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Synopsis from the paper:

Effect of long-term increase in the frequency and/or prolongation of dialysis duration on certain clinical manifestations and results of laboratory investigations in patients with chronic renal failure. *Hemodialysis International* 2004;8:30-8. Published in the section: Historical Milestones in Daily Dialysis. Republished from *Acta Med Pol* 1975; 16:31-44.

The clinical and biochemical effects of increased frequency by one session per week, and/or of prolongation of dialysis duration by 17.5% were studied in 14 chronic hemodialysis (HD) patients from March 1969 to May 1973. The results were determined after 6.4 months of increased HD frequency and 6.9 months of increased HD duration.

Hemodialyses were carried out on RSP machines and Ultra-Flo 145 hemodialyzers reused over 3 weeks regardless of the frequency of dialysis. The frequency of dialysis was 2, 3, or 4 per week. The duration of dialysis depended on the frequency, but the overall duration per week varied from 22 to 28 hours. Blood flow was 200 mL/min and dialysate flow was 500 mL/min. No blood transfusions were given after the frequency or the duration of HD sessions was increased.

The change in the mode of HD had no significant effect on urea and creatinine levels in the serum. The increase in frequency of dialysis caused a significant rise in hematocrit by nearly 4%, serum albumin by 0.45 g/dL, nerve conduction velocity by 6%, and dry body weight by 3.37 kg. Weight gains between dialyses decreased by 436 g. The increase in dialysis duration raised hematocrit by 1%, albumin by 0.3 g/dL, and weight gains between dialyses by 368 g. Both the increase in dialysis frequency and the increase in dialysis session duration brought about a remarkable fall in blood pressure in patients with hypertension.

In conclusion, these astounding improvements in clinical status and laboratory parameters after increased HD frequency suggests that, in the near future, a basic form of therapy in patients with chronic renal failure will be daily HD.

Commentary by Todd S. Ing, MD

Dr. Twardowski's seminal article on the beneficial effects of raising the frequency and the duration of hemodialysis treatments laid the foundation for to-day's practice of dialyzing daily. Dr. Twardowski's foresight and trailblazing innovative approach are universally recognized.