

Antibiotic Treatment of Acne May Be Associated With Upper Respiratory Tract Infections

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FROM ABSTRACT

Objective

To determine if the long-term use of antibiotics for the treatment of acne results in an increase in either of 2 common infectious illnesses: upper respiratory tract infections (URTIs) or urinary tract infections.

Design

Retrospective cohort study.

Results

Of 118,496 individuals with acne (age range, 15-35 years), who were identified in the General Practice Research Database, 84,977 (71.7%) received a topical or oral antibiotic (tetracyclines, erythromycin, or clindamycin) for treatment of their acne and 33,519 (28.3%) did not.

Within the first year of observation, 18,281 (15.4%) of the patients with acne had at least 1 URTI.

The odds of a URTI developing among those receiving antibiotic treatment were 115% (range of 105 – 123%) greater than among those who were not receiving antibiotic treatment.

Multiple additional analyses, which were conducted to show that this effect was not an artifact of increased health care-seeking behavior among our cohorts, included comparing the cohorts of patients with acne with a cohort of patients with hypertension and the likelihood of developing a urinary tract infection.

Conclusions

Patients with acne who were receiving antibiotic treatment for acne were more likely to develop a URTI than those with acne who were not receiving such treatment.

THESE AUTHORS ALSO NOTE:

“Concerns have been expressed regarding the overuse of antibiotics, which has been associated with the emergence of resistant organisms, an increase in the

frequency of human exposure to pathogenic organisms, and an increase in infectious illnesses." **[Quite Important]**

Acne vulgaris is a model of a disease for which long-term antibiotic use is standard and therapy.

Long-term (>6 weeks) topical and oral antibiotics are frequently used to treat acne.

The effects of this long-term antibiotic therapy on the oropharynx could be a source of systemic illness. **[Important]**

Upper respiratory tract infections (URTIs), such as pharyngitis, are extraordinarily common acute medical problems, and about 90% are of viral origin, and about 10% of are bacterial.

However, 35% of the patients with acne who are receiving antibiotics and have no URTI symptoms have group A streptococci in their upper airway and that "nearly 85% of these strains were resistant to tetracyclines." **[Important]**

These authors "recently demonstrated that antibiotic therapy for acne, when given topically and/or orally to young adults, may profoundly affect an individual's likelihood of being colonized with group A streptococci, an organism associated with a common acute medical illness: pharyngitis."

In this study, all subjects had a history of acne vulgaris and were between the ages of 15 to 35 years, and had used oral or topical antibiotics for more than 6 weeks, or a combination of both. These individuals were then followed up for 12 months.

The control group was hypertensive patients in the same age range. Hypertensive individuals frequently receive medical observation and do not have an increased risk of infection.

RESULTS

These authors identified 118,496 individuals with acne between 15 and 35 years old

84,977 (71.7%) of them were treated with an antibiotic and 33,519 (28.3%) were not.

6.1% used topical agents only.

1.3% used oral agents only.

92.6% used a combination of oral and topical agents.

18,281 patients (15.4%) had at least 1 URTI that was diagnosed by a GP and 4,270 patients (3.6%) had a UTI that was diagnosed by a GP.

The increased odds of developing a URTI within the first year after using antibiotics compared with those not using antibiotics was 115% with a range between 105 – 123%.

Topical only antibiotic users increased their risk of an URTI by 137% with a range between 112 – 164%, compared with the nonusers. **[This is important because it shows that topical antibiotics have a significant influence on the internal body.]**

Oral only antibiotic users increased their risk of an URTI by 137% with a range between 137 – 218%.

This study supports the hypothesis that individuals who are on a long-term regimen of antibiotics are more susceptible to infections. **[Very Important]**

“About 2 million individuals per year in the United States have severe enough acne to require treatment, and acne accounts for 5 to 6 million physician office visits every year.”

These authors showed that the odds of a URTI developing among individuals who use an antibiotic to treat acne is more than 2 times greater [more than 100% increased risk] compared with those who do not use an antibiotic.

The odds of a URTI developing in a patient with acne, who is receiving antibiotic therapy, is also more than 2 times greater [more than 100% increased risk] than in those with hypertension.

These authors note that their “analysis is overly conservative.”

KEY POINTS FROM DAN MURPHY:

- 1) About 2 million individuals per year in the US have severe enough acne to require treatment, accounting for 5 to 6 million doctor office visits every year.
- 2) Acne vulgaris patients use long-term antibiotics as the standard therapy. The antibiotic therapy is nearly always longer than 6 weeks and often longer than 6 months.
- 3) Nearly 93%% of acne patients who use antibiotics use a combination of oral and topical agents.
- 4) The overuse of antibiotics is associated with “the emergence of resistant organisms, an increase in the frequency of human exposure to pathogenic organisms, and an increase in infectious illnesses.” **[Quite Important]**

- 5) About 90% of upper respiratory tract infections are viral, and about 10% are bacterial. However, using antibiotics for acne increases the bacterial infections to about 35%. The usual bacterial strain found to be increased with antibiotic use is streptococci A, and about 85% of these strains are resistant to tetracyclines.
- 6) The odds of a URTI developing among individuals who use an antibiotic to treat acne is more than 2 times greater [more than 100% increased risk] compared with those who do not use an antibiotic.
- 7) Even topical only antibiotic users increased their risk of an URTI by more than 2 times greater [more than 100% increased risk] compared with those who do not use antibiotics.
- 8) Topical only antibiotic use has a significant influence on the internal body, including the ability to cause significant increased risk of URTIs.
- 9) Long-term antibiotic use for acne can increase the risk of systemic illness by encouraging the development of bacterial infections, especially streptococci A in the oropharynx. **[Important]**
- 10) This study supports the hypothesis that long-term use of antibiotics makes the patient more susceptible to infections. **[Very Important]**
- 11) The numbers presented in this study are conservative.