Performance Studies in vivo and in vitro on Batches of Consecutively Manufactured Kiil Dialysers

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A series of in vivo and in vitro urea/water and urea plus creatinine solutions were carried out on two types of Kiil dialyser under standardised operating conditions. The results obtained are shown in Figures 1 and 2.

Both the in vivo and in vitro dialysance figures are on the average 25% better for the Watson Marlow dialysers, while the in vivo results show a decrease of 3% from the in vitro results over the same range of flows indicating that red cell effects play little part in the performance variation with this type of dialyser.

Differences in the dialyser geometry as shown in Table I account for only 12% of the performance variation, while a resistance analysis along the lines suggested by Babb and Grimsrud (1967) indicated that streaming in the fluid films was present for both types of dialyser, but was far more marked in the case of the Heppell Units.

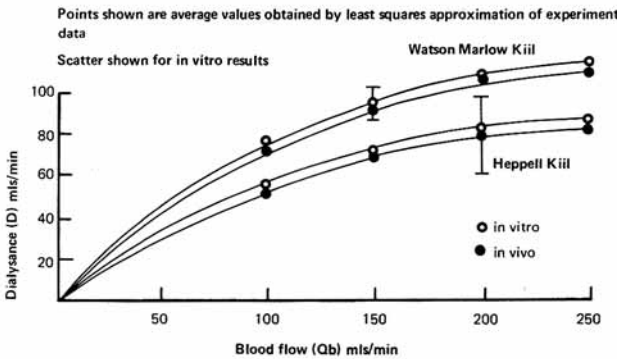

Figure 1. Comparative in vivo and in vitro urea dialysance at a dialysate flow of 500 ml/min

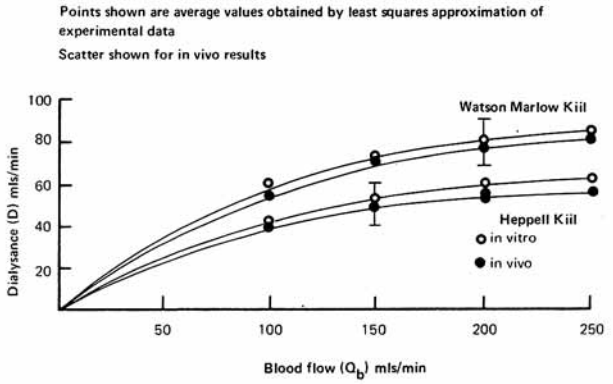

Figure 2. Comparative in vivo and in vitro creatinine dialysance at a dialysate flow of 500 ml/min

Table I

	Surface area cm^2	Priming volume ml	Residual blood volume (ml) at 800 ml wash in
Watson Marlow Kiil	1.018×10^4	112	11
Heppell Kiil	0.99×10^4	121	13

CONCLUSION

Stringent quantity control by the manufacturers, together with dialysance studies would enhance the manufacture of dialysers with a more constant performance.

REFERENCE

Babb, A. L., Grimsrud, L. and Scribner, B. H. (1967) Proceedings of the European Dialysis and Transplant Association. Volume IV. Page 114. Excerpta Medica, Amsterdam