

CORRESPONDENCE

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In Reply:—I thank Koblin for calling attention to another example of the delayed return of spontaneous circulation. The mechanism postulated in that report, however, does not appear to be the most likely explanation of the event we described.¹ Our patient² probably did have some increase in intrathoracic pressure as discussed by Martens *et al.*¹ The tracheal tube, initially advanced into the bronchus in an attempt to staunch the pulmonary hemorrhage, was withdrawn when blood flow continued from both in and around the tube in the bronchial position. Airway pressures during manual ventilation were not excessive, although bilateral chest tubes were placed to rule out the possibility of tension pneumothorax. Our patient made no spontaneous respiratory efforts once support was discontinued, but some decrease in intrathoracic pressure, no doubt, still occurred, perhaps augmenting passive ventricular filling. Whether this augmentation can explain the return of spontaneous circulation after the cessation of all cardiac electrical activity is questionable. An improvement in ventricular filling certainly would enhance forward flow in an empty but beating heart. However, how this filling would stimulate the completely quiescent myocardium—the total absence of both cardiac electrical and mechanical activity—is not readily apparent. There had been no electrical cardiac activity—as evidenced by two separate concurrently functioning electrocardiogram systems—for several minutes at the time the efforts were terminated. This situation spontaneously reversed.

Hill raises another important issue. The sensitivity of current clinical brainstem testing as a marker for cessation of brain function is a critical question and the spontaneous movement of a patient so diagnosed would be a concerning event. However, those individuals who breathe spontaneously after the discontinuation of mechanical ventilatory support fail the so-called apnea test and therefore are not

eligible for organ donation in our institution. Further, the harvesting process does not occur in patients receiving ongoing cardiopulmonary resuscitation. It is reserved primarily for individuals who have been successfully resuscitated to the only clinical endpoint currently available, the restoration of spontaneous circulation. Those who cannot be successfully resuscitated are not usually candidates for organ donation. The problem comes when hemodynamic function is restored in the apparent absence of neurologic function. This latter issue, the reliability of our assessment of irreversible neurologic "death," is really the crux of the point raised by Hill and remains a significant issue.

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The Proper Study of Anesthetized Humans: I

To the Editor:—Barnas *et al.*¹ recently published data describing how changes in mean lung volume affect respiratory system mechanics measured during sinusoidal forcing. The authors assume that these

results obtained in healthy, awake, seated subjects can be applied to anesthetized recumbent patients. To understand why this assumption may not be valid, a bit of history is required. Pulmonary physiologists