Taking a Look at the Use of Antibiotics to Treat COPD Exacerbations

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Understanding COPD and Antibiotics Use

For the past several years, we have been hearing about the dangers of overprescribing antibiotics. So, what is the deal with COPD and antibiotics use? Is this a viable treatment option for this chronic health condition? Let's find out.

An Antibiotic Overview

Antibiotics revolutionized medicine – they eradicated various illnesses and have saved millions of lives. However, these super medications also have various drawbacks.

According to Mayo Clinic, overprescribing can also lead to antibiotic resistance: "A bacterium resists a medication when the bacterium has changed in some way. The change either protects the bacterium from the action of the medication or neutralizes the medication."

When the bacterium resists treatment, the bacterium can pass on the resistant qualities to other bacterium as it multiplies. Unfortunately, antibiotic resistance occurs because we have overprescribed these medications. Before we knew better, we prescribed these medications for the common cold, influenza and bronchitis. Antibiotics will not treat a viral infection. Which leads us to a common question – should antibiotics be used to treat a COPD exacerbation?

Why Are Antibiotics Prescribed to Treat COPD Exacerbations?

According to The Hospitalist, "Several guidelines have proposed treatment strategies now considered standard of care in AECOPD management. These include the use of corticosteroids, bronchodilator agents, and, in select cases, antibiotics."

The use of antibiotics in the presence of a COPD exacerbation is controversial. There are various things that may cause a COPD exacerbation: viruses, bacteria, pollutants. Only bacterial infections would require antibiotic treatment. Despite the fact that not all COPD exacerbations are related to bacterial infections, one study found that upwards of 85% of COPD exacerbation patients receive antibiotics during a hospital stay.

How to Decipher if Antibiotics Are Needed

The Hospitalist identifies key points in evaluating antibiotic usage. Empiric therapy is not indicated. However, antibiotics may be used in patients more likely to have a bacterial infection as studies indicate that antibiotics are associated with reduced mortality and risk of adverse outcomes.

The use of labs alone (procalcitonin, sputum culture, CRP) should not determine the need for antibiotics. Clinical indicators can help to identify patients who may require an antibiotic (dyspnea, sputum purulence, sputum

volume, the need for intubation). Simple versus complicated cases can help to determine the antibiotic of choice. Typically, a five-day course of oral antibiotics is recommended.

How Do Antibiotics Treat a COPD Exacerbation?

Antibiotics do not treat a COPD exacerbation if the exacerbation is caused by a viral infection, such as pneumonia , nor do they treat the exacerbation if it is caused by exposure to an allergenic exposure, such as dust. However, if the person with COPD has bacterial pneumonia, or a similar lung infection, antibiotics may treat the symptoms of a COPD exacerbation. What proves difficult is selecting the correct antibiotic.

Empiric Antibiotic Therapy

Once a healthcare provider has evaluated the patient and has determined that it is reasonable to initiate antibiotic therapy, empiric therapy begins. This therapy uses a risk stratification approach:

- Is the patient a simple exacerbation with no risk factors? Treat with antibiotics such as a second or third generation cephalosporin or doxycycline.
- Is the patient a complication exacerbation? Consider fluoroquinolone. If the patient has pseudomonas risk factors, consider ciprofloxacin.
- In either case, if there is no improvement in 72 hours, order a sputum culture and broaden the spectrum of antibiotics.
- If there is improvement, change to oral antibiotics.

Risk of COPD and Antibiotics

There is little risk to the use of antibiotics for COPD exacerbations. In fact, most studies indicate that mortality rates were reduced with the use of antibiotics, especially for those patients in intensive care units. However, antibiotic use was not found to reduce length of stay. Patients also had increased rates of diarrhea when prescribed antibiotics.

It is also worth noting that the treatment of COPD exacerbations is pricey. According to the Journal of Chronic Obstructive Pulmonary Disease, if a COPD exacerbation should be treated with an antibiotic and is not, or is treated with an incorrect empiric therapy, “…exacerbations for which initial empiric treatment fails are ten times as costly as clinical successes. In fact, the overall cost of care could be reduced by half with only a 33% reduction in clinical failure rates. Clinical failure rates are likely to be reduced when antibiotic choice is appropriate and logical.”

The Bottom Line

COPD exacerbations should be evaluated closely. Not every exacerbation will need antibiotic therapy. However, inadvertently missing treatment can be costly to the patient as well as the healthcare system. As always, be sure to speak with your doctor and healthcare provider regarding your COPD exacerbations and treatment plan.