Communications for this section will be published as space and priorities permit. The comments should not exceed 500 words in length, with a maximum of five references; one figure or table can be printed. Exceptions may occur under particular circumstances. Contributions may include comments on articles published in this periodical, or they may be reports of unique educational character. Specific permission to publish should be cited in a covering letter or appended as a postscript.

Sterility and Repositioning of the Swan-Ganz Catheter

To the Editor:

In regard to the article by Applefeld et al entitled "Assessment of the Sterility of Long-Term Cardiac Catherterization Using the Thermodilution Swan-Ganz Catheter" (Chest 74:377-380, 1978), I do not believe that Applefeld et al adequately discussed the repositioning of these catheters. No matter what kind of attempts at sterilization are made at the bedside, advancement of a contaminated catheter intravenously is not acceptable surgical technique. Repositioning of the Swan-Ganz catheter should be limited to partial withdrawal of the catheter from the "permanent wedge" position. If advancement of the catheter is necessary, the catheter should be replaced. This may be easily accomplished without additional venipuncture in the following manner. One prepares the surrounding skin and catheter in an antiseptic manner. An assistant then partially withdraws the catheter, and the catheter is cut approximately 5 cm beyond the point which was at the level of the skin. The catheter is then used as a guide wire to place an introducer intravenously. The old catheter is removed, and the new one is placed correctly.

I recognize that many physicians may be reluctant to replace the Swan-Ganz catheters because of the expense of each catheter; however, the potential morbidity or mortality (or both) secondary to advancement of an inadequately sterilized catheter in these critically ill patients is too great not to replace the catheters when indicated.

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To the Editor:

Shaffer's letter emphasizes one of the reasons for our article1 which still needs further investigation. I agree that the advancement of an intravenous catheter is not an acceptable surgical technique, regardless of what attempts are made to ensure sterility. The reasons for this practice are as follows.

When this study was designed, the method described was common practice in the Surgical Intensive Care Unit at the Jackson Memorial Hospital, Miami. Seeing that there was no available Swan-Ganz literature addressing this issue, we attempted to analyze the consequences of this practice. Many patients admitted to a multidisciplinary intensive care unit are frequently hypoxicem on initial catheterization. With institution of appropriate therapy, the reversal of pulmonary hypertension may result in the Swan-Ganz catheter being located too centrally to obtain a measurement of the wedge pressure. It has been documented by Pollack et al, by Selwyn and Ellis, and by Price et al that central venous catheters may become colonized in the fibrin sleeve along their intravenous course. Therefore, any replacement should not utilize the original insertion site. Rather, an entirely new venipuncture needs to be established.

One must objectively weigh the morbidity and mortality of a repositioned catheter against the hazards of a new insertion. This information is not available, and I would take issue with Shaffer's concluding paragraph. As previously stated, "in excess of three repositionings per individual catheterization may predispose a nonseptic patient to a positive catheter blood culture;"1 but two or less repositionings were not associated with a positive culture of pulmonary arterial blood in either the septic or nonseptic group. From this limited study, one may tentatively conclude that two or less repositionings probably do not expose the critically ill patient to a septicemic episode originating from the Swan-Ganz catheter, provided the catheter is removed within 72 hours.

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References


Routine Use of Pressure-Volume Loops during Mechanical Ventilation

Determination of Optimal Combination of Flow, Tidal Volume, and Positive End-Expiratory Pressure

To the Editor:

The goal of setting the ventilator is to obtain the maximum alveolar recruitment, without overdistention of the pulmonary volume, that can be inflated above functional residual capacity (FRC). For a given tidal volume (TV), overdistention occurs in the following two circumstances: (1) inspiratory flow is not adapted to most inspiratory time constants of the different pulmonary units and provides inequalities of gas distribution; and (2) the volume of air trapped is too large (positive end-expiratory pressure [PEEP] too high or expiration too short relative to expiratory time constant). Monitoring of pressure-volume loops seems to be a valuable routine in adjusting the settings on the ventilator to the individual

CHEST, 75: 6, JUNE, 1979