THE DISPOSABLE LOW RESISTANCE BLOOD LINE FOR SINGLE PASS
WARM KIIL DIALYSIS

C. Comty, R. Baillod, L. Sevitt and S. Shaldon*

The need to reduce the cost of chronic haemodialysis is obvious. One area which has previously been neglected is the production of a sterile ready to use disposable pair of blood lines with appropriate joins and bubble trap (Figure 1).

The elimination of a rewarming length of tubing with single pass warm dialysis has reduced the resistance of the dialysis lines. The arterial line consists of 10 feet of PVC tubing, nominal diameter of lumen 3/16 inch with two wide bore Y junctions. The first is to permit the introduction of heparin (given intermittently) and replacement saline during dialysis (Figure 2) and to remove the necessity for cutting the arterial line at the end of dialysis to wash back the blood content of the dialyser. The second Y junction divides the flow for each layer of the dialyser. The PVC tubing is secured to the blood ports by disposable stainless steel spring clips (Figure 3).

The blood is returned from the dialyser by a single unit consisting of two short lengths of PVC tubing attached to blood ports and entering a PVC bubble chamber (Figure 4), from which it leaves by a single PVC line 10 feet long to join the patient's venous cannula. Two extra connections in the tip of the bubble catcher are for joining to a pressure alarm system for self dialysis at night unsupervised and for administration of drugs not required to pass through the dialyser (e.g. water soluble vitamins given at the end of each dialysis).

Where regional heparinization or blood samples during dialysis are required sterile rubber tubes are inserted into the arterial and venous lines with nylon connections which self seal on PVC. Similarly if a blood pump is required the arterial line is cut and roller tubing for a pump inserted. Using these lines with intermittent heparinization blood flows of up to 200 ml./min. in a pumpless system have been obtained and no clotting has occurred in one hundred consecutive dialyses. In addition the twin flow tubes from the dialyser to the bubble catcher permit assessment of individual flow through each layer of the dialyser.

Suppliers

Capon Heaton & Co. Ltd., Haxelwell Mills, Stirchley, Birmingham, 30.
Disposable sterile lines

*Royal Free Hospital, London, N.W.3.
Figure 1. Diagrammatic layout of disposable lines.

Figure 2. Replacement saline given during dialysis.

Figure 3. Stainless steel spring clips securing PVC tubing to blood ports.

Figure 4. Bubble catchers with twin outflows from dialyser.