News
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****Cyclosporine-induced toxicity reduced, alleviated by heart drug

DALLAS -- A drug commonly used by heart attack patients seems to help correct a major problem in organ transplantation, according to transplant researchers at The University of Texas Southwestern Medical Center at Dallas.

Verapamil, used to dilate narrowed coronary arteries, has been found to protect the kidneys from immediate toxic destruction by the anti-rejection drug cyclosporine, says Dr. Ingemar Dawidson, associate professor of surgery at UT Southwestern. Long-term protection by verapamil remains uncertain, and related studies are in progress, he says.

Two years ago Dawidson and Dr. Pal Rooth, a former graduate student now at Umea University, Sweden, suspected that cyclosporine causes constriction and spasm of the kidney's delicate blood vessels. This can lead to cell death from lack of oxygen and ultimately result in kidney failure.

Verapamil, a calcium blocker (antagonist) that can improve blood flow in patients with narrowed coronary arteries, can also improve blood flow in the kidneys. By doing so, cyclosporine's acute destructive effects on the kidneys are reduced or alleviated, Dawidson says.

Thus far the researchers have made the following observations regarding verapamil's use during transplantation:

-- Verapamil causes an increase of blood flow in the kidneys before and during administration of cyclosporine.

-- The drug appears to protect cadaver kidneys from injury during the cooling down phase of the procurement process. The cadaver organ, which is drained of its blood supply, typically goes into blood vessel spasm when injected with a cooling solution.

-- When verapamil is given during cyclosporine treatment, cyclosporine blood levels are twice as high as without verapamil. This happens despite the fact that there is lower toxicity, as tested by kidney creatinine levels.

--Significantly fewer transient rejection episodes are seen in patients receiving verapamil than in those who don't take the drug. During one sample month there were three rejections in a verapamil treatment group of 20 patients compared with 11 rejections out of a control group of 20, says Dawidson.

The research findings have been published in the medical journals Transplantation, Diabetes and Transplantation Proceedings. The research was also presented at the 1988 International Transplant Society Meeting in Sydney, Australia.

Cyclosporine's toxic effect on the kidney has been a major obstacle to successful transplantation since the drug was first used in the 1970s, says Dawidson. While organ recipients are indebted to cyclosporine and may need the anti-rejection drug for life, toxicity can cause the kidneys to lose their ability to function.

"Physicians have always had to constantly balance cyclosporine's effects on the body. Too much cyclosporine causes toxicity while too little results in rejection," Dawidson says.

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Note: The University of Texas Southwestern Medical Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and Southwestern Allied Health Sciences School.