PEDIATRIC INFECTIOUS DISEASE SOCIETY OF THE PHILIPPINES

Vol.10 No.1
January-December 2009

PIDSP JOURNAL

Vol.10 No.1
January-December 2009

PIDSP Journal 2009 Vol 10No.1

BELIEFS AND PRACTICES OF PARENTS ON THE USE OF ANTIBIOTICS FOR THEIR CHILDREN WITH UPPER RESPIRATORY TRACT INFECTION

Micheline Joyce C. Salonga, MD*

ABSTRACT

Overuse of antibiotics in the treatment of upper respiratory tract infections among children is becoming a major contributor to the emergence of antibiotic resistance. It is but appropriate to conduct a survey that will provide data on the knowledge and practices of parents regarding appropriate use of antibiotic for their children with symptoms of upper respiratory tract infection (URTI).

Objectives: This study describes the beliefs and practices of parents on the use of antibiotics in the treatment of upper respiratory tract infections among their children.

Methods: A survey questionnaire on the beliefs and practices in the use of antibiotics were distributed to the respondents—parents, who brought their children with upper respiratory tract infection (URTI) symptoms for consult at a local health center The respondents were classified based on their sex, age and educational background. A total of 96 questionnaires were distributed in five days. Data collected were tallied and analyzed.

Results: Majority of the respondents (66/96, 88%) were females and within the age range of 18 to 30 years old, while 62% were high school (HS) graduates, predominantly living within the vicinity of the local health center.

Overall, the majority of the respondents correctly answered questions on common antibiotic beliefs. Among the respondents who were in the HS level, 90% responded in complete disagreement to the common belief that antibiotics cure all infections, while 86% of those from the College level group

responded in complete disagreement to this common belief. Among those in the primary school level group, 68% believed that antibiotics could cure all infections.

As to respondents' practices towards antibiotic usage, 38% demanded antibiotics for their child with URTI, while 42% decided to self-medicate using antibiotics. Most of the respondents, however, are compliant to giving antibiotics to their children with URTI

Conclusion and Recommendations: In conclusion, a high percentage of the respondents from the local health center, particularly those in the primary education group, had poor understanding of the appropriate antibiotic usage for their children with URTI. Most of the respondents from the aforementioned group kept on with the use of antibiotics for their children presenting with symptoms of URTI, regardless of etiology. Also, a significant number would give antibiotics to their children even without a prescription. In turn, these beliefs and practices may be one of the contributory factors in the development of resistance to antibiotic. It is recommended that effective dissemination of information on the appropriate use of antibiotic be provided for the community, with the aim of changing the attitudes of parents on the judicious use of antibiotics.

KEYWORDS: respiratory tract infection, antibiotics, URTI
*Philippine General Hospital

INTRODUCTION

Resistance to antibiotics is becoming a major problem worldwide. Lack of knowledge and awareness of parents on the concept of resistance to antibiotics has contributed to the current health situation. In relation to this, injudicious use of antibiotics by parents in the treatment of their children with URTI may be a factor in the increased rates of antibiotic-resistant bacteria.

This study aimed to assess the beliefs and practices of parents on the appropriate use of antibiotics for the treatment of their children with URTI.

MATERIALS AND METHODS

Study Design: This is a descriptive study. Survey questionnaires on the knowledge and

beliefs and practices of parents in the use of antibiotics for the treatment of their children with URTI were distributed at a local health center in Manila.

Study Population: The target population of this study was the parents who brought their children to the local health center for symptoms of URTI. Symptoms included nasal stuffiness, rhinorrhea, cough, and sore throat.

Data Collection: A two-part, questionnaire-based survey was conducted among parents at a local health center in Manila. The questionnaire was translated in Filipino and consisted of 14 items. The first part consisted of the demographic data of the respondents (address, age, sex, and educational attainment), while the second part contained questions pertaining to the beliefs and practices of the parents on the use of antibiotics.

The sample size was computed based on the average daily consults for URTI. The center catered to approximately 40 patients per day and 60% were consults for URTI. In a week, there was approximately 96 consults for URTI. Thus, a total of 96 questionnaires were distributed and were answered by the participants.

Descriptive statistics using measures of central tendencies were presented to evaluate each item. Characteristics of respondents were tallied base on sex, age and educational attainment.

RESULTS

Majority of the respondents were female, comprising 70% of the population. Eighty percent of the respondents were from the 18- to 30- year old age group; The rest was distributed between 31 to 40 years of age (5%) and 41 years and above (15%). In terms of educational attainment, most of the participants reached at least the high school level, making up 62.5% of the population. Meanwhile, 23% and 14.5% came from the primary level group and college level group, respectively (Table 1).

Table 1. Profile of Parents Consulting at the Center for their Children with Symptoms of URTI.

CHARACTERISTICS	
Gender:	
Males	28(30 %)
Females	68(70%)
Age group	
18-30 yrs	77(80%)
31-40 yrs	5 (5 %)
41and above yrs	14(15 %)
Educational attainment	
Primary	22(23%)
High School	60(62.5)
College Degree	14(14.5%)

Table 2. Beliefs of the Parents regarding Antibiotic Use for their Children with URTI Symptoms

A. Antibiotic Beliefs	**Agree**	**Disagree**
1. Antibiotics cure all infections	22(33%)	74(77%)
2. Antibiotics are free from side effects	15(16%)	81 (84%)
3.Antibiotics are safe	28(29%)	68(71%)

Table 3: Beliefs of Parents regarding Antibiotic Based on their Educational Background

Antibiotic beliefs	**Primary School n=22**	**HS level n=60**	**College level n=14**
Antibiotics cure all infections			
Agree	15(68%)	5(8.33%)	2(14%)
Disagree	7(32%)	55(91.67%)	12(86%)
Antibiotics are free from side –effects			
Agree	13(59%)	2(3%)	0
Disagree	9(41%)	58(97%)	14(100%)
Antibiotics are safe			
Agree	20(90%)	8(13%)	0
Disagree	2(10%)	52(87%)	14(100%)

More than 2/3 of the respondents had the correct belief that antibiotics do not cure all types of infections. More than 80% were aware that antibiotics have side effects. Seventy one per cent believed that antibiotics were safe to use.

When educational background is taken into account, it is evident that parents with less years spent in school had more incorrect answers, especially, for the 1st two questions: more than half believed that antibiotic can cure all infections or that it has no side effects.

Table 3. Practices regarding Antibiotic Use of Parents for their Children with URTI symptoms (N=96).

B. Antibiotic Practices	Yes	No
1. Demand antibiotics for URTI for their Children from the doctor	36(38%)	60(62%)
2. Store antibiotics at home	48(50%)	48(50%)
3.Give children antibiotics without a prescription for URTI symptoms	40(42%)	56(58%)
4. Compliance based on prescription of doctor	72(75%)	24(25%)

Table 4. Practices regarding Antibiotic Use of Parents Based on their Educational Background

Antibiotic practices	Primary School n=22	HS level n=60	College level n=14
Demand antibiotics for URTI in children from doctor			
Yes	12(55%)	20(33%)	4(29%)
No	10(45.45%)	40(67%)	10(71%)
Stores antibiotics at home			
Yes	14(63%)	8(47%)	6(43%)
No	8(37%)	32(53%)	8(57%)
Gives children antibiotics without a prescription for URTI symptoms			
Yes	6(27%)	28(47%)	6(43%)
No	16(73%)	32(53%)	8(57%)
Compliance based on prescription of doctor (duration of treatment and dosage)			
Yes	16(72%)	42(70%)	14(100%)
No	6(28%)	18(30%)	0

Thirty-six parents (38%) admitted that they demanded from a doctor antibiotic for their children, while majority decided to wait for the doctor's recommendation prior to starting antibiotics. Half of the study population stored antibiotics at home. A large percentage (42%) of the parents would administer antibiotics to their children even without a prescription. Most of the study groups (75%) are compliant in giving antibiotics.

A much lower percentage of parents from the High School level group (33%) and College level group (40%) demanded antibiotic prescriptions compared to those who had primary level education (54%) only. Sixty-three percent of caregivers with primary education kept antibiotics at home for the treatment of common illnesses. Treatment of URTI with antibiotics, but without a prescription, was more frequent among parents who had higher educational attainments (47% from High School level group and 42% from college level group) than those with primary education (27%). All parents with a college level education responded that they were fully compliant to the doctor's prescription of antibiotic. Only 70% of the parents from the other two educational levels answered that they were fully compliant.

DISCUSSION

The study had shown that parents' beliefs and practices were influenced by their educational background. Majority of those in the primary education level were in complete agreement to the common antibiotic misconceptions, including the belief that antibiotics could cure all infections. They also had undesirable practices, such as demanding antibiotics from physicians. The exception was the practice of giving their children antibiotics even without a doctor's prescription and of storing antibiotics at home. The rate of treating oneself with antibiotics was significantly higher in those from the secondary education group compared to those in the primary school level (47% vs. 27%); but it was almost similar to those in the college level group (42%). Such being the case, regardless of educational attainment, there is a quite a number of parents who still need to be educated on the judicious use of antibiotic.

These false beliefs on antibiotic usage may have led to antibiotic abuse, especially when one is self-medicating or demanding over-the-counter antibiotics at the pharmacy. In a US-based survey, 48% of the pediatricians reported that parents pressured them to prescribe antibiotics, and 78% of the pediatricians believed that educating parents on the proper use of antibiotic was the most important factor in promoting appropriate prescribing; thus, the effective communication between physicians

and parents may reduce inappropriate prescription of antibiotic.

Practices regarding antibiotic use, such as demanding a prescription from a physician, and keeping antibiotics at home (hoarding), were significantly lower in parents with higher educational attainment.

Several studies on the concept of resistance to antibiotic and judicious use of antimicrobials in the treatment of URTI in children have been performed, many of which had focused on parental knowledge, awareness, and practices on the said concept. One of these studies concluded that parental knowledge and awareness of antibiotic indications and antibiotic resistance can be changed through educational interventions directed at parents and clinicians.[1] Pamphlets, which gives a simple explanation about antibiotics, bacterial and viral infections and bacterial resistance, and provides examples of when antibiotics are and are not needed for children, were distributed to patients. Nurse educators made presentations and distributed the educational materials to parents and staff at child care centers and primary care clinics, local public health departments, schools, and community organization meetings. The physician-oriented interventions included "grand rounds" presentations by one of the investigators , small-group academic detailing to promote appropriate antibiotic use, and distribution of written materials. The control area had a lower increase in knowledge on the appropriate indications for antibiotic. The proportion of parents who expected an antibiotic for their child and did not receive one decreased in the intervention area (14% to 9%), in contrast to the control area which increased (7% to10%).

To reduce the injudicious use of antibiotics, another study utilized a different educational strategy focusing also on parents and their physicians. In the said study, an educational videotape on judicious use of antibiotics was played in waiting rooms of participating clinics. This study concluded that parent-focused, passive education tools were effective in changing the parents' attitudes toward the use of antibiotics. Although physicians have blamed the parents' attitudes and their demands for the overuse of antibiotics, changes in the parents' attitudes in this study were not associated with changes in prescribing rates. Changes in the parents' attitudes may be necessary but do not seem sufficient for changes in antimicrobial prescribing patterns. [3]

Another study, which focused on the impact of parent and clinician education on pediatric antibiotic prescribing and carriage of penicillin-non-susceptible Streptococcus pneumonia in child care facilities, has concluded that a multi-faceted educational program for clinicians and parents led to community-wide reductions in antibiotic prescribing.[2] Unfortunately, in child care facilities, there was no apparent impact on colonization with drug resistant *S pneumoniae*.

Widespread educational campaigns should be targeted for the general public, particularly the parents of young children, focusing on the difference between bacterial and viral infections and the futility of treating viral infections with antibiotics. A multidisciplinary approach to rational antibiotic use, dispensing these drugs as 'prescription-only-medicine', and an informed public can halt inappropriate use and prevent/contain resistance.

The medical profession should consider using narrow-spectrum antibiotics, promoting dialogue with parents to discuss symptom relief and antibiotic resistance, and encouraging active management of the child's illness with follow-up calls. Pharmacists have a critical responsibility not to dispense these agents without prescriptions and discourage patients from obtaining these drugs for self-treatment.

CONCLUSIONS AND RECOMMENDATIONS

Inappropriate antibiotic use for pediatric patients with URTIs in the local health center may have been facilitated by insufficient knowledge and erroneous beliefs and practices of the parents.

It is suggested that an interventional study be done from this baseline study. Suggested interventions include passive teaching through video presentations in clinics. Another possible intervention would be the distribution of educational materials, such as pamphlets, and reinforced by teaching sessions on rational

antibiotic use by health care providers. Ideally, the intervention should be simple and easily replicable even in rural settings.

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