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Original Article

Parents' Satisfaction with Antibiotics Prescription for Under 5 children in Family Health Facilities in Alexandria

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Abstract

Background: Improving antibiotic use is a public health imperative. One of the most important reported factors influencing inappropriate antibiotic prescription is patients' insistence on prescribing antibiotic.
Objective (s): The aim of present study was to assess parents' satisfaction with antibiotics prescription for under 5 children in family health facilities in Alexandria governorate.
Methods: A cross sectional study was conducted in four randomly selected family health facilities on a sample of 126 parents of under 5 children by using an interview questionnaire.
Results & Conclusion: The results revealed that most of the parents (96.8%) were satisfied with the overall offered services to their sick children in the family health facilities and 98.6% would comply with the family physicians management, even if antibiotics were not prescribed, whereas the rest would seek a second medical advice at a private health facility.

Keywords: Antibiotics, parents' satisfaction, under 5 children

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INTRODUCTION

Antibiotics are among the most frequently prescribed classes of medications for children.[1] It is interesting to note that maximum levels of antibiotics are used in the community and primary care, which account for 80% of all human antimicrobial use [2] and the rest are used in hospitals.[3] Studies in the United States of America (USA), 1992-2000, have estimated that more than150 million ambulatory visits result in an antibiotic prescription annually, including more than 30 million prescriptions for children.[4, 5] However, in many of these instances, antibiotics are prescribed for conditions of viral origin,[1] mostly self-limiting Acute Upper Respiratory Tract Infections (AURTIs) for which they provide no clinical benefit.[6, 7] On the other hand, prescribing broad spectrum agents has increased substantially during the past decade.[7] If the second half of the last century belonged to antibiotics, then the last three decades witnessed the misuse and overuse of these miracle drugs. No doubt antibiotics are being overused, particularly in children, and are largely an unseen major public health problem.[2, 8] Excessive antibiotic consumption is increasingly recognized as the main or rather the only cause of the emerging antibiotic resistance.[3, 9] Every time an antibiotic is used whether appropriately or not, in human beings or in animals-the probability of the development and spread of antibiotic-resistant bacteria is increased.[10] The International network of surveillance system monitoring data on antibiotic use in Europe through the European surveillance of antibiotic consumption project found that the highest rates of antibiotic resistance were seen in countries with the highest consumption rate of antibiotics.[2]

Antibiotic effectiveness is a globally shared resource and a communal responsibility. That responsibility is to maintain antibiotic effectiveness as long as possible, while allowing the maximum possible health benefits to accrue to the world's population.[10] Improving antibiotic use is a public health imperative. Antibiotics are the only drug where use in one patient can impact the effectiveness in another. If everyone does not use antibiotics well, we will all suffer the consequences.[11]

Antimicrobial resistance (AMR) is the ability of microbes to grow in the presence of a drug that would normally kill them or limit their growth. Antimicrobial resistance makes it harder to eliminate infections from the body as existing drugs become less effective. As a result, some infectious diseases are now more difficult to treat than they were just a few decades ago.[12, 13]

The World Health Organization (WHO) global strategy defines the appropriate use of antimicrobials as the cost-effective use of antimicrobials which maximizes clinical therapeutic effect while minimizing both drug-related toxicity and the development of antimicrobial resistance. The general principles of appropriate antimicrobial use are the same as those for all other medicinal products. An additional dimension for antimicrobials is that therapy for the individual may affect the health of society as a result of the selective pressure exerted by all use of antimicrobial agents.[14]

The inappropriate use of antibiotics is the key driver for the development of antibiotic resistance.[15] This is primarily caused by a combination of overuse, particularly to treat non-bacterial infections or to extend prophylaxis beyond 24 hours.[11] Studies have shown that physicians inappropriately prescribe antibiotics for infections caused by viruses when no therapy is necessary. They also prescribe an unnecessarily broad spectrum agent when a narrower spectrum agent would be effective.[1, 16] Physicians may also prescribe the wrong dose for the wrong length of time.[16] Inappropriate prescribing is due to many factors including: patients who insist on antibiotics, physicians who do not have enough time to explain why antibiotics are not necessary and therefore simply prescribe them to save time, physicians who do not know when to prescribe antibiotics or how to recognize a serious bacterial infection, physicians who are overly cautious[16], or lack of information about alternative appropriate treatments. Underuse of antibiotics could be attributed to of lack of access or financial means to complete an antibiotic course or simply insufficient compliance with the prescribed course.[11] On the other hand, misuse of antibiotics that that occur when poor quality antimicrobials are used. Taken together, the interplay of the aforementioned factors can lead to emergence and spread of resistant microorganisms.[8]

This study was conducted aiming to assess parents' satisfaction with antibiotic prescription for children under 5 years in family health facilities in Alexandria governorate.

METHODS

A cross sectional study was conducted in four randomly selected family health facilities representing four randomly selected health districts of the eight districts of Alexandria governorate.

The sample size was calculated by using EpiInfo 6 based on prevalence of 91% for parents' satisfaction with antibiotic prescription[17], a degree precision of 5 and alpha level of 0.05. It amounted to 126 parents of children under 5 years presenting with acute upper respiratory tract infection or diarrhea selected randomly with proportionate allocation from attendees of the studied family health facilities. The study was conducted in the period from August 2012 till February 2013

An interviewing questionnaire was designed to assess satisfaction of parents of children under 5 years regarding antibiotic prescription. It included personal data about the child and the accompanying caregiver, child's medical condition, the received health care, and parents' satisfaction regarding the management of the child's condition and antibiotic prescription.

A scoring system was used giving a value of 2 for each satisfying answer, a value of 1 for each neutral answer and a value of zero for each unsatisfactory one with a maximum score.[16] The percentage of total score from maximum score was calculated. Then it was divided into three categories as follows: unsatisfied (less than 50%), neutral (50% to less than 75%) and satisfied (75% or more).

A pilot study was carried out over a purposive sample of 10 parents of under five children for pre-testing of the questionnaire and the necessary modifications were done. Those cases enrolled in the pilot study were not included in the study sample.

Statistical Analysis

Data were reviewed, coded, verified and statistically analyzed using the computer package SPSS version 16. Kolmogorov-Smirnov test was used to test normality of quantitative variables. Univariate analysis using Kruskal Wallis test was used to test the significance of quantitative variables.

Ethical Considerations

The study was approved by the institutional review board and the ethics committee. The study conformed to the principles of Helsinki declaration and the international ethics guidelines. A written permission from the Ministry of Health and Population was obtained to carry out the study after being approved from its ethical committee. A verbal consent was taken from parents of under five children who accepted to participate in the study after explanation of the purpose and benefits of the study. Confidentiality of the data was assured.

RESULTS

Table (1) represents the socio-demographic characteristics of the studied children and their accompanying parents attending the studied family health facilities. More than half of children (53.2%) were females. the mean age was 21.0±17.3 months. All the children's accompanying caregivers were females. The maximum age noticed was

60 years and the minimum was 16 years with a mean of 30.4±7.5 years. The mother was the accompanying caregiver in 94.4% of the cases. The highest percentage (32.5%) of children`s caregivers were secondary school graduates and the least (4.8%) were institute graduates. Most (91.3%) of children`s caregivers were unemployed. The mean number of family members was 4.0±1.0. Monthly family income was enough in 83.3% of them.

Table (2) shows that more than three quarters (75.4%) of the children were diagnosed as AURTIs and almost one quarter (24.6%) of them were diagnosed as diarrhea. The treatment prescribed for diarrhea was in the form of oral rehydration solution in 64.5%, antibiotic in 35.5%, Zinc solution in 9.7% and other drugs that was the most frequent prescribed medications in 70.9% of the children. Medications prescribed for treating AURTIs were more frequently antipyretic (58.9%), antibiotic (43.2%) and decongestants (20%). The opinion that the child was not in need of antibiotics was stated by 57.9% of the parents. Regarding the facility to get medications, 43.7% of the parents used to get medications from private pharmacy, whereas 26.9% get them from the health facility. Concerning the actions taken if the physician did not prescribe antibiotics, most of the parents (98.6%) claimed that they follow physician's orders.

It appears from table (3) that (92.9%) of the parents were satisfied about the treatment prescribed by the family physicians. The parents were also satisfied about physicians` definition of the dose, the dose frequency, the duration for antibiotic use and the root of the antibiotic administration (41.3% for each). None of the parents were unsatisfied when the physician did not prescribe antibiotics for their children in case of having AURTI or diarrhea.

Table (1): Socio-demographic characteristics of the studied children and their accompanying parents attending the studied family health facilities

Socio-demographic characteristics	Studied children & parents (n=126)	
	No.	%
Children		
Gender		
Male	59	46.8
Female	67	53.2
Age (months)		
Min-Max	2-59	
Mean±SD	21.0±17.3	
Accompanying person		
Gender		
Male	0	0.0
Female	126	100.0
Age (years)		
Min-Max	16-60	
Mean±SD	30.4±7.5	
Relation to infant		
Mother	119	94.4
Grandmother	3	2.4
Others	4	3.2
Level of caregiver education		
Illiterate	7	5.6
Read and write	15	11.9
Basic education	24	19.0
Secondary school	41	32.5
Institute	6	4.8
University	33	26.2
Employment		
No	115	91.3
Yes	11	8.7
Number of family members		
Min-Max	2-7	
Mean±SD	4.0±1.0	
Monthly family income		
Not enough	21	16.7
Enough	105	83.3

Table (2): Distribution of the studied children according to health service received in the family health facilities

Health care practices	Studied children (n=126)	
	No.	%
Diagnosis of child		
Acute URTI	95	75.4
Diarrhea	31	24.6
#Treatment prescribed for diarrhea [n=31]		
Antibiotic	11	35.5
Oral rehydration solution	20	64.5
Zinc solution	3	9.7
Others	22	70.9
#Treatment prescribed for acute URTI [n=95]		
Antibiotic	41	43.2
Antipyretics	56	58.9
Anti-Cough medications	36	37.9
Decongestants	19	20.0
Bronchodilators	20	21.1
Others	32	33.7
Opinion of parent that the child is in need of antibiotics		
Yes	53	42.1
No	73	57.9
Facility to get medications [n=126]		
Health facility	34	26.9
Health facility and pharmacy	37	29.4
Private pharmacy	55	43.7
Actions taken if physician did not prescribe antibiotics [n=74]		
Visit a private hospital/clinic	1	1.4
Follow physician's orders	73	98.6

Categories are not mutually exclusive

Table (3): Distribution of parents of studied children according to their satisfaction regarding practices of family physicians relevant to the management of AURTIs and diarrhea

Practice items	Satisfaction (n=126)							
	Unsatisfied		Neutral		Satisfied		Not applicable	
	No.	%	No.	%	No.	%	No.	%
Physician prescribed suitable treatment for the child's condition	3	2.4	0	0.0	117	92.9	6	4.8
If antibiotic prescribed by physician have defined the dose	0	0.0	0	0.0	52	41.3	74	58.7
Physician have defined the dose frequency of antibiotic	0	0.0	0	0.0	52	41.3	74	58.7
Physician have defined duration for the antibiotic use	0	0.0	0	0.0	52	41.3	74	58.7
Physician explained the root of the antibiotic administration	0	0.0	0	0.0	52	41.3	74	58.7
Physician mentioned the way of antibiotic storage	51	40.5	0	0.0	1	0.8	74	58.7
Antibiotic was not prescribed and the child has AURTI	0	0.0	0	0.0	54	42.9	72	57.1
Antibiotic was not prescribed and the child has diarrhea	0	0.0	0	0.0	20	15.9	106	84.1

Table (4) illustrates the distribution of the total score of satisfactions of parents of children under 5 years about health care services offered by family physicians in treating AURTIs and diarrhea. It shows that 96.8% of the parents were satisfied, 3.2% were neutral and none of them were unsatisfied. Table (5) represents the relationship between the studied parents` satisfaction scores and their level of education. It shows that illiterate parents had the highest satisfaction score although the relation was not statistically insignificant (P> 0.05).

Table (4): Distribution of total score of satisfactions of parents of children under 5 years about health care services offered by family physicians in treating AURTIs and diarrhea

Satisfaction score of parents	Number of parents (n=126)
Neutral No. (%)	4 (3.2%)
Satisfied No. (%)	122 (96.8%)
Minimum - Maximum % score	52.4-100.0
Median (Q1-Q3)	100.0 (94.4-100.0)

Table (5): Relationship between studied parents` satisfaction scores and their level of education

Level of caregiver education	Satisfaction score of parents			Significance
	n	Min-Max	Median (Q1-Q3)	
Illiterate	7	97.4-100.0	100.0(97.5- 100.0)	$^{KW}X^2$=1.703 P=0.79
Read and write	15	86.8-100.0	100.0 (97.8- 100.0)	
Basic education	24	52.4-100.0	97.5 (93.7 – 100.0)	
Secondary education/institute	47	56.5-100.0	100.0 (92.1- 100.0)	
University	33	69.0-100.0	100.0 (94.3- 100.0)	

$^{KW}X^2$: Kruskal Wallis test

DISCUSSION

Patient satisfaction is an attribute of quality per se, without patient satisfaction there cannot be good care. There is evidence that satisfaction with pediatric medical visits is related to parents' adherence with medical regimes, understanding and retention of medical information, and continuity of care.[18]

In the present study, the great majority of the parents of children under 5 years with acute upper respiratory tract infections and diarrhea were satisfied with health care services offered in the studied health facilities. Similar results were reported in the study done by Abd El Hamed in Alexandria, Egypt[19] which revealed that the majority of parents were satisfied with the health service provided for their children. A study done by Christakis et al.,[20] in USA to assess association between parental satisfaction and antibiotic prescription for children with cough and cold symptoms, revealed similar results where the overall parents' satisfaction with the visit was high.

In the present study, all parents were satisfied when the physician did not prescribe antibiotics in AURTI and diarrhea and about 98.6% would comply with the family physician management, even if antibiotics were not prescribed, while the rest would seek a second medical advice at a private health facility. On the contrary, Christakis et al.,[20] reported that receiving antibiotics during the initial visit was associated with increased satisfaction. More importantly, not receiving antibiotics for cough and cold symptoms then receiving them subsequently during the same illness episode was associated with significantly lower satisfaction. These findings are important because alternative mechanisms of ensuring parental satisfaction with a visit, or preparing them for the possibility that a repeated visit may be needed and could be important.

Likewise, a study from USA[21] assessing antibiotic prescriptions and patient satisfaction in emergency department visits for acute respiratory tract infections, reported that antibiotic treatment was significantly associated with increased overall visit satisfaction in administration hospital emergency departments for AURTIs. Patients who received antibiotics were also significantly more likely to be satisfied with the explanation of treatment and the manner in which they were treated by the provider. Another study[22] that addressed the practices of antibiotic prescription in emergency department for patients with upper respiratory infections and patient expectations and satisfaction, had indicated that antibiotics for AURTIs do not increase patient satisfaction.

Parental satisfaction with the consultation has little to do with whether or not antibiotics were prescribed. The most important issue for the parents is if they have the impression that the doctor listens to them and shares their concern about the sick child. Also whether or not the doctor gave adequate information, not only a contingency plan for what to do if the child does not recover within a certain time but also if he positively framed recommendations for symptomatic treatment. Thus, it had been shown to be important factors for recovery among adults that a doctor's consultation makes them feel less worried.[23]

In the current study, the illiterate caregivers were found to have the highest satisfaction scores. This was in agreement with a study from Ghana[24] which revealed that mothers with higher education were found to be less satisfied with their children's health care services. This might be attributable to the fact that they are more criticizing for health services provided in general coupled with the fact that they are more knowledgeable about social health issues and their "rights". Similar results were reported in a study from USA[25] evaluating parent expectations for antibiotics, physician-parent communication, and satisfaction. In that study, parents with a graduate degree were less satisfied than those with a high school degree concerning their children health care. Another study done in Germany[18] found no significant relation between the educational background tested and parents` satisfaction. Furthermore, a study from Cyprus[26] revealed that parental educational level and ethnicity were associated with attitudes concerning judicious use of antibiotics. On the other hand, several studies showed that patient satisfaction is more strongly associated with the time general practitioners spend listening to patients, and providing information and reassurance.[27, 28] Patients' beliefs and expectations have a major role in consulting behavior and the decision about antibiotic prescription. Studies

found that more patients were seeking reassurance and information in a consultation than were seeking an antibiotic prescription. Moreover, reassurance and information were more strongly associated with patient satisfaction than with receiving an antibiotic prescription.[29]

A study done in Malaysia[30] reported that 17% of the studied parents believed that antibiotics were unnecessary when prescribed for their child with AURTI. This attitude was found to have significant association with parents' educational levels. This group of parents may understand more about the proper indication for antibiotics and they may be aware of the undesirable effects of over prescription of antibiotics, therefore making them reluctant to receive antibiotics for acute URTI in their children. Some parents in fact do not primarily seek a prescription for antibiotics but actually seek guidance, evaluation and reassurance when they take their child with upper respiratory tract symptoms to a physician.

In the present study, if physician did not prescribe antibiotics for their sick children, most of the parents (98.6%) follow physician's orders. Similar results reported in a study done in Cyprus[26] assessing parents' knowledge, attitudes and practices on antibiotic use in children with upper respiratory tract infections, which showed that 97% of parents claimed following pediatricians' instructions precisely.

CONCLUSION

Most of the parents of children under 5years were satisfied about health care services offered in the studied health facilities. All parents were satisfied when physician did not prescribe antibiotics in AURTIs and diarrhea and 98.6% would comply with the family physician management, even if antibiotics were not prescribed, while the rest would seek a second medical advice at a private health facility.

Conflict of Interest: none to declare

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