

EMBARGOED FOR RELEASE until September 18, 2014– 5:00 PM (ET)

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COOLING OF DIALYSIS FLUIDS PROTECTS AGAINST BRAIN DAMAGE

Simple step may help protect against cognitive, psychological, and functional abnormalities in dialysis patients

Highlight

- 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.

Conventional dialysis can cause significant circulatory stress that damages multiple organs.

Washington, DC (September 18, 2014) — 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.

Study co-authors include Aghogho Odudu, MBChB, PhD and Mohamed Tarek Eldehni MD, MSc.

Disclosures: The study was funded by the UK National Institute of Health Research. Dr. McIntyre has received research funding and speaking honoraria from several dialysis companies (Fresenius, Baxter, Gambro, Braun).

The article, entitled “Randomized Clinical Trial of Dialysate Cooling and Its Effect on Brain White Matter,” will appear online at <http://jasn.asnjournals.org/> on September 18, 2014.

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Founded in 1966, and with more than 14,000 members, the American Society of Nephrology (ASN) leads the fight against kidney disease by educating health professionals, sharing new knowledge, advancing research, and advocating the highest quality care for patients.

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