



Cochrane
Library

Cochrane Database of Systematic Reviews

Antibiotics for preventing meningococcal infections (Review)

Fraser A, Gafter-Gvili A, Paul M, Leibovici L

Fraser A, Gafter-Gvili A, Paul M, Leibovici L.
Antibiotics for preventing meningococcal infections.
Cochrane Database of Systematic Reviews 2006, Issue 4. Art. No.: CD004785.
DOI: [10.1002/14651858.CD004785.pub3](https://doi.org/10.1002/14651858.CD004785.pub3).

www.cochranelibrary.com

Antibiotics for preventing meningococcal infections (Review)
Copyright © 2010 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

WILEY

[Intervention Review]

Antibiotics for preventing meningococcal infections

Abigail Fraser¹, Anat Gafter-Gvili², Mical Paul³, Leonard Leibovici²

¹Department of Social Medicine, MRC Centre for Causal Analysis in Translational Epidemiology, University of Bristol, Oakfield House, Bristol, UK. ²Department of Medicine E, Beilinson Campus, Rabin Medical Center, Petah-Tiqva, Israel. ³Infectious Diseases Unit, Sackler Faculty of Medicine, Tel Aviv, Israel

Contact address: Abigail Fraser, Department of Social Medicine, MRC Centre for Causal Analysis in Translational Epidemiology, University of Bristol, Oakfield House, Oakfield Road, Bristol, BS8 2BN, UK. abigail.fraser@bristol.ac.uk, abigail@bgumail.bgu.ac.il.

Editorial group: Cochrane Acute Respiratory Infections Group.

Publication status and date: Edited (no change to conclusions), published in Issue 9, 2010.

Citation: Fraser A, Gafter-Gvili A, Paul M, Leibovici L. Antibiotics for preventing meningococcal infections. *Cochrane Database of Systematic Reviews* 2006, Issue 4. Art. No.: CD004785. DOI: [10.1002/14651858.CD004785.pub3](https://doi.org/10.1002/14651858.CD004785.pub3).

Copyright © 2010 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Meningococcal disease is a contagious bacterial infection caused by *Neisseria meningitidis* (*N. meningitidis*). Household contacts have the highest risk of contracting the disease during the first week of a case being detected. Prophylaxis is considered for those in close contact with people with a meningococcal infection and in populations with known high carriage rates.

Objectives

To study the effectiveness of different prophylactic treatment regimens.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2008, issue 4) which contains the Acute Respiratory Infections Group Specialised Register, MEDLINE (January 1966 to November 2008), EMBASE (1980 to November 2008) and LILACS (1982 to November 2008).

Selection criteria

Randomised controlled trials (RCTs) or quasi-RCTs addressing the effectiveness of different antibiotic treatments for: (a) prophylaxis against meningococcal disease; (b) eradication of *N. meningitidis*.

Data collection and analysis

Two review authors independently appraised the quality of each trial and extracted data from the included trials. We analysed dichotomous data by calculating the relative risk (RR) and 95% confidence interval (CI) for each trial.

Main results

We included 24 studies; 19 including 2531 randomised participants and five including 4354 cluster-randomised participants. There were no cases of meningococcal disease during follow up in any of the trials, thus effectiveness regarding prevention of future disease cannot be directly assessed.

Ciprofloxacin (RR 0.04; 95% CI 0.01 to 0.12), rifampin (rifampicin) (RR 0.17; 95% CI 0.13 to 0.24), minocycline (RR 0.28; 95% CI 0.21 to 0.37) and penicillin (RR 0.47; 95% CI 0.24 to 0.94) proved effective at eradicating *N. meningitidis* one week after treatment when compared with placebo. However, only rifampin (RR 0.20; 95% CI 0.14 to 0.29) and ciprofloxacin (RR 0.03; 95% CI 0.00 to 0.42) still proved effective at one to two weeks. Rifampin continued to be effective compared to placebo for up to four weeks after treatment but resistant isolates were seen

following prophylactic treatment. No trials evaluated ceftriaxone against placebo but ceftriaxone was more effective than rifampin after one to two weeks of follow up (RR 5.93; 95% CI 1.22 to 28.68).

Authors' conclusions

Using rifampin during an outbreak may lead to the circulation of resistant isolates. Use of ciprofloxacin or ceftriaxone should be considered. Evidence suggests that all three agents are effective for up to two weeks follow up, though more trials comparing the effectiveness of these three agents for eradicating *N. meningitidis* would provide important insights.

PLAIN LANGUAGE SUMMARY

Antibiotics for preventing meningococcal infections

Meningococcal disease is a contagious bacterial disease caused by *Neisseria meningitidis* (*N. meningitidis*). People who have had close contact with someone who has a meningococcal infection and populations with known high carriage rates are offered antibiotics in order to eradicate the bacteria and thus prevent disease. Rifampin (also known as rifampicin), ciprofloxacin and ceftriaxone are effective agents for eradicating carriage of *N. meningitidis*. However, the use of rifampin may have a disadvantage as development of resistance to the antibiotic has been noted following treatment.