

Media Contact: Katherine Morales
214-648-3404

katherine.morales@utsouthwestern.edu

New treatment effective in counteracting cocaine-induced symptoms

DALLAS – Aug. 13, 2007 – UT Southwestern Medical Center researchers have discovered a treatment that counteracts the effects of cocaine on the human cardiovascular system, including lowering the elevated heart rate and blood pressure often found in cocaine users.

“We have found that cocaine’s effects on the cardiovascular system can be reversed by the use of a drug called dexmedetomidine, which is currently approved by the Food and Drug Administration for anesthetic purposes in operating rooms or intensive care units,” said Dr. Wanpen Vongpatanasin, associate professor of internal medicine and senior author of a study appearing in the Aug. 14 issue of the *Journal of the American College of Cardiology*.

Researchers used dexmedetomidine to test whether cocaine’s effect on the cardiovascular system could be muted. They found that the drug was effective in reversing the actions of cocaine on heart rate, blood pressure and vascular resistance in the skin by interfering with the ability of cocaine to increase nerve activity.

“Typically, patients with cocaine overdoses in the emergency room are treated with nitroglycerin, sedatives such as Valium, and some blood-pressure medications such as calcium channel blockers and some beta blockers,” Dr. Vongpatanasin said. “However, the standard treatments don’t alleviate all of the adverse effects of cocaine on the heart, blood pressure and central nervous system.”

The study examined results from 22 healthy adults who reported to have never used cocaine. The investigators administered a small, medically approved dose of cocaine nose drops to the study participants, which doubled their sympathetic nerve activity, part of the body’s “automatic” response system that becomes more active during times of stress. Participants experienced increases in several cardiovascular parameters including heart rate, blood pressure and resistance to blood flow in the skin.

Microelectrodes, similar to acupuncture needles, were used to record sympathetic nerve activity following doses of intranasal cocaine.

Research subjects who were treated with dexmedetomidine had a decrease in sympathetic nerve activity as well as in all three cardiovascular parameters, which returned to baseline levels measured

(MORE)

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER AT DALLAS

UT Southwestern Medical School • UT Southwestern Graduate School of Biomedical Sciences • UT Southwestern Allied Health Sciences School
UT Southwestern University Hospitals & Clinics

Office of News and Publications • 5323 Harry Hines Blvd., Dallas TX 75390-9060 • Telephone 214-648-3404 • Telefax 214-648-9119
www.utsouthwestern.edu

Cocaine treatment – 2

before administration of cocaine.

Dexmedetomidine proved to be more effective than intravenous saline, which was used as a placebo in another group of study participants.

Cocaine abuse in the U.S. is widespread, with nearly 35 million Americans reporting having ever tried cocaine and an estimated 7.3 million users, including 15 percent of young adults ages 18 to 25, according to the National Institute on Drug Abuse. Life-threatening emergencies related to cocaine use include sudden cardiac death, high blood pressure, stroke and acute myocardial infarctions.

“We also found that dexmedetomidine was equally effective in counteracting effects of cocaine in subjects with a rare genetic mutation thought to disrupt the effects of dexmedetomidine,” said Dr. Ronald Victor, professor of internal medicine and co-author of the study. “Because this particular mutation is more common in African-Americans than in Caucasians, our study results are applicable to a more diverse, multiethnic population.”

Further research is needed, study authors said, to determine whether the treatment would be effective for acute cocaine overdose in the emergency room and to gauge whether it would be effective in reversing cocaine-induced constriction of the coronary vessels to the same degree it does in skin vessels.

Other UT Southwestern authors include Dr. Zhongyun Wang, research associate in internal medicine; Debbie Arbique, senior registered nurse; Dr. David Leonard, assistant professor of clinical sciences and internal medicine; and Dr. Jia-Ling Li, senior research scientist in internal medicine.

Funding was provided by the National Institute on Drug Abuse, the Donald W. Reynolds Foundation and the Texas chapter of the American Society of Hypertension.

###

This news release is available on our World Wide Web home page at
<http://www.utsouthwestern.edu/home/news/index.html>

To automatically receive news releases from UT Southwestern via e-mail,
subscribe at www.utsouthwestern.edu/receivenews