Early oseltamivir use in hospitalized children improved outcomes, study finds

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Influenza hospitalizes as many as 45,000 children per year. The virus causes up to 600 annual deaths in the pediatric population. In both children and adults with flu, oseltamivir (Tamiflu–Genentech), when taken no later than 48 hours after symptom onset, is a powerful medication to shorten the duration and lessen the severity of the illness in the outpatient setting. In pediatric outpatients, oseltamivir shortens the duration of symptoms by an average of 29 hours.



Based on these data, the American Academy of Pediatrics and the Infectious Diseases Society of America recommend oseltamivir for children hospitalized with flu. But, in the absence of large datasets on this population, the practice continues to be a topic of debate. Some clinicians question whether it improves outcomes or reduces later use of resources among these patients. New research by Walsh and colleagues, however, may offer answers to these questions.

A recent study published September 19, 2022, in *JAMA Pediatrics* found that early oseltamivir use was associated with multiple positive outcomes: Shorter hospital stays and lower risk for 7-day readmission, transfer to ICU, and in-hospital mortality or use of extracorporeal membrane oxygenation (ECMO).

"A study like this gives us the inpatient picture and clarifies the usefulness of oseltamivir in that setting since we do not have a randomized controlled clinical trial of oseltamivir in hospitalized patients," said Katherine Lusardi, PharmD, a clinical pharmacist for antimicrobial stewardship and infectious diseases at University of Arkansas for Medical Sciences Medical Center in Little Rock, AR, who was not involved in the study.

Study findings

The study was a multicenter retrospective analysis of data on 55,799 children under age 18 who were hospitalized with flu in 36 U.S. hospitals between 2007 and 2020. Children treated with oseltamivir on days 0 or 1 of hospital admission stayed in the hospital an average of 3 days compared to 4 days for those who did not get the medication. Their odds of 7-day readmission were 3.5% compared to 4.8% for the other children. They were less than half as likely to transfer to the ICU. Their combined odds of death or ECMO use were 0.9% compared to 1.4%.

The study emphasized administration early in the hospital stay but did not include data on onset of symptoms prior to hospital admission.

"That's an interesting detail because most clinicians would say that if you're past the first 48 to 72 hours, you're out of the window to take oseltamivir," said Lusardi.

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Advice for clinical practice

The study does not stratify data by flu strain—of which there are many of varying severity across a 13-year study period. It does, however, provide an overall picture of the effects of the medication among all children hospitalized with flu.

"I do not think this is the end-all-beall study that says definitely do this, but I think it makes a strong point in the case, and it is definitely the largest set of data that is in this inpatient pediatric space," Lusardi said.

Until there is a large, randomized controlled clinical trial of oseltamivir in children hospitalized with flu, this study can help justify the use of the drug in this population. Lusardi also highlighted the favorable cost benefit of administering the generic medication, though it is not explicitly indicated for hospitalized patients.

"That's something that can be encouraged in the hospital," she said, "and if you're going to start it, start it early."