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Chronic Cough: A neglected area in pediatric clinical practice

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Abstract

Objective: Cough is one of the most common but usually neglected complaint in pediatric clinical practice. We aimed to explore the knowledge, attitude and clinical practice among general pediatricians on chronic cough management.
Methods: Data were prepared as questionnaires that had been developed by cough guidelines in the literature.
Results: Among 109 general pediatricians, a total of 88 (80,7%) participated into the study; 43.2 % were female and the mean age was 42.01±7.89 yrs. The response for the definition of chronic cough ranged from 2 weeks to 6 months. Of the participants, 45.4% stated that they frequently evaluated children with chronic cough. The majority (79.5%) sought consultation from one to four discrete specialties. The most frequently ordered two tests were chest radiography (88.6%) and complete blood count (30.7%). The majority of pediatricians prescribed antibiotics (95.5%), antitussives (67.0%), expectorants (77.3%), anti-histamines (62.5%) and empiric anti-reflux medications (69.3%) to children with chronic cough. Most commonly prescribed antibiotic was macrolides (95.5%). Among pediatricians, only 12.5% questioned passive smoking exposure and rarely advised professional counseling against smoking to parents (55.6%).Overall, 66.0% of pediatricians agreed that they did not feel fully satisfied in the management of chronic cough in children. All supported the preparation of a national guideline and were willing for postgraduate education on chronic cough management.
Conclusions: This study emphasizes the pediatricians' lack of knowledge on chronic cough management in children. Education is crucially important on chronic cough management among general pediatricians which possibly decrease the differences in personal practice.

Keywords: Children, chronic cough, management

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Kronik Öksürük: Çocuk Hastalıkları Klinik Pratiğinde İhmal Edilen Alan

Öz

Giriş: Çocuk hastalıkları pratiğinde öksürük en sık ve aynı zamanda en az irdelenen şikayettir. Çalışmamızda, kronik öksürük yönetimi hakkında genel pediatristlerin bilgi, tavır ve klinik yaklaşımlarını araştırmayı amaçladık.

Yöntemler: Veri bilgileri literatürde öksürük rehberlerinden geliştirilen anket ile sağlanmıştır.

Bulgular: Çalışmamıza Mersin bölgemizde 109 genel pediatri hekiminden 88'i (%80,7) katılmış, bunlardan %43,2'si kadın ve yaş ortalaması 42.01±7.89 yıldır. Kronik öksürüğün tanımına verilen yanıtlar 2 hafta ile 6 ay arasında değişkenlik göstermiştir. Çalışmaya katılanların %45,4 kronik öksürük şikayeti olan çocuklarla sık karşılaştıklarını belirtmişlerdir. Çoğunlukla (%79,5) 1 ile 4 arası diğer branşlardan (çocuk allerji, çocuk göğüs hastalıkları ve çocuk gastroenteroloji) konsültasyon ile yardım talep edilmiştir. En sık istenen testler akciğer radyografisi (%88,6) ve tam kan sayımıdır (%30,7). Kronik öksürük tedavisinde çocuk hekimlerinin çoğunluğu sıklıkla antibiyotikler (%95,5), öksürük kesiciler (%67,0), ekspektoranlar (%77,3), antihistaminikler (%62,5) ve ampirik antireflü (%69,3) tedavisi önermişlerdir. En sık yazılan antibiyotik makrolidlerdir (%95,5). Pasif sigara maruziyetini sadece %12,5 çocuk hekimi sorgulamış ve sigara içen ebeveynlere nadiren profesyonel yardım almaları önerisinde bulunmuştur (%55,4). Çocuk hekimlerinin çoğunluğu (%66,0) kronik öksürük yönetiminde yeterli olmadıklarını düşünmüşlerdir. Tüm hekimler kronik öksürükle ilgili ulusal rehbere ihtiyaç olduğunu ve bu konuda mezuniyet sonrası eğitime katılmak istediklerini belirtmişlerdir.

Sonuçlar:Çalışmamıza katılan çocuk hekimlerinin kronik öksürük yönetimi ile ilgili bilgi eksiklikleri vurgulanmışlardır. Genel çocuk hekimliğinde kişisel klinik farklılıkları azaltmak için kronik öksürük yönetimi eğitimi gereklidir.

Anahtar Kelimeler: Çocuklar, kronik öksürük, yönetim

INTRODUCTION

Cough is one of the most common complaint for health care units[1,2]. Cough persistance for a couple weeks is probably terrifying to parents and so that, they often seek multiple discrete speciality visits[1,3-5].

Parents who seek help for their coughing children are almost routine in pediatric outpatient practice. It is commonly challenging for general pediatricians to manage both the child and the anxious family. This is especially difficult in a busy clinic where there is little time to spend in the diagnoses with an anxious parents.In such a complicated environment, pediatricians should perform an accurate clinical management, be able to identify clues suggestive of specific disorders and also tend to avoid unnecessary further investigations.

The aim of the present study was to explore the knowledge of general pediatricians working in the health care centers about chronic cough management in children, and determine their attitudes and clinical practices in this context.

METHODS

Study design

This study was planned as a cross sectional and descriptive design, and carried out between September and December in 2015. The general pediatricians practicing at the health care centers in Mersin province were given information and invited to participate in a questionnaire-based study. Those who agreed to participate were included in the study.

Survey

Data were collected by means of a questionnaire that had been developed in the cough guidelines in the literature[6,7]. The questionnaire was e-mailed to the participants or delivered as a form and filled out in a self-administered format. The participants were informed that the questionnaire would be

implemented with full confidentiality and anonymity. The questionnaire consisted of questions regarding the demographic characteristics of the pediatrician, the pediatrician's knowledge, attitude and practice in the management of chronic cough in children. The questionnaire also explored pediatrician's awareness of chronic cough guidelines in children and educational support on this topic. The current study was approved by the Mersin University Ethical Board Committee.

Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 17.0 software statistical package program (SPSS Inc., Chicago, IL). Qualitative and quantitative variables are shown as number of cases with percentages and mean standard deviation (SD).

RESULTS

A total of 109 pediatricians were contacted in Mersin province, and 88 (80.7%) of them agreed to participate in the study. Overall, 43.2% were females (n=38). The mean age of the participants was 42.01±7.89 years. Time interval since residency ranged from 2 to 33 years.Among pediatricians, 50% worked at private hospitals and 50% worked at state hospitals (Table 1).

When questioned about the definition of chronic cough, the answers were variable among each participant [>2 weeks: 19.3% (n=17), >3 weeks: 29.5% (n=26), >4 weeks: 43.2% (n=38), >3 months: 4.5% (n=4), >6 months: 3.4% (n=3)].

When questioned about the frequency of children with chronic cough in their clinical practice, 45.4% (n=40) of the pediatricians explained that they frequently evaluated children with chronic cough, 43.2% (n=38) of them stated that they sometimes evaluated those children in their clinical practice.

Table 1. Demographic characteristics of the pediatricians.

	n (%)
Age	
30-40 years	42 (47.7)
41-50 years	32 (36.4)
51-61 years	14 (15.9)
Gender	
Male	50 (56.8)
Female	38 (43.2)
Employment	
State hospital	50 (50)
Private hospital	50 (50)
Time since residency	
0-5 years	32 (36.4)
6-10 years	16 (18.2)
11-15 years	9 (10.2)
16-20 years	17 (19.3)
>21 years	14 (15.9)

The majority (n= 70, 79.5%) described that they consulted children with chronic cough to subspecialty or other specialty clinics (range one to four discrete specialties). The most frequently consulted clinics were either pediatric pulmonology and pediatric allergy (55.6%) or pediatric pulmonology, pediatric allergy and pediatric gastroenterology (11.3%).
When the pediatricians were asked the most common initial investigation they obtained from children with chronic cough, these were chest radiography 88.6% (n= 78), complete blood count and/or C-reactive protein 30.7% (n=27), total IgE 28.4% (n=25), sinus radiography 10.2% (n=9), PPD 10.2% (n=9), spirometry 6.8% (n=6), throat culture 2.3% (n=2), sputum for culture 2.3% (n=2), reflux scintigraphy 2.3% (n=2).
Overall, 95.5% of the pediatricians expressed that they prescribed antibiotics to children with chronic cough. When questioned about the antibiotic group they preferred, the most

common two prescribed antibiotics were macrolides (95.5%, n=84) and amoxicillin clavulanate (39.7%, n=35). The other prescribed antibiotic groups were second generation cephalosporins (18.2%, n=18), amoxicillin (15.9%, n=14) and third generation cephalosporins (11.3%, n=10).

The percentage of pediatricians who could advise antitussive, expectorant and antihistamine prescriptions to children with chronic cough were 12.5%, 30.7% and 21.6%, respectively. Furthermore, the pediatricians who stated they had prescribed antitussives, expectorants and anti-histamines to children with chronic cough were 67.0% (n=59), 77.3% (n=68) and 62.5% (n=55), respectively. Sixty one (69.3%) pediatricians stated that they had prescribed empiric anti-reflux medications to children with chronic cough when no causative factor was identified. Overall, the pediatricians prescribed oral corticosteroids 18.1% (n=16) and inhaled corticosteroids 76.1% (n=67) to children with chronic cough (Table 2).

Table 2. Pediatricians knowledge and practices about chronic cough management in children.

Item	Never n (%)	Rarely n (%)	Sometimes n (%)	Frequently n (%)
How often do you prescribe antibiotics to children with chronic cough?	4 (4.5)	40 (45.5)	38 (43.2)	6 (6.8)
How often do you prescribe antitussives to children with chronic cough?	29 (33)	33 (37.5)	18 (20.5)	8 (9.0)
How often do you prescribe expectorants to children with chronic cough?	20(22.7)	30 (36.4)	33 (35.2)	5 (5.7)
How often do you prescribe oral steroids to children with chronic cough?	72 (81.8)	12 (13.6)	4 (4.6)	–
How often do you prescribe inhaler corticosteroids to children with chronic cough?	21 (23.9)	23 (26.1)	42 (47.7)	2 (2.3)
How often do you prescribe antihistamines to children with chronic cough?	33 (37.5)	31 (35.2)	17 (19.3)	7 (8.0)
How often do you prescribe empiric anti-reflux medications to children with chronic cough when no causative factor was identified?	27(30.7)	28 (31.8)	31 (35.2)	2 (2.3)
Do you ever think a diagnosis of psychogenic cough in children with chronic cough?	19 (21.6)	31 (35.2)	36 (40.9)	2 (2.3)
Do you ever question passive smoking in children with chronic cough?	–	11 (12.5)	68 (77.3)	9(10.3)

All the pediatricians believed in parental smoking cessation to be useful for the treatment and prevention of chronic cough in children. However, 12.5% (n=11) explained that they rarely questioned environmental tobacco smoke exposure in children with chronic cough. Additionally, 55.6% (n= 49) of the pediatricians expressed that they even rarely advised parents professional counseling about smoking cessation (Table 2).

Among the participants, 66% explained that they did not satisfy with their approach in the management of chronic cough in children. Only 56.8% stated that they were aware of American Academy of Chest Physicians (AACP) and British Thoracic Society (BTS) guidelines about the management of cough in children. All of the participants pointed out that the development of a national cough guideline would be helpful and support a session about chronic cough management at national congresses (Table 3).

DISCUSSION

The present study showed that general pediatricians frequently evaluated children with chronic cough in their clinical practice and consulted nearly two thirds of those children to discrete specialties.The majority of

pediatricians stated that they prescribed antibiotics, especially macrolides, to children with chronic cough. Although most of them knew that antitussives and expectorants should not be used in children with chronic cough, most of them prescribed those over-the-counter medicines at some time in their clinical practice.

Table 3. Pediatricians attitudes about chronic cough.

Item	**Yes n (%)**	**No n (%)**	**I am not sure n (%)**
Do you believe in counseling should be given about smoking cessation to the parents?	78 (88.6)	6 (6.8)	4 (4.6)
Do you believe in parental smoking cessation to be useful for the treatment of chronic cough in children?	88 (100)	_	_
Do you feel qualified about the management of chronic cough in children?	30 (34)	29 (33)	29 (33)
Are you aware of international cough guidelines in children?	50 (56.8)	30 (34.1)	8 (9.1)
Do you support the development of a national cough guideline?	85 (96.6)	3 (3.4)	_
Do you support sessions about chronic cough in national congresses?	88 (100)	_	_

The study has clearly shown that pediatricians evaluated children with chronic cough in a considerable amount in their routine practice. However, they felt insufficient about the evaluation and management of chronic cough in children, and most of them expressed of willing to learn more about this topic. The pediatricians obtained some of the required investigations less often (such as spirometry) and more often ordered some others tests (such as total IgE or waters radiography). Also, they often sought consultations from other specialties in the evaluation of chronic cough in children. As a result, frequent number of consultations probably increase the patient population in other specialties and generate a burden on health care system[4,6-8].

All pediatricians mentioned that they prescribed antibiotics to children in chronic cough management with a preference mainly macrolides. In addition, other broad-spectrum antibiotics were also prescribed with a significant number of percentage. This type of practice might result in increase resistance to antibiotics[9]. The majority of them prescribed cough medications, expectorants and anti-histamines in a great amount and two thirds prescribed empiric anti-reflux medications when an etiology could not be defined. The statement in the cough guidelines is clear that children with chronic cough should be etiologically treated[6,7]. Unlike adult data, gastroesophageal reflux disease is not a frequent cause of cough in children[6,10]. Therefore, empiric anti-reflux medications should not be recommended arbitrarily.

It is well known that exposure to tobacco products cause cough in children [11-14]. Most pediatricians did not questioned tobacco exposure in children with chronic cough. Additionally, the great majority of them did not recommend parents professional counseling about smoking cessation. The argument of the participants was mostly about their busy clinical practice and their low rate of beliefs that their attempts would be successful. In general, the pediatricians supported the professional counseling about smoking cessation. The cough guidelines specifically recommend interventional options against tobacco exposure at homes[6,7]. Fortunately, there is law that prohibits smoking in confined areas since 2009 in Turkey[15]. The Ministry of Health has invested a significant budget in

smoking cessation centers. Behavioral counseling of mothers who smoke has been shown beneficial effect against tobacco exposure to young children[16].

This study emphasizes that pediatricians have lack of knowledge about the systematic evaluation of chronic cough in children.Cough guidelines provide comprehensive and practical approaches for the management of chronic cough in children[6,7]. Several studies have shown that cough guidelines could be applicable in daily clinical practice[17-19]. It is important for the physicians who deal with chronic cough to implement the guideline recommendations in their clinical practice. Most of the pediatricians stated that they were aware of the cough guidelines published by AACP or BTS. However, they did not know the content of these guidelines.

The present study has also shown that the clinical practice of the participants was variable from each other in terms of the laboratory investigation and prescribed medications. This finding might be partly due to the absence of a national guideline about the management of chronic cough in children.Therefore, the development of national cough guideline would be much useful. The majority of the pediatricians also stated that they supported the development of a national cough guideline in children. A national cough guideline might decrease the differences in personal practices.

More studies with a large sample size are needed to test the reproducibility of our data.

In conclusion, our data is important to emphasize the pediatricians lack of knowledge on chronic cough management. We also found that pediatricians were aware of their lack of knowledge and willing to receive postgraduate education on chronic cough management.A national cough guideline with evidence-based management would be helpful in this manner.

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