

common, but it has not been reported until recently because it is usually not recognized, and seldom results in harm. Individuals who perform this procedure should be aware of the possibility of its occurrence.

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Serratia Bacteremia from Mean Arterial Pressure Monitors

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Mean arterial pressure (MAP) data in the critically ill patient has become a readily available diagnostic tool since indwelling arterial cannulas have come into widespread use.^{1,2} Although many electronic pressure transducers are currently available, a simple, semidisposable manometer provides similar results at only a fraction of the cost of the electronic apparatus.^{3,4}

For the past three years we have routinely utilized such a disposable device, incorporating an aneroid manometer attached to a syringe filled with heparinized saline solu-

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tion (fig. 1). This unit is assembled by our Blood Gas Laboratory and then attached to a continuous-flush device of the arterial line.⁵

During a six-week period, from May 1 to June 15, 1973, six patients in our Intensive Care Area were found to have *Serratia marcescens* bacteremia. Cross-contamination by inhalation therapy instruments⁶ was found not to be the cause of the bacteremia. Although all five patients received some type of care from the Respiratory Therapy Department, cultures of the equipment used were negative. However, in cooperation with the Infectious Disease Service, the source of the infection for five of the six patients was found to be associated with the arterial line. Further investigation revealed a positive culture of *Serratia* in the stock solution of heparinized saline solution used to fill the MAP manometers. All five of these cannulated patients had had mean arterial pressure determinations at some time during their stays in the ICA.

Previous to the outbreak of the *Serratia* bacteremia, the method of filling the outer sleeve of the MAP assembly utilized a stock solution popular in many midwestern hospitals. Our solution was prepared by mixing 10 ml of sterile sodium heparin (1,000 units/ml) into 1,000 ml of sterile physiologic saline solution. This quantity supplied approximately 50 MAP sets and would last two to four weeks.

Since June 15, 1973, all MAP components

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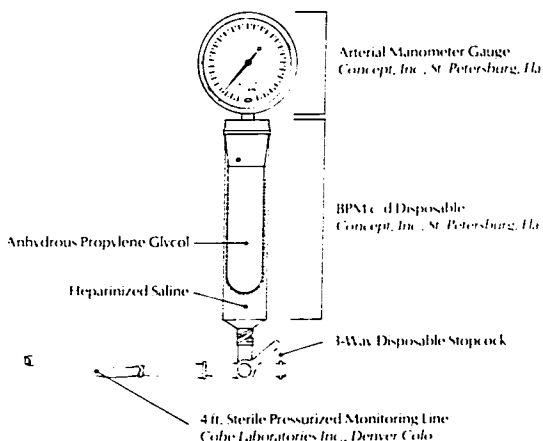


FIG. 1. Mean arterial pressure manometer assembly.

have been ethylene-oxide sterilized and aerated for 48 hours in a high-flow, heated chamber. These units are assembled under sterile conditions and utilize sterile ampules of saline solution and sodium heparin. Since the abolition of the stock solution, there has been no reported incidence of *Serratia* bacteremia associated with the several hundred MAP manometers set up in our Intensive Care Area.

Although the heparinized solution contained in the syringe compartment of the MAP manometer theoretically never contacts the patient's circulatory system, there is strong evidence of the migration of organisms against a pressure gradient from the MAP unit to the arterial cannula. It is therefore recommended that all solutions associated with pressure transducers attached to indwell-

ing cannulas be made fresh from sterile ampules.

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