
Letters

To the Editor:

The Fall 1986 issue of *The Journal of Extra-Corporeal Technology* published a sequence of correspondence in the Letters to the Editor section.¹ This correspondence addressed the issue of using roller pumps and centrifugal pumps for ventricular assist. Your letter dated October 22, 1986, to Mr. Michael L. Houliston, Esquire, is of specific interest to us as we believe it contains inaccurate and misleading information.

Item H of your letter states that "the hardware for the centrifugal pump is about \$18,000" and "the disposables are about \$350." Bio-Medicus products are priced considerably lower than the price you quoted. The list price for our Model 540 Bio-Console, which includes a built-in battery for patient transportation and emergency back-up power, is \$8,800. The reusable electromagnetic flow transducer, Model TX-40, is listed at \$695, bringing the hardware cost of our system to only \$9,495, approximately half of the cost you quoted. Even if one was to add the cost of our external drive unit, often used for long-term perfusion, the total would fall \$6,505 below the quoted \$18,000. Your price of \$350 for disposable product is considerably more than the list price of \$185 for our Bio-Pump Model BP-80 and \$20 for our flow probe insert.

We also question your comment regarding the "inability to meet the market needs in recent years." Bio-Medicus has played a leading role in the rapidly expanding long-term support market. Our product line is continually expanding in order to meet the needs of the perfusion community. Our equipment has often gone out in emergency situations as soon as we learn of the need to place a patient on support. For those institutions already using our pump for routine bypass, additional equipment is furnished should the need arise for biventricular support.

Item I in your letter also states that "the centrifugal pump is purported to be a gentler blood handling device" (than a roller pump)....."However, this hypothesis has not been proven in the scientific literature." Enclosed are several articles which we believe support our claims of less blood trauma.^{2,5} As you will note, a recently published article by Drs. Park and Magovern, et al, at Allegheny General Hospital comments that "prolonged cardiopulmonary bypass using a roller pump for extended support was disappointing. The need for continuous heparinization of the system often further complicated the bleeding diathesis, sometimes fatally."

We believe that the readers of *The Journal of Extra-Corporeal Technology* should be made aware of these inaccuracies and that you will take the appropriate steps to ensure they are informed.

We look forward to receiving your comments on these issues in the near future.

Sincerely,

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References

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3. Lynch, M.F., Peterson, D., and Baker, V.: Centrifugal Blood Pumping for Open Heart Surgery. *Mn. Med.* 61(9):536, 1978.
4. Demlerre, D., Maass, D., Garcia, E., Geroulanos, S., Ulschmid, G.K., and Turina, M.: A New In Vitro System to Determine Hemolysis with Blood Pumps. [Undated]. Research Division Surgical Clinic A, FL42, Zurich, Switzerland.
5. Park, S.B., Liebler, G.A., Burkholder, J.A., Maher, T.D., Benckart, D.H., Magovern, Jr., G.J., Christlieb, I.Y., Kao, R.L., and Magovern, Sr., G.J.: Mechanical Support of the Failing Heart. *Ann Thorac. Surg.* 42:627-63, 1986

Mr. Mills has provided us with the current prices for the Bio-Medicus products. I apologize for any confusion that may have occurred with my error in quoting current prices.

JBR

Clinical Experience with Retrograde Perfusion Technique for Massive Gas Embolism

To the Editor:

In reference to the correspondence regarding massive air embolism (*J. Extra-Corpor. Technol.* 18, pp 198-199, Winter 1986), I would offer the following data in support of Dr. Mills' retrograde perfusion technique. A survey on perfusion accidents has recently been completed,¹ and several questions addressed gas embolism.

Of particular interest: perfusionists were asked if they had observed the technique of retrograde perfusion for massive gas embolism during the three years between October 1982 and October 1985. 8.3% of 604 responding reported that they had. More importantly, when then asked, "How many cases?" and "What was the patient outcome?" they reported 64 cases in which 39 patients had "no injury." Also important was the finding of lack of availability of a hyperbaric chamber for treatment of massive gas embolism in more than one-half of the hospitals (58.6%, n=597).

These observations, I would think, validate the technique as originally reported by Mills and Ochsner.² Dr. Brenner's point of using the technique most suited to the team is well taken. However, it would appear that retrograde perfusion does work, and it does work well under these dire circumstances. I simply report this information to your readers for surgical teams to consider as they develop methods for dealing with this serious complication.

Clearly, more laboratory studies are needed to establish the most expeditious and effective method for removal of accidental gas embolism, but the perfusionists' clinical observations seem persuasive documentation in support of the retrograde perfusion technique.

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References

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2. Mills, N.L. and Ochsner J.L.: Massive Air Embolism during Cardiopulmonary Bypass; Causes, Prevention and Management. *J. Thorac. Cardiovasc. Surg.* 80:708-717, 1980.