

RESPIRATORY TRACT INFECTIONS IN PRIMARY CARE

- aspects of diagnosis and treatment

Akademisk avhandling

som för avläggande av medicine doktorexamen vid Sahlgrenska akademien,
Göteborgs universitet kommer att offentligen försvaras i sal 2119,
Hälsövetarbacken hus 2, den 25 maj 2023, klockan 13.00

av Karin Rystedt

Fakultetsopponent: Professor Johan Ärnlov
Karolinska Institutet, Sverige

Avhandlingen baseras på följande delarbeten

- I. Skoog Ståhlgren G, Tyrstrup M, Edlund C, Giske CG, Mölsted S, Norman C, **Rystedt K**, Sundvall PD, Hedin K. Penicillin V four times daily for five days versus three times daily for 10 days in patients with pharyngotonsillitis caused by group A streptococci: randomised controlled, open label, non-inferiority study. *BMJ*. 2019 Oct 4;367: 15337.
- II. **Rystedt K**, Hedin K, Tyrstrup M, Skoog Ståhlgren G, Edlund C, Giske CG, Gunnarsson R, Sundvall PD. Agreement between rapid antigen detection test and culture for group A streptococcus in patients recently treated for pharyngotonsillitis - a prospective observational study in primary care. *Scandinavian Journal of Primary Health Care*. 2023; 41(1): 91-97.
- III. **Rystedt K**, Edquist P, Giske CG, Hedin K, Tyrstrup M, Skoog Ståhlgren G, Sundvall PD, Edlund C. Effects of penicillin V on the faecal microbiota in patients with pharyngotonsillitis - an observational study. *JAC – Antimicrobial Resistance*. 2023;5(1).
- IV. **Rystedt K**, Harbin NJ, Lindbaek M, Radzeviciene R, Gunnarsson R, Eggertsen R, C Butler C, van der Velden AW, J Verheij T, Sundvall PD. Is C-reactive protein associated with influenza A or B in primary care patients with influenza-like illness? A cross-sectional study. *Scandinavian Journal of Primary Health Care*. 2020 Dec;38(4):447-453

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Karin Rystedt

General Practice/Family Medicine, School of Public Health and Community Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden 2023

Abstract

Infections account for approximately 30% of visits to Swedish primary care, and respiratory tract infections are the most common. Sore throat is a very common symptom that generally remits spontaneously, regardless of aetiology. As for other respiratory tract infections, viral origin of disease is common, and the signs and symptoms cannot distinguish between different aetiologies. The clinical guidelines for sore throat focus on finding patients with more pronounced symptoms and a greater likelihood of group A streptococcal aetiology to the infection, as they may benefit from antibiotics. The purpose of treatment is to speed up the resolution of symptoms. Penicillin V is the first line treatment for pharyngotonsillitis with group A streptococci, and the most prescribed antibiotic in Sweden. Previous studies have not determined the extent of side-effects from treatment with penicillin V. To target the use of antibiotics in patients with respiratory tract infections, two point-of-care tests have become popular in Swedish primary care: the rapid antigen detection test for group A streptococci, and C-reactive protein. The usefulness of C-reactive protein in primary care patients with confirmed influenza A and influenza-like illness is largely unknown.

The thesis comprises a randomized controlled trial comparing the currently recommended 10-day penicillin V treatment to a shorter but more intense treatment for pharyngotonsillitis with group A streptococci; an observational study comparing the results of a rapid antigen detection test and throat culture for group A streptococci after recent penicillin V treatment for pharyngotonsillitis; an explorative evaluation of ecological disturbances in the faecal microbiota from penicillin V treatment with focus on emergence of β -lactam resistance; and a cross-sectional study on C-reactive protein in patients with influenza-like illness.

We found the shorter penicillin V treatment to be non-inferior regarding clinical cure of pharyngotonsillitis, and we found a significant increase in resistance to β -lactam antibiotics in the faecal microbiota after penicillin V treatment. The overall aim of the thesis is to contribute to a safe reduction in the use of antibiotics.

Keywords: group A streptococci, penicillin V, phenoxymethylpenicillin, rapid antigen detection test, antimicrobial resistance, faecal microbiota, C-reactive protein, influenza-like illness, influenza A, primary care.

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