

if I only focused on objects near the floor. I felt more comfortable and almost normal instantaneously.

The immediate improvement in my well-being could not have been the result of spontaneous recovery from atracurium. I explain all my difficulties while supine by the inability of muscle groups to act against gravity. Since many anesthetized patients are still partially paralyzed during recovery,<sup>2-4</sup> my observation adds weight to positioning them in the lateral decubitus.

DAVID C. CHUNG, M.D.  
*The Mississauga Hospital  
100 Queensway West  
Mississauga, Ontario  
Canada L5B 1B8*

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### Intractable Cardiac Arrest in Children Given Succinylcholine

*To the Editor:*—Intractable, unexpected cardiac arrest has been reported, especially in children, following induction of anesthesia with halothane and succinylcholine (SCh). In some cases, the child was subsequently shown to have Duchenne's muscular dystrophy (DMD).<sup>1</sup>

During the past 12 months, four boys younger than 8 years of age have died in the United States during or following halothane and SCh (Malignant Hyperthermia [MH] Hotline data). Evidence of massive rhabdomyolysis was noted in all, and hyperkalemia and acidosis in most. In one case, the diagnosis of DMD was made based on the absence of dystrophin in the muscle specimen.

In the other cases, necrotizing rhabdomyolysis was noted on muscle specimens obtained at autopsy. Whether these changes are indicative of DMD in all cases is unclear.

This catastrophe is not limited geographically. The German MH Hotline (courtesy of Dr. Uwe Schulte-Sasse of Heilbronn) has accumulated 11 similar cases.

We speculate that six cases of this syndrome of sudden, intractable cardiac arrest would be expected each year in the United States, with an approximate 60% mortality rate.

Typically, the child is apparently normal with no major motor developmental delays but manifests this abnormal response shortly after administration of SCh. Based on data obtained during resuscitation, the arrest is likely due to hyperkalemia, although rhabdomyolysis and acidosis are also striking features. Hyperkalemia is present during resuscitation, limiting its success.

The earliest sign is a serious arrhythmia, such as pronounced bradycardia, that progresses rapidly to asystole or ventricular fibrillation.

When such a syndrome occurs in a child, we suggest immediate therapy for hyperkalemia, including glucose, insulin, bicarbonate, and calcium. Dantrolene is an appropriate secondary drug because it is not acutely toxic and the clinical differentiations from malignant hyper-

thermia susceptibility have not been clarified. Even in the absence of a direct relationship, dantrolene would not be harmful and might be helpful.

Surviving children should be evaluated for muscular dystrophy. We suggest that muscle specimens be frozen and analyzed for dystrophin levels.

We have notified the Food and Drug Administration of this potential problem and recommend that anesthesiologists carefully consider the indications for use of SCh in young children.

A full report concerning these cases is in preparation.

HENRY ROSENBERG, M.D.  
*Department of Anesthesiology  
Hahnemann University  
Broad and Vine Streets  
Philadelphia, Pennsylvania 19102-1192*  
GERALD A. GRONERT, M.D.  
*Department of Anesthesiology  
University of California, Davis  
TB 170  
Davis, California 95616*

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### A Double Tube Technique of Adult Fiberoptic Assisted Tracheal Intubation

*To the Editor:*—The problems associated with fiberoptic bronchoscope (FOB) assisted endotracheal intubation addressed by Marsh<sup>1</sup> result mainly from attempts to pass relatively large internal diameter endotracheal tubes (ETT) over small external diameter scopes. Marsh con-

sidered the problem of the size discrepancy permitting the bevelled tip of the ETT to protrude laterally from the FOB so that it may catch on structures such as the aryepiglottic folds. To minimize the size discrepancy, he suggested that one can thread a smaller ETT with the