Antibiotics Gone Viral: Reduce Their Use For Acute Bronchitis

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INTRODUCTION

- Antibiotic resistance has become a global healthcare crisis (CDC, 2016b).
- When antibiotics are taken, sensitive bacteria are killed while resistant bacteria grow and flourish (CDC, 2016b).
- The more often antibiotics are taken, the greater the ability for resistant bacteria to grow; leading to an increase in drug-resistant organisms (CDC, 2017).
- 2 million people are infected by resistant bacteria each year in the U.S and about 23,000 people die of their infections (CDC, 2017).
- Antibiotic resistance poses a risk to advances in medicine, such as organ transplantation and chemotherapy treatment, because there are less antibiotics to treat immunocompromised patients who develop an infection caused by a drug resistant organism (WHO, 2018).
- Antibiotic resistance, if not properly dealt with, can bring the world to a post-antibiotic era where simple infections will once again be life-threatening (WHO, 2018).

BACKGROUND

- Thirty percent of antibiotic prescribed in the out patient setting are unnecessary and inappropriately prescribed (CDC, 2016b).
- Acute upper respiratory tract infections are the leading cause of inappropriate antibiotic prescriptions (CDC, 2016b).
- Acute bronchitis tops all upper respiratory tract infections in this regard (CDC, 2016b).
- Over 90% of patients who present with a cough and are diagnosed with acute bronchitis have an infection caused by a virus (Harris, Hicks & Gjelstad, 2016).
- Providers have a responsibility to keep up to date with current antibiotic practice guidelines and to educate patients accordingly.
- Providers can help curb the growing healthcare crisis of antibiotic resistance by prescribing antibiotics only when necessary.

PICOT QUESTION

Among primary care providers treating adults in a primary care setting, does a web-based educational program aimed at appropriate antibiotic prescribing decrease the number of inappropriate antibiotic prescriptions issued during the initial visit to low risk adults diagnosed with uncomplicated acute bronchitis, over a 3-month period?

SEARCH METHODOLOGY

- Databases: CINAHL, MEDLINE & PubMed
- Keywords: antibiotics, upper respiratory tract infection, acute bronchitis, antibiotic prescribing
- The PICOT question was supported by one randomized controlled trial, one systematic review and one clinical practice guideline.

RCT (Level II Evidence) Gjelstad et al. (2013)

Objective
- Determine the effects of an educational program for general practitioners in reducing the number of inappropriate antibiotics prescribed to patients diagnosed with upper respiratory infections.

Intervention
- Intervention group: educational program regarding current treatment guidelines for upper respiratory infections followed by peer academic detailing.
- Control group: education regarding appropriate drug treatment in patients > 70 years old presented by peer academic detailers.

Results
- Retrospective data was collected at the start and one year after the completion of the intervention.
- Reduction in the number of antibiotic prescriptions issued for upper respiratory infections with a 95% CI.
- Reduction in antibiotic prescriptions issued for acute bronchitis with a P value < 0.01.

SR (Level I Evidence) Kochling et al. (2018)

Objective
- Review the current evidence and summarize the effectiveness of interventions used to reduce the number of antibiotics prescribed for upper respiratory infections in the primary care setting.

Results
- Interventions that target providers rather than patients were more successful in reducing antibiotic prescription rates for upper respiratory infections.
- Interventions that target providers via an educational program regarding antibiotic prescription guidelines for upper respiratory infections showed a statistically significant change.

Guideline (Level I Evidence) Harris et al. (2016)

Objective
- To provide best practice guidelines for prescribing antibiotics to healthy adult patients diagnosed with acute upper respiratory tract infections.

Recommendation
- Antibiotics should not be prescribed for acute bronchitis unless pneumonia is suspected.
- Symptomatic treatment may be prescribed.
- In a patient who presents with a cough, no further testing is warranted unless tachycardia, tachypnea, fever and/or abnormal findings on chest examination are present.

ALGORITHM

The antibiotic stewardship program provided by the CDC is easily accessible, free and available to the public.

THEORETICAL FRAMEWORK

Applicability for Change in Practice

- Implementing this evidence-based practice project in practice will benefit the provider, patient and the global healthcare community.
- Critical appraisal of the current literature has shown that provider education is instrumental in reducing antibiotic prescriptions for acute bronchitis.
- The antibiotic stewardship program provided by the CDC is easily accessible, free and available to the public.

Benefits and Risks

- Reduction in the number of drug resistant organisms (CDC, 2016b).
- Reduction in the number of adverse events caused by antibiotics (Harris et al., 2016).
- A $6.5 million direct reduction and $30 billion indirect reduction to the U.S. economy per year (Harris et al., 2016).
- Risks:
  - Provider fears (Harris et al., 2016):
    - Decrease in patient satisfaction rates
    - Legal action
    - Diagnostic uncertainty
    - Secondary bacterial infection

REFERENCES


RESEARCHERS


