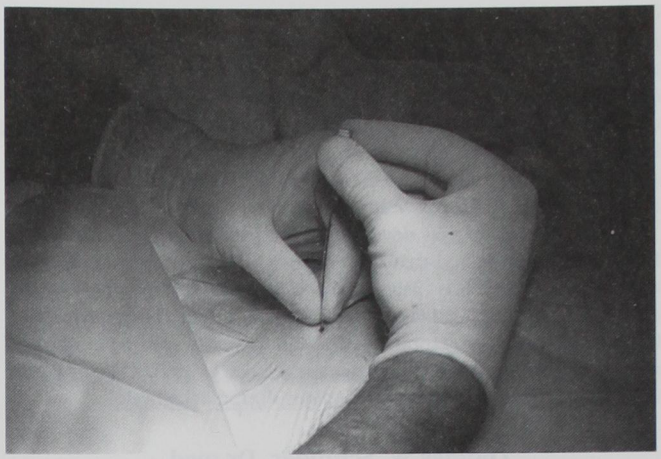

Fig. 1. "Bowing" of the needle is accomplished by advancing the needle while applying a horizontal force to the shaft of the needle at the surface of the skin. The horizontal force is applied in a direction opposite to the desired direction of the tip of the needle.

Fig. 2. A lumbar sympathetic block is performed at L2 by "walking" the needle laterally using the bowing technique. A slight bow in the needle can be seen in the radiograph on the far right.

in the desired direction. The lateral displacement of the tip of the needle can be up to 2 cm with each forward advance of the needle.

Anthony F. Kirkpatrick, M.D., Ph.D.
Manjul Derasari, M.D.

Anesthesiology
1998; 89:1607–8

Vidyadhar Hede, M.D.
Department of Anesthesiology
University of South Florida College of Medicine
Tampa, Florida
akirkpat@com1.med.usf.edu

(Accepted for publication July 24, 1998.)

Unreasonably Low Bispectral Index Values in a Volunteer with Genetically Determined Low-voltage Electroencephalographic Signal

To the Editor:—The bispectral index (BIS) developed by Aspect Medical Systems is increasingly used as a clinical tool for monitoring the hypnotic state during general anesthesia.[1–3] The BIS ranges from 100 (awake) to 0 (deep hypnosis).[4] During baseline recording in an experimental pain study, we obtained BIS values using an A-1000 EEG monitor (BIS version 3.11, Aspect Medical Systems, Natick, MA) in fully conscious volunteers before administration of nitrous oxide or xenon. The EEG signal was recorded from leads F3 − Cz, F4 − Cz, P3 − Cz, and P4 − Cz (International 10/20 System). One volunteer had a BIS of 40 as his awake baseline. Electrode impedance was less than 500 Ω, and the signal quality index (SQI) was in the "good" range. On administration of nitrous oxide, the BIS further decreased, although the volunteer was still responding promptly. Experimental pain tests resulted in an increase of the BIS value. The raw EEG signal differed from other volunteers in this study only in having a slightly smaller amplitude. Similar baseline BIS values were observed in the same volunteer

Supported by the Swiss National Science Foundation (Grant# 32-51028.97), Bern, Switzerland, and by Aspect Medicals, who provided us with an Aspect A1000 EEG monitor.

during the second study session 3 days later. Xenon administration resulted in an increase in the BIS, although clinically xenon caused concentration- dependent sedation. Four weeks later, our Department of Neurology obtained a 16-lead diagnostic EEG of this volunteer. A diagnosis of a genetically determined low voltage EEG was made. This is defined by amplitudes not greater than 20 mV over all head regions and occurs with an incidence of between 5–10% of the population.[5] It is not associated with any brain dysfunction.

The BIS EEG index was developed from patients with normal EEGs. It is therefore expected that the BIS may be misled by patients with abnormal EEG patterns. Most anesthesiologists will not be able to determine whether an EEG pattern is "normal" or "abnormal" from inspection of the waveform itself. Thus, it is essential to confirm a normal BIS value when the patient is awake to prevent misleading interpretations of subsequent BIS values during anesthesia.

Thomas W. Schnider, Dr.med.
Martin Luginbühl, Dr.med.
Steen Petersen-Felix, Dr.med.
Institute for Anesthesiology and Intensive Care
Johannes Mathis, Dr.med.
Department of Neurology
University Hospital
Inselspital
Bern, Switzerland
thomas.schnider@insel.ch

References

1. Flaishon R, Windsor A, Sigl J, Sebel PS: Recovery of consciousness after thiopental or propofol. Bispectral index and isolated forearm technique. ANESTHESIOLOGY 1997; 86:613–9

2. Vernon JM, Lang E, Sebel PS, Manberg P: Prediction of movement using bispectral electroencephalographic analysis during propofol/alfentanil or isoflurane/alfentanil anesthesia. Anesth Analg 1995; 80: 780–5

3. Sebel PS, Bowles SM, Saini V, Chamoun N: EEG bispectrum predicts movement during thiopental/isoflurane anesthesia. J Clin Monit 1995; 11:83–91

4. Sigl JC, Chamoun NG: An introduction to bispectral analysis for the electroencephalogram. J Clin Monit 1994; 10:392–404

5. IFSECN: A glossary of terms commonly used by clinical electroencephalographers. Electroencephalogr Clin Neurophysiol 1974; 37: 538–48

(Accepted for publication August 3, 1998.)

Anesthesiology
1998; 89:1608

A Rare Cause of Fire in the Operating Room

Recently a 42-yr-old man was undergoing a right upper lobectomy during general anesthesia. He had a history of tuberculosis and aspergillosis. The surgical procedure was difficult because of tissue inflammation and numerous adhesions. After the right upper lobe was resected, there were multiple gas leaks and bleeding sites on the remaining lung tissue. The gas leak through the lung tissue was so large that the patient required a ventilator tidal volume setting of 1,500 cc augmented by a fresh gas flow of 10 l/min to maintain normocapnia. Despite the patient being ventilated with 100% oxygen, the hemoglobin–oxygen saturation as measured by pulse oximetry remained in the low 90s.

A dry gauze lap pad had been inserted in the thoracic cavity, and the surgeon was using an electrocautery for hemostasis. Shortly after, before the lap pad had absorbed any blood, the entire lap pad suddenly caught fire. The flames were bright, and the material was avidly burning. The surgeon immediately grabbed the burning lap pad by a corner and pulled it out of the chest. He threw it on the floor, stepping on it repeatedly until all the flames were out. The extinguished gauze was a dark brown color, and it was obvious that it had been completely engulfed in flames. There were no apparent injuries to the patient or the surgeons, and the case ended uneventfully.

There are many case reports of fires in the operating room.[1] However, a fire within the thoracic cavity after a lobectomy is a rare incident. The oxygen-rich environment, the dry gauze, and the electrocautery created ideal conditions for the lap pad to ignite.

This incident reminds us once again of the danger of using the electrocautery in an oxygen-rich environment. To minimize the possibility of a fire under similar circumstances, it has been recommended to moisten the sponges with saline before placing them in the operative field.[2] Additionally, the oxygen concentration should be the minimum the patient can tolerate without resulting in hypoxemia. Nitrous oxide should be avoided because, although it is not a flammable anesthetic, it also avidly supports combustion.

Rafael A. Ortega, M.D.
Associate Professor of Anesthesiology
Boston University Medical Center
Boston, Massachusetts
raortega@aol.com

References

1. Macdonald AG: A brief historical review of non-anaesthetic causes of fires and explosions in the operating room. Br J Anaesth 1994; 73:847–56

2. Wood DK, Hollis R: Thermocautery causes a gauze pad fire. JAMA 1993; 270:2299–300

(Accepted for publication August 5, 1998.)