

New study helps clarify symptoms and characteristics of acid reflux in neonates

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Modifying stomach acid levels may not be enough to treat symptoms in neonates suspected of having gastroesophageal reflux disease. According to a study from Nationwide Children's Hospital, this is the first study to classify reflux and its associated symptoms in neonates based on how and what is refluxed.

Gastroesophageal reflux disease (GERD) is a frequent consideration in infants at risk of the life-threatening events [chronic lung disease](#) and dysphagia. Yet, the definition of GERD in neonates and infants and its treatment remains controversial. Acid suppressive medications and prokinetics are commonly prescribed to alter gastric acidity and improve gastrointestinal motility in neonates, yet such therapies can have harmful side effects.

"It's difficult to distinguish whether symptoms of reflux are part of a neonate's normal functioning or if they are disease-based," said study author, Sudarshan Jadcherla, MD, FRCPI, DCH, AGAF, neonatology and principal investigator in the Center for Perinatal Research of The Research Institute at Nationwide Children's Hospital. "As such, there are no definite standards to aid in the management of reflux among neonates in the [intensive care unit](#), nor clarity regarding symptom recognition, nor standards to aid in the diagnosis of GERD."

Dr. Jadcherla, also medical director of the Neonatal and [Infant Feeding Disorders Program](#) and professor of Pediatrics at The Ohio State University College of Medicine and Public Health, says that establishing

objective evidence of gastroesophageal reflux events and the relationship of symptoms with the physical or [chemical composition](#) of the refluxate is essential to characterize whether patients have a disease that needs treatment.

To help characterize reflux events, Nationwide Children's investigators evaluated 30 neonates in Nationwide Children's NICU who were suspected to have GERD. Using pH-impedance studies, the team determined refluxate presence, composition, distribution and clearing time. Nurses also documented whether the [neonates](#) showed any respiratory symptoms (coughing, gagging, grunting), sensory symptoms (irritability, grimacing, crying) or physical movement such as stretching of their limbs, during the identified reflux events.

Findings showed that:

- Non-acid reflux events are of equal frequency as acid reflux events and the majority of events spread proximally above the upper esophageal sphincter.
- Acid clearance time per acid pH-impedance event was lesser than pH-only events.
- Infra-upper esophageal sphincter reflux was correlated with higher percentage of acid reflux events compared to supra-upper esophageal sphincter reflux events.
- Supra-upper esophageal sphincter reflux events were associated with greater proportion of non-acid reflux events.
- Fifty-four percent of reflux events documented by pH-impedance were associated with symptoms. More than 87 percent of the pH-only events were associated with symptoms.
- Symptomatic acid reflux events were associated with longer acid clearance time.
- Prolonged acidity was associated with symptomatic acid reflux

events in chronic lung disease patients.

"It is clear from this study that symptoms can occur with acid, non-acid, gas, liquid or mixed events," said Dr. Jadcherla. "So, treatment strategies based on modifying gastric acidity alone can be ineffective as acid is not the lone provoking agent."

Dr. Jadcherla says it is also clear why the management of GERD based on symptoms only is controversial, as there are reflux-type symptoms in the absence of reflux.

"Overall, this study helps clarify the definition of GERD: gastroesophageal reflux with increased frequency of respiratory, sensory or movement [symptoms](#)," said Dr. Jadcherla.

Provided by Nationwide Children's Hospital

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