Parent's reluctance towards antibiotic use in children

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Abstract

Objective: The aim of the present study was to assess the concern and fears of parents of pediatric patients about the use of antibiotics and their side effects on their children. The sources of knowledge about these fears and concern as well as the proportion of parents who comply and press for use of antibiotic were assessed.

A one year prospective, questionnaire – based, cross – sectional, multicenter study involving parents of pediatric patients less then 15 years of age in both government and private medical centers was conducted. Both in patients and out patients were included.

Twenty percent of parents liked their physician to prescribe antibiotic, 45% were undetermined and 35% did not like. Among those who wanted antibiotic to be prescribed, 30.7% were afraid that child may get blood infection and 15% wanted the child to get well quickly. Of parents who do not like to give antibiotics, 46.3% believed they will lower immunity and 34.9% believed that they will cause damage to the kidney, cause diarrhea and child might get infected with stronger organism. The majority of parents (37%) learned about the side effect of antibiotic from physician, 30% learn from newspaper and 28.8% from pamphlet.

This study showed that parent's perceptions regarding antibioticuse in children are varied. These perceptions affect their attitude towards antibiotics use and hence they refrained from exerting pressure on physician for a prescription of an antibiotic. The changes in perceptions can be attributed to physicians and to exaggerated concerns about complications of antibiotics that are propagated through newspaper, TV media and pamphlets. It is proposed that the physician's should discuss the pros and cons of antibioticuse with parents during the health visit.

Introduction

In the USA almost three quarters of all outpatient antibiotics are prescribed for acute respiratory infections [1]. In the USA 44% of children with common colds were reported to be treated with antibiotics, 46% of those with upper respiratory infections, and 75% of those with bronchitis, conditions that typically do not benefit from antibiotic treatment [2]. In Canada, 74% of preschool children seeking care for respiratory infections receives antibiotic prescriptions; in 85% of these cases such prescriptions were inappropriate [3]. Antimicrobial resistance among Streptococcus pneumoniae and other respiratory pathogen due to selection pressure is rapidly increasing in several countries [4-7]. Observational [8] and intervention [9] studies from several countries have supported a link between rates of antibiotic prescription and resistance in communities. Thus, reduction of inappropriate use of antibiotics in the community should be considered a major public health issue.

Much of the problem is thought to be due to general practitioners over-prescribing antibiotics for simple infections such as colds, where patients are often not satisfied unless they take away an antibiotic. Educating the public as well

as GPs as to the dangers of antibiotic overuse, is obviously important. This study emphasizes on attitude and concern of the parents on use of antibiotics on their children as well as to find out the proportion of parents who put pressure on the physician for prescribing antibiotic. The study also tries to investigate the sources of the knowledge of parents about the side effect of antibiotic and the rate of their compliance.

Methods

This is a prospective questionnaire based, cross sectional study carried out on parents of children aged up to 15 years. The study is multi centric conducted in both government hospitals and private medical centers including inpatient and outpatient. It was conducted from January' 2003 to December' 2003. The study included parent of children who presented with any of the following symptoms: fever, cough, sore throat, ear ache, diarrhea, abdominal pain, vomiting, lethargy, irritability. The data was introduced into a database in the computer. Statistical calculations were performed using SPSS package.

The data included the socio-demographic concept of use of antibiotics, their side effects, and the concepts in favor of using or not using antibiotic by parents of pediatric patients.

The results were then compared with others done in other parts of the world.

This study has been approved by the Pediatric Department Board, Faculty of Medicine Board and the King Saud University Scientific Board.

Results

Of the 1200 distributed questionnaires, 1160 (96.7%) were received with complete information whereas 40 (3.3%) were rejected because of lack of complete information. The majority of the responder were mothers (725; 63.3%), followed by fathers (356; 31.1%), brothers (30; 2.6%) and 34 relatives (3%). Fig.1 shows the education level of responders, the majority 629 (54.2%) had university education. Nearly three quarter 834 (73.4%) of our subjects thought that doctors prescribe antibiotic sometimes, 207 (18.2%) always and 95 (8, 2%) thought that doctors do not prescribe antibiotics.

Most of the caregivers 555 (50.6%), finished the course of the prescribed antibiotic, 302 (27.5%) finished sometime and 240 (21.9%) did not finish it at all. Forty four percent of the antibiotics were prescribed by Pediatric Specialist, 39.4% by General Practitioners and only 15.13% by Pediatric Consultants. A considerable number of parents said that during winter children get more antibiotic (46.07%), while 45.7% did not specify the seasonal variation, only 2.9% said antibiotic were prescribed during summer. The majority of the responders said that (59.8%) of doctors were not willing to do culture before giving antibiotic, 27% said sometime and 13.2% said that the doctors usually ask for the culture.

Fig.4 shows those who do not like the doctors to prescribe antibiotics to their children, 46.3% thought that antibiotics lower immunity, 11.6% thought they cause damage to the kidney, 8.6% thought they cause diarrhoea, 8% were afraid that if they did not complete the course then the child might get infected with stronger organisms, while 34.9% believe that antibiotics may cause all the above mentioned side effects. Physician prescribed only one antibiotic in 78.2% cases while in 3.8% cases prescribe more than one.

Physician were the major source of learning, 37% of the subjects learned about side effect of antibiotic from physicians, 30.08% from newspaper, 28.8% from pamphlet and 24.8% learned from friends. Out of the responders 45.2% know that antibiotics reduces immunity, 15.04% know that it causes damage to the kidney, 15.7% know about diarrhoea, 8.4% and 7.09% know about liver damage and skin allergy respectively but 33.3% know about all of the above side effects. Eight hundred and six (74.9%) parents do not know about the difference between bacterial and viral infection while 270 (25.1%) know. The majority of the responders thought that antibiotics could cure common cold, 582 (50.2%) thought that antibiotics sometime cured common colds, 285 (24.6%) believed that antibiotic definitely cure common cold and 214 (19.8%) did not think they did.

Fig.2 shows reasons for prescription of antibiotic, in 704 (66.8%) of patients antibiotic were prescribed for throat infection, in 351 (33.4%) for ear infection and in 242 (23%) prescription was for common cold. Five hundred and ten (45%) of those questioned sometime wished the physician to prescribe antibiotics to their children when there is

fever, while 397 (35%) do not wish that while 226 (20%) always wished that. Antibiotics used are shown in Fig.3. In descending order; these were Amoxicillin (43.9%), Cefaclor 6.6%, Suprax 5.5% and Penicillin 4.3%.While 31.7 % of parents do not know about the name of the antibiotic.

The majority of the parents 963 (86.2%) did not use antibiotics without consulting physician. Of the responders 827 (74.4%), gave antibiotic to the child when it is prescribed 87 (7.8%) did not give it and 198 (17.8%) gave it sometime. Only 27.5% of children got an antibiotic once or twice Annually whereas 36.9% got it three to four times and 35.6% children got it five times and more.

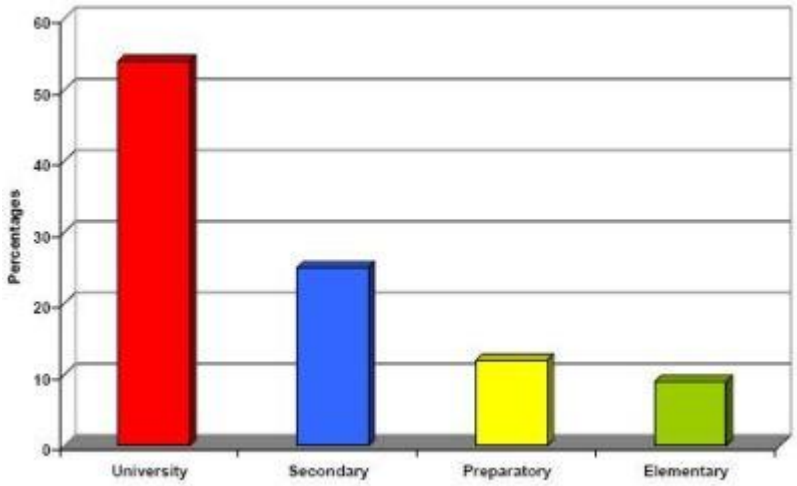

Fig 1: Level of education

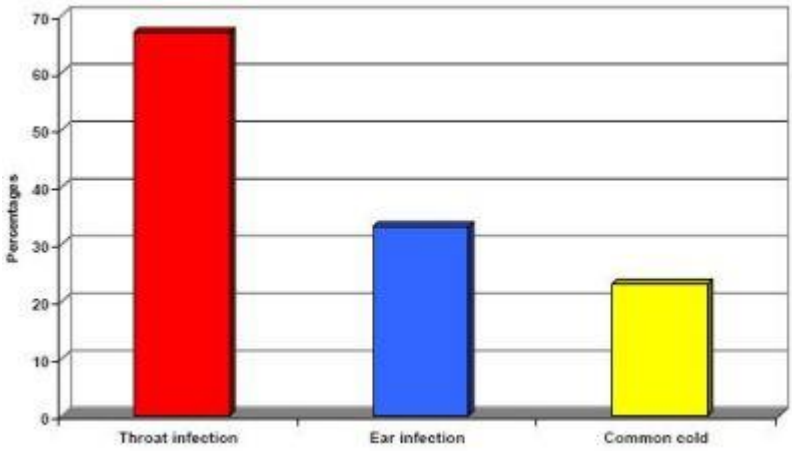

Fig 2: Reason for prescribing antibiotic

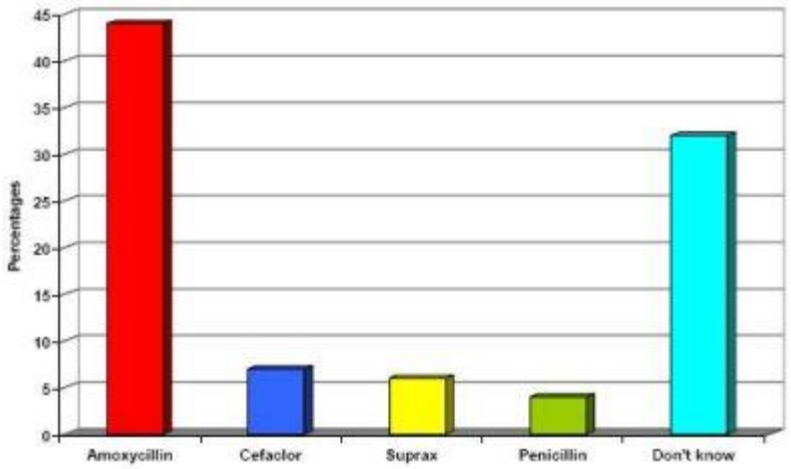

Fig 3: Commonly used Antibiotics

After prescribing antibiotic by one doctor, if another doctor asked to stop it as it was a viral infection, 67.1% complied with the second doctor while 32.9% did not. Majority of the parents finish the prescribed antibiotics. Five hundred and fifty five parents (50.6%) finished the course, 240 (21.9%) did not finish while 302 (27.5%) finished it sometime.

When asked to whom they would take the child if he or she got sick, in 497 (43.9%) the answer was to a pediatrician, in 362(32%) to a consultant pediatrician, in 104 (9.2%) to a general practitioner and in 126 (10.9%) to both specialist and consultant. Inquiring about symptoms for taking the child to a doctor, in the majority 755 (66.6%) the answer was fever, in 489 (45.24%) diarrhea, in 454 (40.1%) sore throat, in 419 (27%) ear ache and in 389 (34.4%) it was cough.

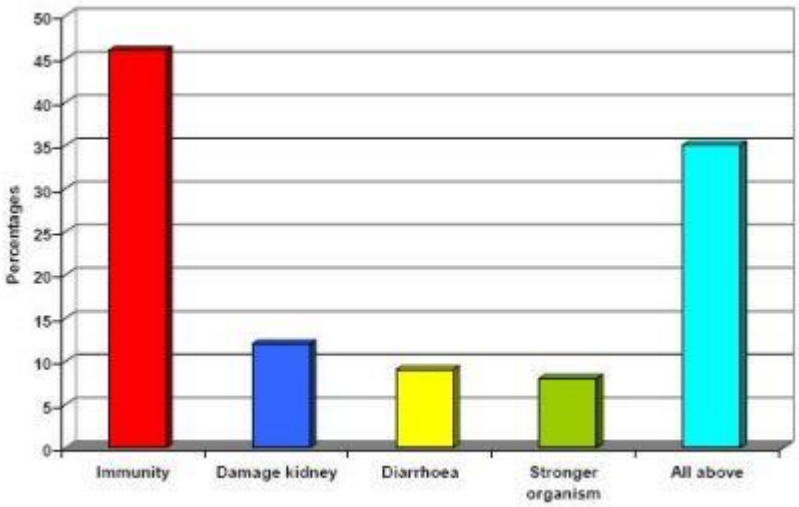

Fig 4: Parental conception about antibiotic side effects

Discussion

Growing bacterial resistance to antibiotics represents a global threat to the health of pediatric population in the world. Although antibiotic resistance has been a long observed problem, there is a recent concern about the widespread use of antibiotics in human and animals [10]. The use of broad spectrum antibiotics has accelerated the pace of emerging bacterial resistance [10].

Physicians acquiesce to parent pressure and prescribe antimicrobial agents when they are not indicated. Parents must be reeducated if inappropriate antimicrobial agents use is to decline. More careful diagnostic criteria, reducing drug detailing, or legal liability or the need to be efficient in practice were nearly as important as educating parents. In an editorial, Edwards [11] commented that in an era of managed care and emphasis on efficiency practice, sufficient time may not be available to discuss about antibiotic. In our study 20% of the parents wished that their physician would prescribe antibiotics and 45% sometime wished that while in 35% did not wished that. These results differ with those of Rita Ms et al, who found 50% of the parents expressed a previsit expectation for antibiotics [12]. Howard B found that 48% of parents always, most of the time, or often pressure to prescribe antibiotics, when their children are ill but antibiotics are not indicated [13]. Among the parents who wanted antibiotics, 30.68% were afraid that without antibiotic their children might get more sick and 15% wanted antibiotics because they believed the child would get well quickly.

Many studies concerning patient expectations for antimicrobial agents were done on adults. In a study of 787 adults with lower respiratory infection, Macfarlane [14] found that they often believed that infection was the problem and antibiotics were the answer. Even when the doctor judges that antibiotic are not indicated patients expectations increased the likelihood that antibiotics will be prescribed [15]. Vinson and Lutz asked clinicians to indicate, after a visit with families, if they sensed that parents of acutely ill children wanted an antibiotic. In a study of 1398 patients, they found that Physician prescription of parental expectation for antibiotics was associated with a diagnosis of bronchitis and prescribing an antibiotic.

Parental level of education significantly associated with antibiotic prescribing. Significant differences were observed when less educated parents were compared with more educated parents with respect to request for antibiotic prescription. 22.5% of parents educated elementary and preparatory levels requested for antibiotic when their child was sick while parental education of university level; it was 5.04% ($P < 0.00001$). 53.7% of parents educated to elementary level liked the physician to prescribe antibiotics when the child had fever while only 28.9% of parents educated to university level would do that ($P = .00001$).

In our study, 70.7% respondent do not request physician to prescribe antibiotic and only 7.2% requested for antibiotic. This differs from a previous study which showed, 48% of parents always, most of the time, or often pressure physician to prescribe antibiotic when their children were ill but antibiotics were not indicated [13]. Our study is also different from a previous study where 88% of unnecessary antibiotic prescription according to Centers for Disease Control and Prevention Guidelines were due to parents pressure, types of patterns identified were direct request, candidate diagnosis (a diagnosis suggested by parents) [16].

Our study showed that most of the parents (74.4%) gave the antibiotic to their children when the physician prescribed it and only 7.8% did not give. Of parents who refused to give antibiotics to their children, for fear of side effects of antibiotic, 46.24% believed that antibiotic lowers immunity, 11.58% believed that it causes damage to the kidney and 35% believed it causes loose motion, allergy, lowers immunity and damage to the kidney and liver. In a study by Palmer and Bauchers, 55% of parents were concerned about antibiotic resistance and lowered immunity [17].

In our study 37% of parents learned about the side effect of antibiotic from physician, 30% learned from newspaper and 24% from TV, pamphlet and friends. This is different from the findings of J. Gary Wheels et al, who found video tape to be the source of information in 57% of parents and pamphlet in 20 % of parents [18].

Our study does not support a previous study that showed one half of the children receive at least one prescription and 12% receive 3 or more prescriptions annually [19]. As we found 27.5% children received one to two prescription and 36.9% received three to four prescription annually. Nana et al found 88% of prescriptions were penicillin and 10% were macrolids [19]. Our study showed that only 4.3% prescription were penicillin and amoxicillin was the widely used antibiotic, 43.9%. We found 50.5% children finish the antibiotic course and 27.5% children finish sometime, there is no similar study to compare the compliance. A Previous study showed 62% of antibiotic course were dispensed for otitis media [20] while we found ear infection to account for 39.4% of parents and 66.8% for throat infection.

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References

1. McCaig LF, Hughes JM. Trends in antimicrobial drug prescribing among officebased physicians in the United States. JAMA 1995; 273: 214-219.
2. Nyquist AC, Gonzales R, Steiner JF et al. Antibiotic prescribing for children with colds, upper respiratory tract infections, and bronchitis. JAMA 1998; 279: 875-877
3. Wang EE, Einarson TR, Kellner JD et al. Antibiotic prescribing for Canadian preschool children: Evidence of over prescribing for viral respiratory infections. Clinical Infectious Diseases1999; 29:155-160.
4. Baquero F. Pneumococcal resistance to betalactam antibiotics: A global geographic overview. Microbial Drug Resistance1995; 1: 115-120.
5. Berezin EN, Carvalho ES, Casagrande S et al. Streptococcus pneumoniae penicillin nonsusceptible strains in invasive infections in Sao Paulo, Brazil. Pediatric Infectious Disease Journal1996; 15: 1051-1053.
6. Hortal M, Algorta G, Bianchi I et al. Capsular type distribution and susceptibility to antibiotics of Streptococcus pneumoniae clinical strains isolated from Uruguayan children with systemic infections. Pneumococcus Study Group. Microbial Drug Resistance1997; 3: 159-163.
7. Baquero F, Barrett JF, Courvalin P et al. Epidemiology and mechanisms of resistance among respiratory tract pathogens. Clinical Microbiology and Infection1998; 4: Suppl 2: S19-26.
8. Magee JT, Pritchard E L, Fitzgerald KA et al. Antibiotic prescribing and antibiotic resistance in community practice: retrospective study, 1996–8. Br Med J 1999; 319: 1239-1240.
9. Seppala H, Klaukka T, Vuopio-Varkila J et al. The effect of changes in the consumption of macrolide antibiotics on erythromycin resistance in group A streptococci in Finland. Finnish Study Group for Antimicrobial Resistance. New Eng J of Med 1997; 337: 441-446.
10. Petty TL. New approaches to the control of infections caused by antibiotic- resistant bacteria: an industry prospective, JAMA 1996; 275: 401-405
11. Edwards KM. Resisting the urge to prescribe, J Pediatr 1996; 128: 729-730
12. Rita MS, Elizabeth AM, Mare NE, Laurie MD, Carol EF, Richard LK. Parent expectations for antibiotics, physician-parent communication and satisfaction. Arch Pediatr Adolesc Med 2001; 155: 800-806.
13. Howard B, Stephen IP, Jerome OK. Parents, physicians and antibiotic use. Pediatrics 1999; 103: 395-398.
14. Macfarlane J, Holmes W, Macfarlane R, and Influence of patients expectations on antibiotic management of acute lower respiratory tract illness in general practice: Questionnaire study. Br Med J 1997: 315: 12111-12114.
15. Vinson DC, Lutz L, The effect of parental expectations on treatment of children with a cough: a report from ASPN, J Fam Prac 1993, 37: 23-27
16. John GS, Deborah C, Barbara DB, John O, Carlos RJ, Benjamin FC. Antibiotic use in acute respiratory infection and the way patients pressure physicians for a prescription. J Fam Pract 2001; 50: 853-858.
17. Palmer DA, Bauchner H. Parents on physicians views on antibiotics. Pediatrics 1997; 99: E6.
18. J Gary Wheeler, Melinda Fair, Pippa MS, Leigh AR, Mary EA, Richard FJ. Impact of a videotape message on parents attitudes toward antibiotic use. Pediatrics 2001; 108: 591-596.
19. Nana T, Flemming HS, Jeus TM, Henrik CS, Henrik TS. A population-based study of antibiotic prescriptions for Danish children. Pediatr Infect Dis J 1999; 18: 333-337.
20. Jonathan AF, Robert LD, Scott FD, Joshua PM, Stephen BS, Sheryl LR, Margaret H, Zachary M, Irira M, Alex P, Richard O. Reducing antibiotic use in children: a randomized trial in 12 practices. Pediatrics 2001; 108: 1-7.

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