

"Nonsteroidal Anti-Inflammatory Drug without Antibiotics for Acute Viral Infection Increases the Empyema Risk in Children: A Matched Case-Control Study"

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Antibiotic Use in Viral Infections May Reduce Empyema But The Associated Risk of Antibiotic Resistance is Unacceptable

The title of the paper by Bourgeois and colleagues "Nonsteroidal Anti-Inflammatory Drug without Antibiotics for Acute Viral Infection Increases the Empyema Risk in Children" suggests that antibiotics must be used in viral infections along with NSAID antipyretics. (1) This suggestion is likely to increase irrational use of antibiotics in viral infections and enhance the risk of antibiotic resistance.

Empyema incidence in the post-PCV7 era has increased, mainly due to strain replacement with non-vaccine serotype 1 (2). It is not due to the use of NSAID in viral infections

There are a number of flaws in the design of the study by Bourgeois et al. The diagnosis of acute viral infection was made based on clinical symptoms which is known to be notoriously unreliable.

Children who were not afebrile between recovering from the presumed viral infection and the diagnosis of empyema were excluded from the cases deliberately 'to decrease the possibility that the symptom onset was possibly onset of the bacterial infection.'

NSAIDs are powerful antipyretics and this exclusion criteria would have resulted in more children with NSAID being included in the study group (because they became afebrile) and children with empyema who had not received NSAID being excluded. This could have biased the conclusions by including more babies who received NSAID and excluding those not on NSAID. It is also doubtful if this strategy really helps excluding children with a primary bacterial problem.

One feels intuitively that if antibiotics are used in all cases of 'presumed viral infection', it will reduce empyema in those children who primarily had a bacterial infection (mis-classified as viral infection) and perhaps in those who get a secondary bacterial follow-on infection. However this will result in a huge increase in use of antibiotics in those who have viral infection in whom there is no indication for use of the drug, and ultimately it will lead to antibiotic resistance and paradoxically, it may increase in multi-drug resistant empyema in the future. Byington and colleagues have found that the use of antibiotics increased rather than decreased the risk of empyema. For these reasons we cannot agree that antibiotics must be used in viral infections.

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