Purines Fend Off Surgery-Related Damage

Anesthesia is quite safe these days. But sometimes putting a patient under to fix one problem, such as heart damage, can harm a different organ, such as a kidney.

Now a group of researchers led by Holger Eltzschig, MD, PhD, a professor of anesthesiology at the University Colorado School of Medicine, has found a group of molecules that fend off damage during anesthesia.

"This is a promising discovery," says Eltzschig, who practices at University of Colorado Hospital. "It suggests a new way to promote healing."

In an article published Dec. 12 in the *New England Journal of Medicine*, Eltzschig and colleagues at Harvard Medical School and Northeastern University report hopeful findings about a group of molecules called purines. Purines are basic molecular building blocks in the body – they help produce DNA and RNA and they assist with short-term storage of energy. One variety of purine is called adenosine.

The researchers determined that generating adenosine outside of cells can help protect organs from damage. And they saw that activating adenosine receptors on the lungs, the intestine, or the heart can help protect these organs.

Eltzschig and his fellow researchers looked at adenosine and related chemical processes in cancer, lung injury, bowel inflammation and platelet function, among others.

For patients who might face surgery with anesthesia, the findings are good news.

"Increasing developments in this arena will open up several new avenues for the treatment," the article says.

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