Cooling of dialysis fluids protects against brain damage

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While dialysis can cause blood pressure changes that damage the brain, cooling dialysis fluids can protect against such effects. The findings come from a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*). The cooling intervention can be delivered without additional cost and is simple to perform.

While dialysis is an essential treatment for many patients with kidney disease, it can cause damage to multiple organs, including the brain and heart, due to the sudden removal of bodily fluids.

To characterize dialysis-induced brain injury and to see whether cooled dialysis fluids (called dialysate) might help reduce such injury, Christopher McIntyre, DM, and his colleagues randomized 73 new dialysis patients to dialyze with body temperature dialysate or dialysate cooled to 0.5◦C below body temperature for 1 year. (Dr. McIntyre was at the University of Nottingham in the UK while conducting this work but is now at the University of Western Ontario and the London Health Sciences Centre, in Canada.)

The study demonstrated that dialysis drives progressive white matter brain injury due to blood pressure instability; however, patients who dialyzed at 0.5◦C below body temperature were completely protected against such white matter changes.

"This study demonstrates that paying attention to improving the tolerability of dialysis treatment—in this case by the simple and safe

intervention of reducing the temperature of dialysate—does not just make patients feel better, but also can completely protect the brain from progressive damage," said Dr. McIntyre.

More information: The article, entitled "Randomized Clinical Trial of Dialysate Cooling and Its Effect on Brain White Matter," will appear online at jasn.asnjournals.org/ on September 18, 2014.

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