

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jmii.com

ORIGINAL ARTICLE

Recent trends in prescribing antibiotics for acute tonsillitis in pediatric ambulatory care in Taiwan, 2000–2009: A nationwide population-based study

Lo-Yi Chang^a, Chou-Cheng Lai^a, Chun-Jen Chen^a,
Ching-Yi Cho^b, Yu-Cheng Luo^b, Mei-Jy Jeng^{b,c},
Keh-Gong Wu^{a,*}

^a Division of Pediatric Immunology and Nephrology, Department of Pediatrics, Taipei Veterans General Hospital and National Yang-Ming University, Taipei, Taiwan

^b Division of General Pediatrics, Department of Pediatrics, Taipei Veterans General Hospital and National Yang-Ming University, Taipei, Taiwan

^c Institute of Emergency and Critical Care Medicine, School of Medicine, National Yang-Ming University, Taipei, Taiwan

Received 6 July 2015; received in revised form 5 August 2015; accepted 27 August 2015

Available online ■ ■ ■

KEYWORDS

acute tonsillitis;
ambulatory visits;
antibiotics;
children;
National Health
Insurance Research
Database;
Taiwan

Abstract *Background/Purpose:* Acute tonsillitis is the leading diagnosis in pediatric ambulatory care, and group A beta-hemolytic streptococcus is the main reason for antibiotic prescriptions in patients with acute tonsillitis. The aim of this study was to analyze trends in prescribing antibiotics and to investigate the prescription patterns for acute tonsillitis in pediatric ambulatory care in Taiwan from 2000 to 2009.

Methods: Data on children younger than 18 years with a primary diagnosis of acute tonsillitis were retrieved from the National Health Insurance Research Database of Taiwan from 2000 to 2009. Concomitant bacterial infections were excluded. Sex, age, seasonality, location, level of medical institution, and physician specialty were analyzed. Annual and monthly changes in antibiotic prescriptions and classification were also evaluated.

Results: A total of 40,775 cases were enrolled, with an overall antibiotic prescription rate of 16.8%. There was a remarkable decline in the antibiotic prescription rates for tonsillitis from 28.4% in 2000 to 10.9% in 2009. Factors associated with a higher prescription rate included older age, visits from eastern Taiwan, medical centers, and nonpediatrician physicians. Otolaryngologists had higher antibiotic prescription rate, whereas pediatricians had the lowest (21.9%

* Corresponding author. Department of Pediatrics, Taipei Veterans General Hospital, 201, Section 2, Shih-Pai Road, Taipei 112, Taiwan.
E-mail address: kgwu@vghtpe.gov.tw (K.-G. Wu).

vs. 11.6%). The rates of obtaining throat cultures were low although the culture performing rate in the medical centers was significantly higher (12.3%, $p < 0.001$).

Conclusion: From 2000 to 2009, there was a remarkable decline in the antibiotic prescription rates for tonsillitis. Further studies to evaluate diagnostic tools such as rapid antigen detection tests or throat cultures to decrease antibiotic prescriptions are warranted.

Copyright © 2015, Taiwan Society of Microbiology. Published by Elsevier Taiwan LLC. All rights reserved.

Introduction

Acute tonsillitis is among the top five diagnoses of children's ambulatory visits in Taiwan,¹ and is the leading cause of antibiotic prescriptions in children globally.^{2–4} Treating group A beta-hemolytic streptococcus (GABHS) infection is the main reason for prescribing antibiotics for patients with acute tonsillitis. The appropriate use of antibiotics helps to treat GABHS tonsillitis and to prevent rheumatic fever and suppurative complications such as peritonsillar or retropharyngeal abscesses.² Nevertheless, inappropriate antibiotic prescriptions can increase the risk of potential adverse effects, incur unnecessary medical costs, and most importantly, lead to antibiotic resistance, which is a major concern worldwide. In the treatment of GABHS tonsillitis, penicillin remains the drug of choice due to its efficacy, safety, narrow spectrum, and low cost. However, oral amoxicillin is often used in place of penicillin V in pediatric patients because of acceptance of the taste of the suspension.⁵

Although GABHS accounts for ~20–30% of all pathogens in pharyngotonsillitis in children and 5–15% in adults in previous reviews,⁶ GABHS isolation rates for pediatric patients with pharyngotonsillitis in Taiwan vary widely, and had been reported to be 1.0%,⁷ 1.7%,⁸ and 4.1%⁹ in three previous studies, respectively. However, other studies in Taiwan revealed higher GABHS isolation rates, from about 21.4%¹⁰ to 27%¹¹ in pediatric patients with pharyngotonsillitis. Although there is a significant variation in the GABHS isolation rate among previous studies, so far no nationwide study has surveyed the antibiotic prescription rate for acute tonsillitis in Taiwan. Therefore, the aim of this study was to analyze trends in antibiotic prescriptions and investigate the prescription patterns for acute tonsillitis in pediatric ambulatory care in Taiwan from 2000 to 2009.

Methods

Data source

The National Health Insurance (NHI) program in Taiwan was initiated in 1995 and covered 99.9% of the population of Taiwan in 2014.^{1,3,12} The National Health Insurance Research Database (NHIRD) provides population-based nationwide data on medical history and demographics. The patient information is encrypted and de-identified to prevent researchers from identifying individuals.¹³

This study was based on the NHIRD, and included data subsets of 0.2% of the ambulatory care expenditure by visit, extracted by a systemic sampling method on a monthly basis.¹⁴ The study protocol was approved by the Institutional Review Board (IRB) of Taipei Veterans General Hospital, Taipei, Taiwan (IRB number 2012-06-006A).

Study population

We enrolled patients younger than 18 years with the primary diagnosis of acute tonsillitis from 2000 to 2009 from the NHIRD. Acute tonsillitis was defined according to the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code 463 (acute tonsillitis) or 034.0 (streptococcal sore throat), and we analyzed the data of these two diagnoses separately. The data were retrieved and analyzed for antibiotic prescriptions. Patients were excluded if they had concomitant bacterial infections with the possibility of antibiotic usage. The list of ICD-9-CM codes we excluded is shown in Table 1.^{3,15}

Table 1 Exclusive diagnoses.

Concomitant diagnosis	ICD-9-CM codes
Sinusitis	461.xx, 473.xx
Bronchiolitis & bronchitis	466.xx, 490.xx
Pharyngitis	462.xx
Upper respiratory tract infection	465.xx
Otitis media	381.0–381.4, 382.xx
Acute laryngitis & tracheitis	464.xx
Influenza	487.xx
Pneumonia	481.xx–483.xx, 485.xx–486.xx
Urinary tract infection, cystitis	599.0, 595.0, 595.9
Cellulitis, carbuncle, furuncle	680.xx–682.xx
Prostatitis, pelvic inflammatory disease	601.xx, 614.xx
Sexual transmitted disease	090.xx–099.xx, 647.0–647.2

Note. Modified from "Antibiotic prescribing for children with nasopharyngitis (common colds), upper respiratory infections, and bronchitis who have health-professional parents," by N. Huang, L. Morlock, C.H. Lee, L.S. Chen, and Y.J. Chou, 2005, *Pediatrics*, 116, p. 826–32. Copyright 2015, N. Huang. Adapted with permission.

Download English Version:

<https://daneshyari.com/en/article/8741004>

Download Persian Version:

<https://daneshyari.com/article/8741004>

[Daneshyari.com](https://daneshyari.com)