THE SELF STERILIZING TANK FOR SINGLE PASS WARM KIIL DIALYSIS

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

The bacteriology of dialysate fluid indicated the need for refrigeration to reduce bacterial growth\(^1\) and the scrupulous cleaning and disinfection of the tank prior to starting each dialysis. The advent of single pass warm dialysis for the Kiil system does not remove the need for scrupulous and time consuming cleaning of individual tanks. To overcome this problem a central supply tank was designed which requires cleaning of the tank once a week. During the week the tank is refilled from a reserve tank in which the dialysate fluid is made up to the right concentration. The supply tank (Figure 1) is made of polythene and has a capacity of 750 l. The bacterial growth rate in the tank is kept at \(10^3\) or under by the continuous recycling of the dialysate fluid through a UV water sterilizer. This sterilizer reduces bacterial counts from \(10^5\) organisms/ml. to 0.8 organisms/ml. at a flow rate of 20 l. of dialysate fluid/min.

Dialysate fluid is drawn from this tank to supply dialysers in other rooms, thus removing cumbersome equipment from the site of dialysis and keeping noise to a minimum.

Problems in adequate mixing of UV sterilized water and tank water have been solved by the introduction of an overflow tank not shown in Figure 1. The water from the UV sterilizer is pumped into a 20 l. overflow tank suspended above the main tank instead of into the tap on the bottom of the tank. The dialysate fluid is drawn straight out of the overflow tank (instead of from a tap on the bottom of the tank) to the dialysers and the surplus overflows back into the main tank. This provides an adequate agitation mixing system and prevents growth of bacteria in previously "dead" areas of the tank.

Suppliers


UV water sterilizer, Model No. 4, manufactured by Hanovia Ltd., Bath Road, Slough, Bucks.


Polythene tank

REFERENCES


*Royal Free Hospital, London, N.W.3.
Figure 1. Polythene 750 l. tank with UV water sterilizer attached. Overflow tank is not shown.