CENTRAL DIALYSIS DELIVERY SYSTEM FOR THE AUTOMATIC PERITONEAL DIALYSIS MACHINE

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The automatic peritoneal dialysis machine (McDonald, 1965a; 1965b) has several advantages over conventional methods of peritoneal dialysis:

1. The automatic peritoneal dialysis machine with an average urea clearance of 40 ml/min, at the hourly flow rate of 8 to 10 litres is several times more efficient than conventional bottle dialysis at slower flow rates.

1. Dialysis concentrate (35 to 1).
2. Hot and cold water at mixing valve.
3. Filter.
4. Proportioning pump.
5. Collection vessel.
6. Conductivity meter.
7. Temperature gauge.
8. Overflow.
10. Concentrated glucose.
11. Automatic peritoneal dialysis machine.
13. Patient
15. Outflow suction pump.

Fig. 1. Central dialysis delivery system for use with the automatic peritoneal dialysis machine.
2. A greater economy of operation is seen with the automatic peritoneal dialysis machine in that (a) the cost of the dialysis fluid is a small fraction of commercial dialysis and (b) the length of time needed to perform adequate dialysis is less than conventional methods.

3. Automatic operation frees physician and nursing personnel from time consuming chores of hanging bottles and discarding the outflow dialysate.

Central delivery system for the automatic peritoneal dialysis machine

A central dialysis delivery system has been made to deliver dialysate at body temperature to multiple automatic peritoneal dialysis stations in a manner similar to central delivery systems for haemodialysis (Fig. 1). Filtered tap water is proportioned with dialysis concentrate into a collection vessel in which electrical conductivity and temperature is monitored. The fluid in the collection head vessel is then available for use at a number of stations of automatic peritoneal dialysis machines. Prior to being pumped through the Millipore bacterial filter, concentrated glucose solution is proportioned into the dialysate at the desired level for each patient. The outflow fluid is collected in a sterile container and automatically discharged into a central vacuum unit. In that the dialysate is being prepared at a continuous rate at body temperature, fresh, warm dialysate is therefore available at all times for multiple stations. If desired, several peritoneal dialysis machines and single pass artificial kidneys can be run at the same time. Fifty patient dialyses have been performed with this system to date.

REFERENCES
