MedicalXpress

New treatment fights common infant virus

July 24 2014

Researchers at Le Bonheur Children's Hospital and the University of Tennessee Health Science Center announced results of a clinical trial of a new drug shown to safely reduce the viral load and clinical illness of healthy adult volunteers intranasally infected with respiratory syncytial virus (RSV). RSV is the most common cause of lower respiratory tract infections in young children in the United States and worldwide.

The work comes from the labs of Infectious Disease Specialist John DeVincenzo, MD. DeVincenzo's Le Bonheur lab has been part of virtually every RSV experimental therapeutic advancement, developmental pathway and antiviral therapy in the past 15 years. DeVincenzo is also medical director of Le Bonheur's Molecular Diagnostic and Virology Laboratories and professor of Pediatrics and Professor of Microbiology, Immunology, and Biochemistry at the University of Tennessee College of Medicine.

The Phase 2 challenge study of Alios BioPharma, Inc.'s anti-RSV nucleoside analog AL-8176, achieved primary and secondary endpoints of lower viral load and improvements to symptom scores, as compared to placebo. AL-8176 was well tolerated with no discontinuations of study drug and no clinically significant laboratory abnormalities.

Volunteers in the study were given the oral drug after being infected with RSV using the experimental challenge model – developed by DeVincenzo in 2007, using a manufactured strain from a clinical isolate from an infant hospitalized with RSV bronchiolitis. The model enables DeVincenzo and others to test proof-of-concept antivirals.

RSV hospitalizes 125,000 children in the United States each year, and was the cause for 1.5 million annual outpatient visits, according to the Centers for Disease Control and Prevention (CDC).

"With no available effective therapies for RSV, results from this trial demonstrate significant promise for AL-8176, a first-in-class, RSV replication inhibitor, as a means to address the unmet medical needs of patients who suffer from this often devastating infection," DeVincenzo said. Given the emerging safety and efficacy profile of AL-8176, and experience in the use of other nucleoside analogues for management of other viral infections in patients including young children, further study is warranted and pediatric trials are currently underway."

The Alios study enrolled 62 healthy adults who received one of three dose regimens of AL-8176 or placebo over 5 days: 375 mg orally administered twice daily or 750 mg given as a single loading dose (LD) followed by twice daily maintenance doses (MD) of 150 mg or 500 mg. Administration of AL-8176 began approximately 12 hours after confirmation of RSV infection as determined by presence of RSV RNA in nasopharyngeal washes. In successfully infected subjects, marked immediate reduction in RSV viral load was observed following treatment in all three AL-8176 treated dose groups as compared to placebo where subjects exhibited a logarithmic increase in RSV RNA with a peak viral load at Day 3.5 following start of dosing. At discharge (Day 12), all subjects treated with AL-8176 were RSV RNA undetectable and remained RSV RNA undetectable on follow-up on Days 16 and 28. This is in contrast to placebo treated subjects who had a mean RSV RNA of 0.52 log10 plaque forming unit equivalents (PFUe)/mL on the day of discharge. The viral load reduction in infected subjects across all dosing regimens was associated with concomitant improvements in RSV symptom scores and reductions in mucus weight.

Provided by Le Bonheur Children's Hospital