

Intravenous acetaminophen has limited benefit for colectomy patients, study finds

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Intravenous (IV) acetaminophen is no more effective than oral acetaminophen for patients undergoing colorectal procedures, Mount Sinai researchers report in a first-of-its-kind study. These findings suggest that eliminating use of IV acetaminophen, which is much more expensive than its oral counterpart, may result in very significant cost savings for hospitals with no impact on the patient experience or outcomes.

The study, published in the July issue of *Anesthesiology*, found that IV acetaminophen, as currently used, does not meaningfully decrease opioid use after surgery, especially when compared to [patients](#) who are given oral acetaminophen (sold under the brand name Tylenol and others).

"With any new drug that is introduced to the U.S. market, it is very important to monitor how it is used and if this results in the desired outcomes. Our study results do not support routine use of IV acetaminophen," explained lead investigator Jashvant Poeran, MD, Ph.D., Assistant Professor of Population Health and Health Science Policy at the Icahn School of Medicine at Mount Sinai.

Scientists from the Department of Population Health and Health Science Policy and the Department of Anesthesiology at the Icahn School of Medicine looked into this topic because there is increasing pressure to reduce opioid use in patients hospitalized for surgery, while also minimizing pain. Non-opioid pain medications such as IV acetaminophen are a common substitute for opioids, but it was unclear how effective this drug was for surgery patients.

IV acetaminophen was introduced in the United States in 2010, and there has been a spike in use since then. The cost of IV acetaminophen increased by 300 percent in 2014, prompting scrutiny of its use. It is much more expensive than other non-opioid alternatives and its oral

counterpart.

The Mount Sinai team analyzed data of 181,640 patients undergoing open colectomy surgery in 602 hospitals across the United States from 2011-2016. This procedure was selected because these patients don't always tolerate oral medication well. Among the patients studied, researchers found that IV acetaminophen was used in a minority (25.1 percent) of cases, of which nearly half received only one dose, on the day of surgery. In these patients, IV acetaminophen use was not associated with clinically significant reductions in opioid utilization. By comparison, oral acetaminophen appeared equivalent or superior, especially in patients receiving more than one dose on the day of surgery. These results suggest IV acetaminophen is not always used in the most appropriate way, as one dose may not be enough to affect opioid utilization. The study goes on to show that IV acetaminophen may not be any more effective than its oral counterpart and therefore does not support routine use of this intravenous drug. Researchers say there may be a place for IV acetaminophen among those who cannot tolerate oral medication, but follow-up studies should be done to figure out what the most effective dosing regimen is.

"It is important that we that we identify optimal dosing strategies and patients that are most likely to benefit from this relatively new drug. Especially among patients undergoing colorectal surgery, there may be a group of patients that do not tolerate oral medications," said Dr. Poeran. "This may be less of an issue among patients undergoing other types of surgery, such as hip and knee replacement surgery, and these results further emphasize a more targeted approach in determining who benefits most."

"A wide variety of non-opioid adjuvants are available for use, but our knowledge of what works best in whom is still in its infancy," added Andrew Leibowitz, MD, Professor of Anesthesiology at the

Icahn School of Medicine at Mount Sinai and Chair of Anesthesiology, Perioperative, and Pain Medicine for the Mount Sinai Health System.

"Intuitively, greater effectiveness is expected with more different classes of medications administered while also decreasing side effects of any one of them. This, however, might not be true so research like this is necessary and very important."

The study team is currently addressing this same question in other types of [surgery](#), such as hip, knee and shoulder replacement, and anticipates more findings in the near future. While the current study demonstrates limited effects of IV [acetaminophen](#), benefits may be more pronounced in other surgeries with a different patient population.

Provided by The Mount Sinai Hospital

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