

## ANESTHESIOLOGY

### ■ Efficacy of Genetic Testing for Malignant Hyperthermia Susceptibility. Girard *et al.* (page 1076)

Will it soon be possible to avoid the invasiveness of the *in vitro* contracture test (IVCT) to establish diagnosis of malignant hyperthermia (MH) susceptibility? To analyze the applicability of the European Malignant Hyperthermia Group guidelines for genetic testing of MH, Girard *et al.* recruited 208 patients from 62 different families to undergo diagnostic procedures. Initially, 67 individuals from families with known MH mutations underwent molecular genetic testing (amplification of genomic DNA by polymerase chain reaction and restriction enzyme digestion). Thirty-two of those people (48%) were identified as carrying the familial mutation. In the other 35 individuals, a familial mutation could not be identified.

Twenty of those 35 who tested negative were then scheduled for open muscle biopsy with regional anesthesia. The IVCT consisted of two halothane and two caffeine tests performed on separate muscle bundles. Of those undergoing IVCT, 19 were diagnosed as MH-negative and one as MH-equivocal. Fifteen others with negative molecular genetic testing results have not yet undergone open muscle biopsy and IVCT, mostly because of age-related issues, although six of these will be scheduled as testing becomes available. Another 141 individuals underwent IVCT without previous molecular genetic testing. In that group, 23 MH-susceptible, 88 MH-negative, and 30 MH-equivocal individuals were identified.

The results of this study demonstrated that MH susceptibility could be reliably confirmed in about 50% of patients with noninvasive genetic testing alone. However, negative results of genetic testing cannot unequivocally rule out MH susceptibility, so IVCT testing must remain a part of the diagnostic routine. Because of this, the authors prefer to discuss and obtain consent for the possibility of open muscle biopsy before genetic testing is initiated. In this way, clinicians may be able to avoid refusals of IVCT in MH-negative patients with genetic testing.

### ■ Association of Chronic Alcoholism and Altered Immune Response Postsurgery. Spies *et al.* (page 1088)

Prior to their scheduled elective major surgery, 54 patients recruited by Spies *et al.* were assigned to one of

two groups: chronic alcoholics and nonalcoholics. These delineations were based on patient history of alcohol intake in the year preceding surgery (daily intake of alcohol  $\geq$  60 g ethanol per day denoting chronic alcoholics, and drinking  $<$  60 g per day for nonalcoholics) and on the criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition, for alcohol abuse or dependence. Blood samples to analyze immune status were obtained on the morning of surgery and on postoperative days 1, 3, 5, and 7. Skin reactions to seven antigens were also assessed in both groups of patients.

The participants' diagnoses, type of surgery, Multiple Organ Failure Scores, ventilatory needs and length of intensive care unit stay, among other data, were recorded postoperatively. Microbiologic screening for signs of infection was instituted on admission to the intensive care unit. Infections such as tracheobronchitis, pneumonia, surgical site infections, and symptomatic urinary tract infections were diagnosed according to Centers for Disease Control and Prevention criteria. Patients diagnosed with alcohol withdrawal syndrome were treated with flunitrazepam, and haloperidol for psychotic signs if needed.

Preoperatively, chronic alcoholic patients exhibited lower Th1/Th2 ratios compared to nonalcoholics. During surgery, these ratios also decreased in the nonalcoholic patients, and ratios remained low in both groups after surgery. Plasma interleukin 1 $\beta$  and lipopolysaccharide-stimulated interleukin 1 $\alpha$  from whole blood cells were decreased in chronic alcoholics. Tc1/Tc2 ratios decreased in chronic alcoholic patients during surgery and remained significantly suppressed postsurgery. In contrast, Tc1/Tc2 ratios increased in nonalcoholic patients during surgery and remained increased postsurgery. The altered cell-mediated immunity noted in this study might have accounted for the increased infection rate in the chronic alcoholic patients after surgery.

### ■ Does Smoking Abstinence Contribute to Psychological Stress in the Perioperative Period? Warner *et al.* (page 1125)

Because of current nonsmoking regulations at healthcare facilities, smokers scheduled for surgery experience at least some periods of forced abstinence. In 141 smokers (reporting having smoked one or more cigarettes each day in the week preceding surgery), Warner *et al.* assessed measures of nicotine withdrawal and perceived

stress, among other indicators, to determine if surgery and its forced abstinence contributed to perceived stress during the perioperative period. The team also obtained assessments of perceived stress and other surgical stressors (such as pain levels) in 150 nonsmoking surgical patients.

Baseline assessments, including assessment of the state of change in smokers, were obtained preoperatively and then on postoperative days 2, 3, 8, and 30. Although the smokers reported higher degrees of perceived stress before surgery, their smoking status did not affect changes in perceived stress over the entire perioperative period. In addition, nicotine withdrawal symptoms did not seem to be a clinically significant problem for most of the smokers. The authors suggest that their findings may indicate that the perioperative period presents a “window of opportunity” for healthcare professionals to institute smoking cessation interventions, especially in patients undergoing outpatient surgery.

#### ■ Management Algorithm Tested in Patients with Unanticipated Difficult Airway. Combes *et al.* (page 1146)

Over an 18-month period, Combes *et al.* evaluated the efficacy of the American Society of Anesthesiologists difficult airway management algorithm. All 41 senior staff anesthesiologists at the authors' institution partici-

pated in the study. Following a 2-month training period (which included theoretical education and practical training with a mannequin), anesthesiologists were asked to follow the management algorithm in cases of unanticipated difficult airway, divided into “cannot intubate” or “cannot ventilate” scenarios.

The gum elastic bougie and the intubating laryngeal mask airway (ILMA) were the first and second preferences for dealing with impossible laryngoscope-assisted tracheal intubation, whereas the ILMA and percutaneous transtracheal jet ventilation were the first and second preferences recommended for impossible or difficult ventilation.

Over the 18-month study period, 100 cases of unexpected difficult airway were recorded in a total of 11,257 intubations. Study participants deviated from the algorithm only three times; two patients were awakened before an alternative technique was attempted. All remaining patients were successfully ventilated with either the facemask (89 of 95) or the ILMA (6 of 95). Eighty patients were intubated with the gum elastic bougie; 13 required a blind intubation through the ILMA. It seems that, when used in accordance with the American Society of Anesthesiologists predefined management algorithm, the gum elastic bougie and the ILMA can effectively deal with most difficult airway management problems.

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