

# Hemodialysis vascular access modifies the association between dialysis modality and survival

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Patients on peritoneal dialysis (PD) typically have a higher early survival rate than patients on hemodialysis (HD). New data suggest that this difference may be explained by a higher risk of early deaths among patients undergoing HD with central venous catheters, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN).

In a study that included more than 38,500 Canadian [patients](#) starting [dialysis](#) between 2001 and 2008, 63 percent started hemodialysis using a central catheter placed into one of the large veins. Seventeen percent started HD with an arteriovenous fistula (AVF) or arteriovenous graft (AVG)-surgically created access sites that reduce the rates of infection and other complications related to central catheters. The remaining 19 percent started on PD, in which dialysis is performed at home by the patient where metabolic wastes are eliminated by placing dialysis fluid into the abdomen.

Those patients who had an arteriovenous fistula or graft (AVF/AVG) when starting HD showed similar survival rates to the patients on [peritoneal dialysis](#). "Our results emphasize the importance of predialysis care and education, and the need to avoid central venous catheter use in our HD patients," comments Jeffrey Perl, MD (St Michael's Hospital, Toronto).

During the first year, the risk of death for patients starting HD with a central catheter was 80 percent higher than for patients who started on PD. The risk of death in the first year for patients who started hemodialysis with an AVF/AVG was similar to that of the PD group.

In the five years after starting dialysis, the risk of death was still 20 percent higher in patients who started HD with a central catheter, compared to the PD group. The survival rate for patients who started HD with an AVF/AVG remained similar to that for patients who started on PD.

Some past studies have shown that patients on PD are at lower risk of death during the first year or two on dialysis, compared to patients on HD. "However, these studies have been heavily criticized for comparing 'apples to oranges,'" says Perl. "Their results may speak more towards the type of patients selected for PD over HD rather than a direct impact of PD versus HD itself on patient survival." He believes the new study provides a more fair, "apples to apples" comparison of PD patients versus HD patients who have been "optimally prepared" with an AVF/AVG.

The study is limited by the fact it was an observational study, rather than a randomized controlled trial. Information on the type of access for HD use was obtained only at the time of dialysis initiation. Information on follow-up vascular access was not available, which would be useful to understand the contribution of the catheter versus other factors contributing to risk of death. There was no information on the reasons why patients started HD with a central catheter, or on whether they started dialysis in the hospital or as an outpatient.

**More information:** The article entitled, "Hemodialysis Vascular Access Modifies the Association between Dialysis Modality and Survival," will appear online at , [doi 10.1681/ASN.2010111155](https://doi.org/10.1681/ASN.2010111155)

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