ASN LEADING THE FIGHT AGAINST KIDNEY DISEASE

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Press Release

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INVESTIGATIONAL TREATMENT MAY RESTORE KIDNEY FUNCTION IN PATIENTS WITH RENOVASCULAR DISEASE

Highlights

- A treatment consisting of vascular endothelial growth factor fused to a bioengineered carrier promotes the recovery of kidney function in pigs with a disease frequently observed in patients in which the kidneys' arteries are blocked.

Washington, DC (November 5, 2015) — A new treatment may help patients with a chronic kidney condition that can also lead to heart problems and premature death, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN).

Chronic renovascular disease can occur when there is significant obstruction of the main renal arteries (renal artery stenosis), usually due to atherosclerosis. This condition can lead to progressive deterioration of kidney function as well as heart-related problems and premature death. Treatments include the use of drugs as well as renal angioplasty and stenting, an intervention to open the obstructed arteries. Unfortunately, kidney function does not recover in approximately half of the patients who receive these treatments.

Alejandro R. Chade, MD (University of Mississippi Medical Center) and his colleagues tested the potential of a new therapeutic strategy to recover kidney function in renovascular disease by stimulating the growth and recovery of kidney blood vessels with a novel stabilized form of vascular endothelial growth factor (VEGF). Previous work by the group showed that renal VEGF therapy looked like a promising treatment but it had limited effects, perhaps due to VEGF's susceptibility to be degraded. To overcome this, the team fused VEGF to a bioengineered polymer-stabilized protein carrier called elastin-like polypeptide (ELP).

By using a pig model of chronic renovascular disease and employing high-resolution CT imaging to determine the effects of a single intra-renal infusion of ELP-VEGF, the researchers found that binding VEGF to ELP did not alter VEGF's potency but prolonged its presence and improved its ability to restore kidney function.

“Since ELPs can be fused to virtually any therapeutic compound by simple molecular biology techniques, our work may represent the first step for the application of ELP technology to renal therapy, which could not only have substantial implications for the design of new strategies for management of renovascular disease, but also clinical ramifications that may go beyond renovascular disease and beyond the specific VEGF therapy shown in our paper,” said Dr. Chade.

Study authors include Nathan Tullos, PhD, Taylor Harvey, MS, Fakhri Mahdi, MS, and Gene Bidwell III, PhD.

Disclosures: Alejandro R. Chade serves as a consultant for Actelion Pharmaceuticals US, Inc. Gene L. Bidwell, III is owner of Leflore Technologies LLC, a private company working to commercialize ELP-based technologies in several disease areas. Alejandro R. Chade and Gene L. Bidwell, III are authors of patents associated with the technology described in this paper.

The article, entitled “Renal Therapeutic Angiogenesis Using a Bioengineered Polymer-Stabilized Vascular Endothelial Growth Factor Construct,” will appear online at http://jasn.asnjournals.org/ on November 5, 2015.

Founded in 1966, and with nearly 16,000 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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