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Synopsis from the paper: Charra B, Calemard E, Ruffet M, Chazot C, Terra JC, Vanel T, Laurent G. Survival as an index of dialysis. *Kidney International* 1992; 41:1286-91.

By 1992, most hemodialysis (HD) units had given up using the long (8 to 12 hours), slow, thrice weekly empirical schedule. In the late 1970's, shorter sessions with improved-performance dialyzers and higher blood and dialysate flow rates had gained favor almost everywhere, allowing for a better use of the limited available HD stations without obvious short-term effects on morbidity or mortality of maintenance dialysis patients. Our Tassin center in France was one of the very few dialysis units which remained faithful to the old empirical, thrice weekly, long (8 hours per session) HD regimen. The clinical outcome of HD patients maintained on this long schedule was retrospectively analyzed over a period of 20 years.

The technical set-up used in Tassin was poorly biocompatible (since we used cuprophane membranes, acetate-based dialysate, and softened water). The dose of dialysis was higher than what was then considered adequate (mean spKt/V of 1.67). The patients received a high protein and calorie intake but a low-salt diet (mean intake of 5-6 g sodium chloride per day). A strict dry weight policy supported by salt restriction, use of a dialysate containing 138 mmol of sodium/L, and vigorous ultrafiltration was used.

The effect of this HD method on the survival of 445 unselected patients was analyzed. This survival rate (87% at 5 years and 43% at 20 years) was significantly better than what was reported with shorter HD schedule from the US, Japan or other parts of Europe. The survival "benefit" was even more obvious for the oldest patients. The two potential explanations for such a favorable outcome were the large dose of dialysis, providing a large margin of safety (insuring that very few patients were under-dialyzed), and the satisfactory control of volume and blood pressure. Although no definitive conclusion was given on which of the two factors was more important, the authors suggested that long-term survival should be considered as the ultimate index of dialysis adequacy.

Commentary by Todd S. Ing, MD:

In spite of the fact that the mean half-life of patient survival among patients at Tassin has dropped from 15 years a decade ago to 6 years at present as a result of taking care of higher percentages of diabetics, elderly patients, and patients with substantial co-morbidity (1), these favorable mortality outcomes related to the use of a thrice weekly, long (8 hours per session) dialysis regimen for current patients are still most impressive. These superior data are believed by Dr. Charra and his colleagues to be:

- (A) A consequence of adequate volume and blood pressure control (with the aid of salt restriction, use of non-elevated sodium levels in dialysate, and proper ultrafiltration during dialysis), as well as,
- (B) A consequence of a combination of high small molecule dose, high middle molecule dose, improved nutrition and more ready anemia and phosphate management (2).

Recently, it has been suggested that sodium chloride can suppress nitric oxide production (3). Thus, it is possible that sodium limitation can bring about more vasodilatation and better blood pressure control (3,4).

References:

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