Symposium

Answers to earlier SYMPOSIUM questions are trickling in and will be printed as they arrive. In order to give everyone a chance to respond, we are repeating all of these questions this issue with the assurance that any contributions in answer to early questions will be utilized.

   Question: Describe the technique and rationale to which your team adheres in preventing and/or treating this complication.

2. Given: A patient with an aneurysm of the descending or thoracic aorta.
   Question: Describe and explain the pump-oxygenator circuitry your team prefers in dealing with this lesion.

3. Given: X-rays depict a loss of calcium from the bone tissue of a chronic dialysis patient.
   Question: Describe the techniques preferred by your team in the treatment and/or prevention of this complication.

4. Given: A post-myocardial infarct patient requires the use of cardio-pulmonary support.
   Question: Describe in detail the pump-oxygenator circuit and rationale your team would use in the event of a support bypass.

5. Given: A patient is just diagnosed as having renal failure and is considered a candidate for chronic dialysis.
   Question: Describe your dialysis program, the equipment you use and the techniques involved much as you would to the patient’s personal physician.

6. Given: A patient is undergoing a cardiac diagnostic work-up.
   Question: Describe the technique and equipment your team prefers for determining cardiac output during diagnostic procedures.

Please reply by letter, include any illustrations you might desire, and send your reply to:

Journal of Extra-Corporeal Technology
287 East Sixth Street
Saint Paul, Minnesota 55101

“Given: Development of Anemia in a Patient undergoing Chronic Hemodialysis.

Question: Describe the technique and rationale to which your team adheres in preventing and/or treating this complication.”

It is an established fact that anemia is an ever-present complication of chronic renal failure and uremia. Patients undergoing chronic hemodialysis require varying amounts of fresh blood to maintain a satisfactory hematocrit level, and to prevent clinical symptoms of anemia. This anemia may be due to decreased red cell production, decreased red cell survival, and/or blood loss. Each dialysis team has its own protocol for hemoglobin or hematocrit determinations and for transfusion of donor blood.

We have recently reviewed the experience of the Dialysis Unit of the Ottawa Civic Hospital. Our Unit has been in operation since November, 1965. We initially primed our Twin-Coil Kidney with donor blood, less than five days old. In April, 1967, we started priming the coils with physiological saline. The blood was reclaimed from the coil at the end of dialysis and saved in Fenwal ACD donor bags supplied by the Canadian Red Cross.

If the patient was dialyzed once a week, he received the sedimented reclaimed blood as a transfusion after dialysis. If he was dialyzed twice a week, the blood was stored in the Blood Bank and was used to prime the coil for the next dialysis. Blood cultures done on the stored blood were consistently sterile. The patient received donor blood only if his hematocrit fell below 20% at the end of dialysis; he was then cross-matched for two units for his next dialysis day.

In October, 1968, this procedure, which had been time-consuming for nurses and patients, was discontinued. Since that time all coils for chronic patients have been primed with saline. If the patient requires fluid removal, he is “bled” slowly into the machine and the saline is discarded. Otherwise he receives the saline from the coil at the start of dialysis. At the end of dialysis the arterial line is clamped and the blood in the coil is slowly returned to the patient.

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At no time have we seen wide blood pressure fluctuations at either the start or the finish. Occasionally a patient complains of a headache for a few minutes after the blood is returned, but this usually subsides without treatment. Our chronic patients continue to receive donor blood only when the hematocrit falls below 20% (The hematocrit is tested before the blood is returned to the patient, so that the actual post-dialysis hematocrit is probably 1-2% higher). This level occasionally produces symptoms, as in one woman who knows when her “blood is low” because she feels unusually tired. Transfusion restores her to her normal capacity for an active life.
Table I shows a review of the 14 patients on our chronic program between June 1, 1968 and May 31, 1969. As can be seen, this includes 96.5 patient months with a total of 612 dialyses. Two hundred thirty units of fresh whole blood or sedimented cells (depending on the individual patient’s fluid balance) were transfused during dialysis in this period, with a mean of 2.4 units per patient per month.

Of the patients on the program for the entire year, the highest number of transfusions was 44, or 3.7 units per month, and two patients required only 12 units each, or 1 per month. In actual fact, we give 2 units at one time, so that each of these two patients received donor blood only 6 times in the 12 months.

Blood reactions have occurred 14 times and have consisted of fever and/or chills in each case. An intravenous antihistamine (Benadryl 25-50 mg. or Chlortripolon 10 mg.) is given to each patient before a transfusion is started in an attempt to prevent, or limit the severity of a reaction. Patient “P.D.” has received no blood since starting dialysis (3 months, 17 dialyses), and his hematocrit has remained at 24% or higher. Eight of the patients had major surgery during the course of their dialysis programs. Blood given during surgery or between dialyses is not included in this review.

This limited review does not permit one to draw many conclusions. Although it is far from ideal, we feel that the method we are now using is the most satisfactory one we have tried. We are interested in comparing our experience, our techniques, and our results with other centres, perhaps for the benefit of all concerned.

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