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Contacts: Tracy Hampton • (312) 339-9067 • thampton@nasw.org
Adrienne Lea • (202) 503-6560 • alea@asn-online.org

BODY'S FATTY FOLDS MAY HELP FIGHT KIDNEY FAILURE

Stem cells from the body's omentum may preserve and improve kidney function

Highlights

- In rats with kidney disease, functioning of the kidney improved when the organ was fused with the omentum, a fatty fold of tissue that lies close to the kidney and is a rich source of stem cells.
- Stem cells from a chronic kidney disease patient's own omentum may help heal diseased kidneys without the need for an outside source of cells.

60 million people globally have chronic kidney disease.

Washington, DC (March 13, 2014) — A fatty fold of tissue within the abdomen that is a rich source of stem cells can help heal diseased kidneys when fused to the organs, according to a study conducted in rats. The findings, which appear in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN), suggest that stem cells from within a chronic kidney disease patient's own abdomen could be used to preserve and possibly improve kidney function.

Although adult stem cells have shown promise in treating experimental acute kidney diseases, it's unknown whether they might also alleviate chronic kidney diseases. Such a treatment strategy would typically involve injecting cells frequently over a period of many months and years because stem cells do not survive in the body for more than a few days after injection.

Ashok Singh, PhD (John Stroger, Jr Hospital of Cook County) and his colleagues attempted to overcome this hurdle in rats with kidney disease by connecting the omentum, a fatty fold of tissue that lies close to the kidney and is a rich source of stem cells, to the kidney. "This maneuver allowed us to permanently lodge stem cells in contact with the diseased kidney," explained Dr. Singh.

After 12 weeks, the omentum remained fused to the kidney, which showed signs of improved function. "The progression of chronic kidney disease was slowed due to the continuous migration of stem cells from the omentum to the diseased kidney, resulting in healing of the kidney," said Dr. Singh.

The results indicate that stem cells indeed possess the power to slow or even reverse chronic kidney disease, provided the cells are allowed to remain in the diseased kidney for a prolonged period of time.

“Attaching the omentum, a supposedly useless organ lying close to the kidney, to the diseased kidney could be put into practice after some more developmental work,” said Dr. Singh. “By this technique, patients would be using their own stem cells lying in the omentum to cure their kidneys without depending on outside sources of stem cells.”

In an accompanying editorial, Christof Westenfelder, MD (University of Utah) noted that the data reported by Dr. Singh and his colleagues are “novel and scientifically interesting.” After pointing to some limitations to the applicability of this technology to clinical CKD, he stated that “further studies are needed to fully define the complex nature of the omentum’s ability to heal injured organs and to establish its potential utility in patients with renal diseases.”

Study co-authors include Ignacio Garcia-Gomez, PhD, Nishit Pancholi, MD, Jilpa Patel, MD, K P Gudehithlu, PhD, Peter Hart, MD, George Dunea, MD, and J A L Arruda, MD.

Disclosures: The authors reported no financial disclosures.

The article, entitled “Activated Omentum Slows Progression of CKD,” will appear online at <http://jasn.asnjournals.org/> on March 13, 2014.

The editorial, entitled “Does the Greater Omentum (“Policeman of the Abdomen”) Possess Therapeutic Utility in CKD?” will appear online at <http://jasn.asnjournals.org/> on March 13, 2014.

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&& Annette Carney (acarney@cookcountyhhs.org)
312-864-0932