

The antibiotic, amoxicillin-clavulanate, before a meal may improve small bowel motility

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The common antibiotic, amoxicillin-clavulanate, may improve small bowel function in children experiencing motility disturbances, according to a study appearing in the June print edition of the *Journal of Pediatric Gastroenterology and Nutrition* from Nationwide Children's Hospital.

Amoxicillin-clavulanate, also known as Augmentin, is most commonly prescribed to treat or prevent infections caused by bacteria. However, it has also been reported to increase [small bowel](#) motility in healthy individuals and has been used to treat bacterial overgrowth in patients with chronic diarrhea.

Upper gastrointestinal symptoms such as nausea, vomiting, abdominal pain, early satiety and abdominal distention are common in children. Despite the advances in the technology for diagnosing motility disorders, there continues to be a lack of medications available for the treatment of upper gastrointestinal tract motor function.

"There is a significant need for new drugs to treat upper [gastrointestinal symptoms](#) in children," said Carlo Di Lorenzo, MD, chief of Gastroenterology, Hepatology and Nutrition at Nationwide Children's Hospital and one of the study authors. "Currently used drugs are often only available on a restricted basis, have significant side effects or aren't effective enough on the small and large intestine."

To examine whether amoxicillin-clavulanate might serve as a new option for treating upper gastrointestinal tract motor function, investigators at Nationwide Children's examined 20 patients who were scheduled to undergo antroduodenal manometry testing. After catheter placement, the team monitored each child's motility during fasting for at least three hours. The children then received one dose of amoxicillin-clavulanate enterally, either one hour before ingestion of a meal or one hour after the meal and then had motility monitored for one hour following.

The study showed that amoxicillin-clavulanate triggered groups of propagated contractions within the [small intestine](#), similar to those observed during the duodenal phase III of the interdigestive motility process. This response occurred in most of the study participants during the first 10-20 minutes and was most evident when amoxicillin-clavulanate was given before the meal.

"Inducing a preprandial duodenal phase III may accelerate small bowel transit, influence the gut microbiome and play a role in preventing the development of small bowel bacterial overgrowth," said Dr. Di Lorenzo.

Dr. Di Lorenzo says that amoxicillin-clavulanate may be most effective in patients with alterations of duodenal phase III, chronic symptoms of intestinal pseudo-obstruction and those fed directly into the small bowel with gastrojejunal nasojejunol feeding tubes or surgical jejunostomy.

Although amoxicillin-clavulanate seems to mainly affect the small bowel, the mechanisms by which it works are not clear. Dr. Di Lorenzo also says that possible downsides of using amoxicillin-clavulanate as a prokinetic agent include the induction of bacterial resistance, especially from gram negative bacteria such as *E. coli* and *Klebsiella* and causing *Clostridium difficile* induced colitis.

Still, he says further investigation of amoxicillin-clavulanate's long-term

benefits in gastrointestinal clinical situations is worthwhile. "The scarcity of currently available therapeutic options may justify the use of amoxicillin-clavulanate in selected patients with severe forms of small bowel dysmotility in whom other interventions have not been efficacious," he said.

Provided by Nationwide Children's Hospital

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