Parental Self Medication in Children with Upper Respiratory Tract Infection

ÜST SOLUNUM YOLU ENFEKSİYONU OLAN ÇOCUKLARDA ANNE-BABALARI KENDİ KENDİLERİNE İLAÇ KULLANIMI

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Abstract

Objective: Self-medication and drug abuse is a growing concern worldwide. The aim of this study was to investigate parental self-medication in children.

Material and Methods: A total of 106 children who presented with symptoms of upper respiratory tract infections were enrolled in the study between November 2000 and January 2001. Cases were selected according to the management criteria of acute respiratory tract infection of the World Health Organization.

Results: Of all, 74.5% have used at least one drug within the last 3 days. The frequency of self-medication including all kinds of drug use was 53.8%. The frequency of analgesic self-medication was 40.6% and that of antibiotic self-medication was 7.5%. Health insurance of parents and education of the mother did not significantly affect the frequency of drug abuse.

Conclusion: Parental self-medication is an important problem for children. Therefore, parents should be questioned for self-medication during child health supervision. Consultancy to parents for rational drug use may decrease the frequency of self medication, drug abuse and adverse events.

Key Words: Self medication; child; anti-bacterial agents

Özet

Amaç: Kendi kendine ilaç kullanımı ve ilaç istismarı tüm dünyada giderek artan bir sorundur. Bu çalışmada ebeveynleri tarafından karar verilerek çocuklara uygulanan ilaç tedavilerinin araştırılması amaçlandı.

Gereç ve Yöntemler: Kasım 2000-Ocak 2001 tarihleri arasında üst solunum yolu enfeksiyon semptomları ile başvuran toplam 106 çocuk çalışmaya dahil edildi. Hastalar Dünya Sağlık Örgütü akut üst solunum yolu enfeksiyonu tedavi kriterlerine göre değerlendirildi.

Bulgular: Tüm grupta son 3 günde ailelerin çocuklarına en az bir ilaç uygulama oranı %74.5 olarak tespit edildi. Kendi kendine karar verip ilaç kullanımı ise tüm ilaç grupları için toplam %53.8 olarak bulundu. Analjeziklerin kendiliğinden kullanımı %40.6; antibiyotiklerin ise %7.5'ti. Ailelerin sağlık sigortası ve annelerin eğitim düzeyinin önemli derecede ilaç istismarını etkilemediği tespit edildi.

Sonuç: Anne-babaların kendi kendilerine çocuklarına ilaç başlamaları önemli bir problemdir. Bu nedenle çocuk izlemleri sırasında hasta ailelerinin ilaç istismarı konusunda sorgulanması ve anne-babalara akılcı ilaç kullanımı konusunda danışmanlık verilmesi kendi kendine ilaç kullanımını, ilaç istismarını ve yan etkilerini azaltacaktır.

Anahtar Kelimeler: Kendi kendine tedavi; çocuk; antibiyotikler

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Self-medication is widely practiced all around the world and may be defined as the use of a medical product by consumers on their own responsibility to treat self-recognized disorders or symptoms when they consider such use appropriate. Self-medication may also consist of the reuse of a prescribed medicine for the same person and the same problem, but without seeking medical advice for reuse.[1] Self-medication remains among the most common help seeking behavior worldwide. In developed countries, prescription-only drugs and over the counter drugs (OTC) are regulated by the governments.[2] However in developing countries self-medication is directly associated with the socioeconomic factors of the population and not only DTC drugs but also systemic antibiotics that should be used with the supervision of a physician are abused.[1,3-6]

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Knapp and Knapp reported that 70% of the illnesses were treated without prescription in the United States.[7] In an urban area in our country self-medication was the dominant mode of help seeking behavior among adults with pain. In that study, the frequency of self-medication for headache, high fever and cough was 69.8%, 36.8% and 34.6%, respectively.[8] Self care is a very common practice among people seeking care for their children's problems and self-care was reported to be practiced most often on patients presenting with respiratory symptoms (69.6%).[3] Antibiotics are another group of drugs that are being abused by self-medication in addition to analgesics.[8] Our understanding of self-medication given by parents to their children is limited. The frequency of parental self-medication for children was 59.4%, and the rate of antibiotic abuse was 35.7% in a Chinese city.[4]

If the factors affecting self-medication in children are known, the unnecessary drug use and drug abuse may be avoided. Thus, guidelines may be produced to improve appropriate use of self-medication. The purpose of this preliminary study was to detect the factors (including decision to use a drug, social factors, the source, type of medication that was used) affecting parental self-medication for children with acute upper respiratory tract infections (URTI) and compare them with home care guidelines of the World Health Organization (WHO).[9]

Material and Methods

In this descriptive study, children between ages of 2 months to 14 years-old who were admitted to Children's Hospital between the dates of November 2000-January 2001 with the signs of acute respiratory tract infections were enrolled. The diagnosis and treatment were made according to the case management criteria of WHO for acute respiratory tract infections.[9]

Sociodemographic properties, drug use within the previous 3 days, the reason and appropriateness of the drug use, the types of drugs used, self-medication or any recommendation given for the condition, education status of parents, health insurance and preferred health center were noted through a questionnaire given to mothers who gave verbal informed consent.

Significance of differences in proportions was determined using Pearson's chi-square test and Fisher's exact test, where appropriate. All analyses were conducted using SPSS statistical software package (version 6.0 for Windows; SPSS Inc, Chicago, IL).

Results

During the study period, 106 children presented with symptoms of acute respiratory tract infection and were enrolled in the study. The mean age (SD) was 4.3 (3.1) years (range 2 mo-14 y). Of all, 63 patients (59.4%) were boys (Table 1). The frequency of mothers who graduated from university or high school was 62.2%. Seventy seven percent of the cases had health insurance with extended coverage. Thirty six percent of the parents preferred primary healthcare centers.

Of 106 children, 79 (74.5%) were detected to take at least one drug within the previous 3 days (Table 2). Self-medication was noted in 53.8% of the group. In some instances, a patient had used more than one drug. Thus, 128 conditions of drug use were detected in 79 patients (Table 2).

Analgesic-antipyretic drugs had been used for 69 conditions (53.9%) in 59 children (55.7%) within the 3 days before admission (Table 2). Self-

Table 1. Social characteristics of cases.

	n	%
Male sex	**63**	**59.4**
Maternal education		
No education	3	2.8
Primary school	37	34.9
High school +University	66	62.2
Health insurance coverage		
Limited or no insurance	24	22.6
More extended coverage	82	77.4
Usually preferred medical center		
Primary healthcare center	39	36.1
Community hospitals	8	7.5
University hospital clinics	53	50
Specialist private office	6	5.7

Table 2. Frequency and type of drug use and self-medication in children with acute upper respiratory tract infection.

Type of medication	Cases with self medication*		Cases with drug use*		Drug used conditions**	
	N	%	N	%	N	%
Analgesic –antipyretic	43	40.5	59	55.7	69	53.9
Paracetamol	32	30.2	49	46.2	49	38.3
Nimesulid	9	8.4	15	14.2	15	11.7
Ibuprofen	2	1.8	5	4.7	5	3.9
Antibiotics	8	7.5	25	23.6	26	20.3
Penicillin	1	0.9	4	3.8	5	3.9
TMP-SMX	2	1.8	3	2.8	3	2.3
Cephaloporins	1	0.9	7	6.6	7	5.5
SAM+CAM	4	3.8	10	9.4	10	7.8
Macrolids	-	-	1	0.9	1	0.8
Other drugs	20	18.8	33	31.1	33	25.8
Combined preparations	5	4.7	11	10.4	11	8.6
Expectorants	6	5.6	10	9.4	10	7.8
Antihistamines	1	0.9	3	2.8	3	2.3
Decongestants	4	3.8	5	4.7	5	3.9
Bronchodilators	1	0.9	4	3.8	4	3.1
Cases with history of medication	57	53.8	79	74.5		

*n= 106, **n= 128

medication for analgesics-antipyretics was detected for a total of 49 times in 43 patients. Reasons for analgesic self-medication were fever in 40 conditions, cough in 1, earache in 1, sore throat and fever in 4, fever and cough in 1, fever and headache in 1, fever and dyspnea in 1. Major complaints for the use of analgesic-antipyretic drugs were fever and ache with two exceptions of cough and diarrhea. In 4 out of 43 patients (9.3%) analgesic and antipyretic drugs were used in the absence of fever and pain. Drug use was appropriate in 69.6% of all analgesic-antipyretic uses (48/69) and in 57.1% of overall parental self-medication cases (28/49). In the case of 64 patients who had fever, 55 (85.9%) had used an antipyretic preparation.

On admission, 25 children (23.6%) had taken antibiotics (Table 2). In 17 cases, primary healthcare center had initiated antibiotics, whereas antibiotic self-medication was detected in an additional 8 cases (7.5%) with URTI. One case had received two antibiotics. Fever, cough, sore throat, nasal discharge, earache and postnasal discharge were the reasons for antibiotic use in parental drug abuse. The most common reason for antibiotic self-medication by parents was fever (n= 5).

Other drugs administered on admission were antihistamines for 3 cases, bronchodilators for 4, decongestants for 5, and expectorant drugs for 10 and combined preparations for 11. These drugs were used in 33 children (31.1%) and 33 conditions (25.8% of the total 128 drug used conditions). Only 13 cases had received cold-cough drugs upon recommendation by a physician and parents had initiated the drugs in the remaining 20 cases (18.9% of all cases). Cough was the reason for drug abuse in 15 children, nasal discharge in 4, and fever in one. Appropriate use was detected in 40.0% (8/20).

Inappropriate use was detected in 8 conditions for the antibiotics and in 21 conditions for analgesic-antipyretic drugs. Inappropriate use of antibiotics was slightly higher and the inappropriate use of analgesic-antipyretic drugs was slightly lower for patients between the ages of 2-5 years compared to cases < 2 and ≥ 5 years of age; however, this difference was not statistically significant ($p > 0.05$, Table 3)

Table 3. Inappropriate use of antibiotics and analgesics according to age groups, maternal education and health insurance.

	Inappropriate use of Antibiotics		Inappropriate use of Analgesics	
Age groups				
< 2 years	1/9	11.1	8/22	36.4
2-4.9 years	5/9	55.6	5/24	20.8
≥ 5 years	2/8	25.0	8/23	34.8
Maternal education				
< 8 years	5/11	45.5	10/22	45.5
≥ 8 years	3/15	20.0	11/47	23.4
Insurance				
More extended coverage	7/15	46.7	14/50	28.0
Limited or no insurance	1/11	9.1	7/19	36.8
Usually preferred medical center				
University hospital clinics	2/7	28.6	7/32	21.9
Others	6/19	31.6	15/37	40.5
Total inappropriate use	8/26	30.8	21/69	30.4

*p> 0.05

Education status of the mother and the preferred medical center (university hospital or other centers) did not significantly affect the frequency of analgesic and antibiotic misuse (p> 0.05, Table 3). Interestingly, 9.1% of cases with limited or no health insurance coverage and 46.7% of cases with extended health insurance coverage had misused antibiotics (p= 0.084). Analgesic misuse did not change with insurance status of the parent (Table 3).

Discussion

In our study, the frequency of overall drug use within the previous 3 days was 74.5% in cases with upper respiratory tract infection and self-medication was 53.8%. The drugs used for self-medication were analgesics (40.6%), antibiotics (7.5%), and antitussives (18.9%). This study reveals high levels of self-medication among children under 14 years of age admitted to our hospital. Saradamma et al. reported that in Kerala State, South India, the use of antibiotics without prescription was 20% among children under 5 years of age and 7.2% among those aged 6 and 14.[6] Fever, cough and cold like symptoms comprised 24.4% of indications for self-medication. In the study of Oriol Toron et. al., the most common reason for self-medication was respiratory tract infection.[3] In addition, while the frequency of self-medication overall was 84.6%, analgesic-antipyretic self-medication was 60%, antibiotic self-medication was 8.1% and anti-tussive self-medication was 9.6%. Kogan et al. reported that 54% of 3-year olds in the United States had received OTC medications within the 30 days preceding the study.[10] A cross-sectional study conducted by Slack-Smith et al on the prevalence of medication use among children attending day care in Western Australia revaled that 73% of the children had received OTC medication.[11] According to the 1995 Australian National Health Survey, more than one-half of children < 5 years of age (54%) had taken medication of some kind within the 2 weeks before the survey.[12] Substantial proportions of that group had received OTC medications, such as medications for treatment of coughs and colds (166.9 children per 1000) and pain relievers (162.5 children per 1000).

The use of OTC medications for the treatment of minor ailments among children is widespread, despite lack of evidence of efficacy of the most commonly used medications and the potential for toxicity.[13,14] Also antibiotic misuse may be associated with bacterial resistance.[13] The widespread consumption of unnecessary, inappropriate and inadequate doses of antibiotics in developing countries could be a major concern because it fosters new resistant microbial strains, which are easily spread within the environment where poor sanitary conditions are common. High rates of usage of these medications may result in a tremendous waste of money. Over the counter drug use costs about two billion dollars per year for cold remedies alone in the United States.[2] Widespread antibiotic misuse by self-medication should be avoided by appropriate and safe policies of national health systems of the governments.[7,8,15]

Antibiotic and/or analgesic-antipyretic self-medication may be influenced by socioeconomic status, parental education, and health insurance of

the patients. There are controversial reports on this subject. Saradamma et al reported that people least likely to use self-medication were from higher income families, with higher status of education and occupation and benefiting from medical insurance in India.[6] However, Kogan et al[10] reported that, higher socioeconomic status and higher education were risk factors for over the counter drug use in USA. Self medication with either antibiotics/antimalarials was significantly associated with age, income, gender and level of education among adults in a developing country.[16] Besides in a study of Larson et al, antibiotic self-prescription was detected in groups with major knowledge deficits leading to antibiotic abuse in conditions of pain and other causes as well as for symptoms of infection.[17.] In the present study, there was no association between appropriate drug use and the education status of the mother. This may be attributed to the limited number of illiterate parents in the study. Despite the high level of education overall in the study group, self-medication frequency was high. This study pointed out that self-medication was not influenced by maternal education. Therefore, problem based education in primary schools and media may be necessary for the management of drug misuse. As the Program for Control of Acute Respiratory Infections of WHO limits the unnecessary use of antibiotics, specific guidelines for parents should be prepared to decrease drug abuse and to implement appropriate drug use.[9] In the present study, a significantly high percentage of antibiotic misuse cases had health insurance (1/8, 87.5%). In this regard, health insurance may facilitate access to drugs in our country. Leftover drugs from a previous therapy are frequently used as self-medication. Greater ease of access to medicines carries benefits and risks and we must ensure that full consideration is given to the implications for drug safety, health care costs, education, and rational drug use.[8,18] On the other hand, in countries where coverage by health insurance to public services is limited and access to medical care is difficult, people tend to seek traditional or folk care and conventional pharmaceutical care in pharmacies which gives rise to self-medication.[1] Given self medication as a growing problem worldwide including drug side effects and antibiotic resistance, additional studies should be planned to detect predisposing factors for drug abuse behavior in different parts of developing and developed countries with large numbers of patients from multiple centers reflecting the self-medication characteristics of the population. Education of parents for rational drug use may decrease the frequency of self medication and adverse events.

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