



A PROSPECTIVE STUDY: FACTORS AFFECTING ANTIBIOTIC PRESCRIBING PATTERN IN SURGERY WARDS IN RMMCH

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ABSTRACT

Antimicrobial prophylaxis has become an essential component of the standard of care in virtually all surgical procedures and has resulted in a reduced risk of postoperative infection when sound and appropriate principles of prophylaxis are applied. To determine the proportion of patients receiving antibiotics for common diseases and to understand the antibiotic prescription pattern and factors influencing it, a prospective study was done among the private practitioners in Chidambaram, India. 403 prescriptions by 20 physicians from selected health facilities were analyzed and found that 79.9% of patients with appendicitis, haemorrhoids, hernia, phimosis, diabetic foot ulcer were prescribed antibiotics. Cefataxime (43.9%) were the commonest antibiotic prescribed. Factors like postgraduate qualification, experience of physician, source and method of updating knowledge, inpatient practice setting and presence of fever, pus discharge, and pain influenced the antibiotic prescription.

INTRODUCTION:

Postoperative surgical site infections (SSIs) are a major source of illness to a surgery patient. Appendicitis, Haemorrhoids, Hernia, Phimosis, Diabetic foot ulcer, and carcinoma were common diseases in surgical wards accounting for the major proportion of surgery in inpatient. Only a small proportion of these patients (<20%) require antibiotic therapy. The studies have shown that there is an inappropriate use of antibiotics, especially the broad-spectrum antibiotics, for these common, which has contributed largely to the development of antibiotic resistance. Antonio da Cunha et al in Brazil showed that 28% of the antibiotic prescriptions were inappropriate.

This study focuses on Chidambaram town with the objectives of:

- Determining the proportion of patients with common diseases receiving antibiotics.
- Studying the antibiotic prescription pattern for the above diseases in a primary care setting.
- Determining the factors related to antibiotic prescription pattern.

In 1998, the Committee on Surgical Infections of the Philippine College of Surgeons

embarked on the formulation of evidence-based Clinical Practice Guidelines in Antibiotic Prophylaxis for Elective Surgical Procedures (Appendix III) with a seminar workshop on evidence-based medicine and guidelines development. A task force was created, setting in motion the process of developing guidelines.¹

The guidelines address two issues: (1) is antibiotic prophylaxis indicated in elective surgical procedures? (2) If so, what antibiotic should be used, its dose, timing of administration and duration? The following ten elective surgical procedures are included in the guidelines namely: breast surgery, hernia repair, biliary surgery, gastroduodenal surgery, colorectal surgery, neurosurgery, cardiac surgery, non-cardiac thoracic surgery, orthopedic surgery and transurethral resection of the prostate (TURP). The guidelines were presented to the Fellows of the Philippine College of Surgeons in its Annual Convention last December 10-12, 2000.

METHODOLOGY:

A cross-sectional study was conducted in private primary health care facilities in Chennai. Four facilities from each of the 10 health zones of Chennai Corporation were selected, and in each facility general physician having more than 20% of his OPD strength as pediatric patients and 49% were of above the age of 25 years was enrolled for the study. The first 10 consecutive prescriptions from the physician were analyzed after obtaining the consent of the physician. The sample size was calculated using cluster design method, prescriptions from one physician forming one cluster. For an expected antibiotic prescription rate of 54%, the sample size was estimated as 400 prescriptions, and 40 clusters were studied. Patients in 25yr or above age group with symptoms pain, fever, pus discharge, ulceration, infection after postoperative and preoperative

were enrolled in the study. Patients treated for similar illness in the past 30 days or presently on antibiotics for other illness were excluded from the study. The main outcome measures were the rate of antibiotic prescription and the pattern of antibiotic prescribed.

STUDY DESIGN:

Patterns of diagnoses recorded in the medical record and antibiotics ordered for visits occurring outside of the observational study were compared with the pattern of diagnoses and antibiotics ordered during the observational study.

RESULTS:

Of the 20 physicians, 22 had undergraduate qualification and 18 had surgical postgraduate qualification. 403 prescriptions were collected from the surgery of these physicians along with patient details in the patient data form. Physician details were recorded in a separate structured questionnaire.

PROPORTION AND PATTERN OF ANTIBIOTIC PRESCRIPTION:

Among the 403 children with common diseases, 321 (79.4%) were prescribed antibiotics. 96.95% of patients with postoperative and 100% of patients with fever received antibiotics. Thus, presence of fever is considered a significant factor for prescribing antibiotics. Second and third generation Cephalosporins group of antibiotics were the commonly prescribed antibiotic. Amoxicillin were used in 4.9% of patients.

FACTORS RELATED TO ANTIBIOTIC PRESCRIPTION:

Factors, both physician and practice related, influencing the antibiotic prescription were analyzed and the results are as formulated in table 1. Physicians with a postgraduate qualification and physicians with more than 20 years of experience are less likely to prescribe antibiotics, as are physicians who update their knowledge through academic means like CMEs, seminars, journals etc. Physicians with only outpatient practice are more likely to prescribe antibiotics 8. Neither the volume of the patient seen per day nor the age of the child had any significant influence over the likelihood of antibiotic prescription (Table 1).

Table 1: Factors Influencing Antibiotic Prescription

Factors influencing antibiotic prescription		Antibiotics given	P Value
Educational Qualification of the Physician	Only UG Degree	213(95.5%)	0.001 (6.61-29.89)
	PG Degree	109 (60.5%)	
Experience of the Physician	<20 Years	198 (88.7%)	0.001 (2.06-6.24)
	>20 Years	124 (44.2%)	
Source of updating knowledge	Academic Methods	111(61.6%)	0.001 (5.47-22.27)
	Pharmaceutical Formulations	211 (94.6%)	
Practice setting	Only out patient	282 (84.4%)	0.001 (2.16-7.16)
	Both IP and OPD	40 (57.9%)	
Patient Volume	<40 per day	245 (81.1%)	0.28
	>40 per day	77 (76.2%)	
Age of the patient	<8 Years	160 (77.6%)	0.35
	>8 Years	162 (82.2%)	

Three broad themes identified were as follows: behavioural characteristics of doctors and patients; laxity in regulation of prescribing and dispensing antibiotics and intervention strategies to decrease misuse of, and resistance to, antibiotics. Important factors identified for antibiotic prescriptions by doctors were diagnostic uncertainty, perceived demand and expectation from the patients, practice sustainability and financial considerations, influence from medical representatives and inadequate knowledge.

CONCLUSION:

It is high time that the professional bodies should take up the project of increasing awareness about antibiotic use among the practicing physicians to dispel the inappropriate information caused by pharmaceuticals and initiate necessary steps to deliver the latest advances of the knowledge to every practicing physician through academic activities in order to check over this emerging problem of antibiotic resistance. The efficacy of antimicrobial prophylaxis in clean and clean contaminated surgery has been clearly established.

Take action today to encourage healthier life and reduce the overuse of antibiotics

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