

Intravenous acetaminophen: A new way to reduce occurrence of postoperative delirium in elderly

Researchers at BIDMC found a new way to reduce postoperative delirium in elderly
By Ann Plasso

Postoperative delirium can afflict as many as half of patients who undergo cardiac surgery and is particularly common and dangerous in older patients. It can cause confusion, impaired memory, delusion, and mood and behavior changes, including aggression.

A study led by Dr. Balachundhar Subramaniam, M.D., an Associate Professor of Anesthesiology, was published in JAMA on February 19, 2019. The results of this study demonstrate that intravenous acetaminophen significantly reduces the incidence of post-operative delirium in patients over 60 years of age. Although a larger study is needed, these findings represent the first steps toward creating a more effective method for treatment of this postsurgical complication.

“There is considerable variation in pain management following cardiac surgery and IV acetaminophen is considered an expensive intervention,” said lead author Bala Subramaniam who is also the Director of the Center for Anesthesia Research Excellence at BIDMC’s Department of Anesthesia, Critical Care and Pain Medicine. “If we can replicate these findings in a larger, multicenter study, intravenous acetaminophen could become a standard of care in all cardiac surgical patients and could be incorporated into cardiac surgery protocols.”

Dr. Subramaniam and his team enrolled 120 patients aged 60 and older who had coronary bypass graft surgery with or without valve repair at Beth Israel Deaconess Hospital in Boston between September 2015 and April 2018. Patients were assigned to four groups, two groups receiving different sedatives and IV acetaminophen, and two groups receiving the sedatives and placebo.

Patients who received acetaminophen exhibited a significantly reduced incidence of post-surgical delirium compared to patients whose pain was managed by a different method. Only 10 percent of the group given acetaminophen experienced delirium, compared to 28 percent in the placebo group. Patients receiving acetaminophen were also more likely to have shorter ICU stays and less breakthrough pain. Acetaminophen patients who did experience delirium had shorter episodes than patients in the non-acetaminophen groups.

The study also showed a reduced need for opioid painkillers in patients receiving acetaminophen, an important benefit given ongoing Nation-wide efforts to reduce opioid use. “Postoperative pain increases risk for delirium, as does the use of opioids to treat pain,” said Dr. Subramaniam. “Use of IV acetaminophen provided effective pain control and there was a noticeable decrease in opioid use in the postoperative period.”

The investigators believe further research is warranted, including comparison between oral and intravenously-administered acetaminophen as well as other non-opioid analgesics on post-operative delirium.

Co-investigators on the study included Puja Shankar, Shahzad Shaefi, Ariel Mueller, Brian O’Gara, Valerie Banner-Goodspeed, Doris Gasangwa, Melissa Patxot, Senthil Packiasabapathy, Pooja Mathur, Matthias Eikermann, and Daniel Talmor, of the Department of Anesthesia, Critical Care and Pain Medicine at BIDMC; and Jackie Gallagher and Edward R. Marcantonio of the Divisions of General Medicine and Gerontology at BIDMC.

This study was supported by funding from Mallinckrodt Pharmaceuticals

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