Statins help prevent acute kidney injury through key cellular protein

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Researchers have discovered that statins can help prevent kidney injury, and they've uncovered how the drugs exert their protective effect. The findings are published in a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

Acute kidney injury (AKI) is an abrupt decline in kidney function that often arises after major surgeries or severe infections. Previous research has shown that endothelial cells that line blood vessels in the kidneys play an important role in the development of AKI. In addition, studies by Tadashi Yoshida, MD, PhD (Keio University, in Tokyo, Japan) and his colleagues indicate that a protein called Krüppel-like factor 4 (KLF4)—which controls the expression of cell adhesion molecules that recruit and activate circulating inflammatory cells—in endothelial cells helps to regulate blood vessel thickness when arteries are injured. Because of these findings, the team recently looked at the role of KLF4 in AKI.

Through experiments conducted in mice, the investigators found that KLF4 in endothelial cells helps prevent AKI, in part by suppressing inflammation. Indeed, loss of endothelial KLF4 exacerbated AKI in the animals. Moreover, the team showed that treating mice with statins can protect against AKI and that KLF4 is necessary for this protection.

"These results are highly novel and of major significance, in that they provide evidence that endothelial KLF4 is a mediator of statins as well as a novel therapeutic target for AKI," said Dr. Yoshida.

More information: The article, entitled "Endothelial Krüppel-Like Factor 4 Mediates the Protective Effect of Statins against Ischemic AKI," will appear online at jasn.asnjournals.org/

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