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## **MEDICATIONS PREVENT DIABETIC KIDNEY DAMAGE IN RATS**

*It May Be "Never Too Early to Treat" Diabetic Kidney Disease, Results Suggest*

**Washington, DC (February 11, 2005)** — Early treatment with medications that block the renin-angiotensin system (RAS) may help prevent diabetes-related kidney disease—even before full-blown diabetes develops, suggests a study in the March issue of *Journal of the American Society of Nephrology* (JASN).

Led by Dr. Yukiko Nagai of Kagawa Medical University, Japan, the researchers studied the effects of RAS-blocking drugs in experimental rats bred to develop diabetes as they mature. Some rats received one or two types of RAS blockers—olmesartan and/or temocapril—while another group received the non-RAS-blocking drug hydralazine. The rats were treated only in the juvenile stage before developing diabetes.

Treatment with RAS blockers did not prevent the rats from developing diabetes. However, at maturity, rats previously treated with RAS blockers had less diabetes-related kidney damage than rats treated with hydralazine.

At least in part, RAS blockers exerted their protective effect by reducing levels of angiotensin II (AngII) in the kidneys at some critical early stage, before diabetes developed. (AngII is the final product of the RAS, with a variety of effects on the kidneys, heart and blood vessels, and other organs.) Rats treated with RAS blockers also had reduced levels of type IV collagen, a sign of kidney damage caused by scarring.

Kidney disease is one of the main complications of type 2 diabetes. In recent years, studies have found that two types of RAS-blocking drugs— AngII-blockers such as olmesartan and angiotensin-converting enzyme inhibitors such as temocapril— can slow the rate of diabetic nephropathy. The diabetic rats used in the study provide a useful model for studying the development and complications of type 2 diabetes in humans.

The results suggest that early treatment with RAS blockers can reduce the long-term risk of diabetic kidney disease. A study is underway to see if treating diabetic patients with olmesartan can lower the rates of kidney disease and other diabetes complications.

Early RAS blocker treatment might even be useful for people who are at risk but haven't yet developed type 2 diabetes, suggests an editorial by Drs. Karl F. Hilgers and Roland Veelken. With further study to identify those patients most likely to benefit—perhaps including measurement of RAS activity within the kidneys—starting RAS blockers before diabetes becomes obvious might offer a new approach to preventing diabetic kidney damage.

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The study's results appear in the article entitled, "Temporary Angiotensin II Blockade at the Prediabetic Stage Attenuates the Development of Renal Injury in Type 2 Diabetic Rats" under the category of Basic Science: Pathophysiology of Renal Disease and Progression in the March issue of JASN and on the ASN website.

The ASN is a not-for-profit organization of 9,000 physicians and scientists dedicated to the study of nephrology and committed to providing a forum for the promulgation of information regarding the latest research and clinical findings on kidney diseases.

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