



News Release

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FOR MORE INFORMATION, CONTACT:

Nathaniel Dunford or Rory Williams

ndunford@thoracic.org or rwilliams@thoracic.org

ATS Office 212-315-8620 or 212-315-8631 (until May 12)

Session D37: Help: Advances in COPD Therapeutics

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Location: Colorado Convention Center

Inhaled Corticosteroids for COPD Decrease Mortality Risk from Pneumonia and Other Causes

ATS 2015, DENVER — Treatment of COPD with inhaled corticosteroids (ICS) may decrease the risk of dying from pneumonia and from other causes despite being associated with an increase in the occurrence of pneumonia, according to a new meta-analysis presented at the 2015 American Thoracic Society International Conference.

“Our systematic review and meta-analysis of 38 studies echoes individual studies which have shown that while ICS use may increase the risk of pneumonia in COPD patients, it lowers the risk of both pneumonia-associated and overall mortality,” said lead author Ena Gupta, MD, MPH, of the University of Florida College of Medicine. “This benefit may be due to the immunosuppressive and anti-inflammatory effects of ICS treatment.”

The study included data from 29 randomized controlled trials and nine observational studies. In both randomized and observational studies, ICS use was associated with an increased risk of pneumonia in analyses that were not adjusted for possible confounding factors. In six randomized trials, ICS use was not associated with an increase in pneumonia-associated mortality, and in seven observational studies, it was associated with a significant decrease.

Similar patterns were observed for all-cause mortality, with no increase in overall mortality seen in 29 randomized trials, and a significant decrease seen in six observational studies.

“The increase in pneumonia incidence seen with ICS treatment for COPD appears to be counterbalanced by a decrease in mortality,” said Dr. Gupta. “This data can be used to weigh the overall risks and benefits of ICS use in COPD patients.”

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** Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.*

Abstract 63126

Inhaled Corticosteroids and Risk of Incident Pneumonia and Mortality in Chronic Obstructive Pulmonary Disease (COPD) Patients: A Systematic Review and Meta-Analysis

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Authors:

E. Gupta¹, V. Bansal², P.D. Scanlon³, E. Festic²; ¹University of Florida - Jacksonville, FL/US, ²Mayo Clinic - Jacksonville, FL/US, ³Mayo Clinic - Rochester, MN/US

Abstract Body

INTRODUCTION

Inhaled Corticosteroids (ICS) are currently recommended for use in patients with severe COPD and those with frequent exacerbations. The TORCH study and several other trials have shown increased incidence of pneumonia among patients using ICS. These trials have relied on unadjusted adverse event-reports of pneumonia frequently without any radiologic confirmation. Despite increased incidence of pneumonia, they have not demonstrated increased pneumonia-associated or overall mortality. This meta-analysis was done to affirm the increased risk of pneumonia and then better define whether ICS use affected unadjusted pneumonia-associated and overall mortality.

METHODS

Study designs consisting of randomized controlled trials or observational studies (cohort or case control) involving COPD patients, using ICS and a comparison arm lacking ICS and reporting the outcome of interest were considered for enrollment. We searched for potentially relevant articles in PubMed, Medline, CENTRAL, EMBASE, Scopus, Web of Science and manufacturers' web clinical trial registries from 1994 to February 4, 2014. Additionally, we checked the included and excluded studies' bibliographies. We subsequently performed systematic review and meta-analyses of included RCTs and observational studies on the topic.

RESULTS

We identified 38 studies, 29 randomized controlled and 9 observational. The estimated unadjusted risk of pneumonia was increased in randomized trials: RR 1.61; 95% CI 1.35-1.93, $I^2=37\%$, $p<0.001$; as well as in observational studies: OR 1.89; 95% CI 1.39-2.59, $I^2=99\%$,

$p<0.001$. Six estimable randomized trials showed no difference in pneumonia-associated mortality, RR 0.91; 95% CI 0.52-1.59, $p=0.74$, $I^2=0\%$ whereas 7 estimable observational studies showed a decrease in pneumonia associated mortality, OR 0.72; 95% CI 0.59-0.88, $I^2=74\%$, $p=0.001$, Similarly, 29 estimable randomized trials estimated no difference in unadjusted risk of overall mortality, RR 0.95; 95% CI 0.85-1.05, $I^2=0\%$, $p=0.31$, whereas 6 estimable observational studies found a decrease in overall mortality in the ICS group, OR 0.79; 95% CI 0.65-0.97, $I^2=83\%$, $p=0.02$.

DISCUSSION

Despite significantly increased unadjusted risk of pneumonia associated with inhaled corticosteroid use, pneumonia-associated and overall mortality was found not to be different in randomized controlled trials. However, observational studies showed significantly decreased unadjusted risk of pneumonia-associated and overall mortality, although there was high heterogeneity among these studies. Previous observations have indicated a combined immunosuppressive effect and potent anti-inflammatory effect of ICS. ICS predisposes COPD patients to an increased risk of incident pneumonia but conversely appears to have a counterbalancing beneficial effect on mortality resulting in no net change, or possibly a slight improvement in mortality.