

# Overnight hemodialysis dramatically improves survival

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For hemodialysis patients, undergoing dialysis for eight hours overnight, three times weekly, reduces the risk of death by nearly 80 percent, compared to conventional, four-hour dialysis, according to research being presented at the American Society of Nephrology's 41st Annual Meeting and Scientific Exposition in Philadelphia, Pennsylvania.

In a study led by Ercan Ok, MD, of Ege University in Izmir, Turkey, 224 dialysis patients were switched to overnight dialysis. The patients spent three nights a week at the dialysis center where they underwent eight hours of continuous hemodialysis. The patients adjusted well to overnight hemodialysis. "After an adaptation period of a month, all patients slept during the night without any complaint," says Dr. Ok.

The patients remained on overnight hemodialysis for about one year. Their outcomes were compared with those of a similar group of patients who continued on conventional dialysis: four hours, three days per week.

Overnight dialysis led to improvements in a wide range of outcomes. "The hospitalization rate during follow-up was one-fourth of that observed in patients treated with four-hour conventional hemodialysis," comments Dr. Ok. "Most importantly, our results confirmed that longer dialysis produces significantly better patient outcomes, with a 78 percent reduction in mortality rate."

Patients receiving overnight hemodialysis had better blood pressure control, leading to a two-thirds reduction in blood pressure medications. They were also at lower risk of blood pressure drops during dialysis, a common problem with conventional hemodialysis. Levels of the mineral phosphate decreased toward normal, despite a 72 percent reduction in medications used to lessen phosphate absorption.

The need for other medications decreased as well. All of these outcomes either did not change or deteriorated in patients on four-hour conventional dialysis.

Most patients in the overnight hemodialysis group mentioned an increase in appetite. They gained weight, and their serum protein (albumin) levels increased. Many patients were able to return to work, reporting improved job performance and better mental (cognitive) functioning.

More frequent and/or longer dialysis regimens are a promising alternative to addressing the "unacceptably high" risk of death among dialysis patients, according to Dr. Ok. Although home dialysis is may be the best approach (aside from kidney transplantation), it is not an option for most patients.

Previous studies of overnight, thrice-weekly hemodialysis have shown impressive results, with ten-year survival rates as high as 75 percent. The new trial is the first prospective, controlled study to compare the results of eight-hour versus four-hour hemodialysis, performed in the dialysis center.

The study has some important limitations, including the fact that patients were not randomly assigned to the two dialysis strategies. With an average age of 45, the patients were younger than the general population of dialysis patients—few older patients were willing to switch to overnight hemodialysis. In addition, the follow-up period was relatively short.

However, given the clear superiority of eight-hour dialysis, the researchers do not think the results would be changed with long-term observation. Dr. Ok adds, "We expect that these data would be convincing to the whole of society—including physicians, patients, health authorities, and social security institutions—for the necessity of longer hemodialysis in order to improve high mortality and morbidity."

Source: American Society of Nephrology

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