The Egyptian Journal of Hospital Medicine (October 2017) Vol.69 (2), Page 1968-1972

Evaluation of Parents Knowledge about the Dangerous Effect of Excessive Use of Antibiotics on Children with URTIs in Saudi Arabia, 2017

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ABSTRACT

Background: upper respiratory tract infections (URTIs) are highly encountered by children all over the world with repeating episodes from 6-8 times during the year. However being of viral origin and a self-limited disease, many parents' attitudes forces physician to use antibiotics thus resulting in antibiotic resistance.

Objectives: to study the parental knowledge, attitude and practice (KAP) toward antibiotic use among children with URTIs in Kingdom of Saudi Arabia.

Methods: a self-administered questionnaire was distributed among parents presented at a random sample of primary schools in KSA from February 2017 to June 2017.

Results: a total of 547 parents were included from different parts of KSA, most of them were females, graduated from a college and received a moderate income. Overall, KAP toward using antibiotics in URTI for children was very low among 72% of subjects and was good in only 28% of subjects showing that there was inappropriate level of KAP among the studied population.

Conclusion: Saudi parents have inadequate knowledge about antibiotic use in children for treating URTIs that showed incorrect answers for attitudes and practices.

Keywords*:* KSA, KAP, Upper Respiratory Tract Infections (URTIs), Antibiotic Resistance

INTRODUCTION

One of the most prevalent diseases among pediatrics is upper respiratory tract infections (URTIs) with high incidence and repeated from 6-8 per year[(1)]. Most of the outpatient clinics and emergency departments visits were attributed to URTI infection in children [(2, 3)]. The URTI is the cause of children absence from schools and poses a high economic costs on the healthcare facilities and authorities due to unnecessary medical care visits [(4, 5)].

Antibiotics are mainly used for treatment of bacterial infections however it is widely used in case of treating URTI in pediatric health care facilities even though its viral origin would result in ineffective practice and resistance[(6, 7)]. As for general practitioners about 33% of them would prescribe antibiotics at the end for URTI in children[(8, 9)]. Also, it has been found that about 23.4% of antibiotic prescriptions in ambulatory care of children in United States were of no clinical indications [(10)].

The misuse of antibiotics has been a global concern of and a public health issue as it would result in antibiotic resistance that is an increasing threat on children's health [(11, 12)].

The WHO considered antibiotic resistance as a public threat and a global problem [(13)] and many authors confirmed the relationship between the development of resistance with unnecessary use of antibiotics [(14, 15)].

The major causes for development of antibiotic resistance are excessive and inappropriate use of antibiotics by both parents and physician [(16, 17)]. Most of parents had low knowledge toward antibiotic use and had the perception that antibiotics could treat most of infections. Also, many physicians describe antibiotics for avoiding secondary bacterial infection [(18)]. Therefore, this study was planned to study the KAP of Saudi parents toward the use of antibiotics for treatment of URTI in children.

METHODS

It is a descriptive community based study that was conducted in a random sample of primary schools in KSA from the period of February 2017 to June 2017. **The study was done after approval of ethical board of King Abdulaziz university.**

Using the stratified random sampling technique, 47 boys schools and 42 girls schools were included in the study where the parents of children were interviewed during the parent's day. The study participants were 547 parents of children aged from 6-10 years old who were attending the parent's day

Received: 8 / 7 /2017
Accepted: 17 / 7 /2017
DOI : 10.12816/0040631

in all included schools and accepted to participate in the study. An informed consent was obtained from the parents included in the study and from the ethical committee of faculty of Medicine.

Study tools:

A self-administrated questionnaire was developed and revised by 3 experts after reviewing the online database and literature and validated from two studies then translated into Arabic for being easy for all parents to participate. The questionnaire consisted of 4 parts the first part concerned with the demographics of included subjects as age, gender, education and income. The other parts of the questionnaire were about knowledge, attitude and practice of included subjects. The readability and clarity of the questionnaire were assessed using a pilot study that was done among 30 participants who were excluded from participating in the study then the final version was adapted and corrected according to the reaction from the subjects.

Statistical analysis

The collected data were analysed using the Statistical Package for Social Sciences (SPSS, version 22) for windows. The quantitative statistics of answers were analysed as frequency and percentage. Also, means or medians were used for numerical variables.

RESULTS

Demographics of the studied subjects:

The demographic characteristics of subjects are distributed in Table 1. The mean age of included subjects was 33 years old with a range from 26-41 years old. The most of respondents were mothers (62.9%) and fathers were 37.11%. Also, most of them had college degree (97.2%), 14.8% of them were at secondary school and 6% of them had primary school. 76% of them had moderate income, 18% had low income and 6% had high income.

Table (1): Socio-Demographic Characteristics of Respondents (547)

Age (year)	33±1.6	26-41
Female	344	62.9%
Male	203	37.1%
Collage	433	79.2%
Secondary School	81	14.8%
Primary School	33	6%
Low	98	18%
Moderate	415	76%
High	34	6%

Assessment of knowledge of included subjects:

Table 2 showed that the response of subjects to questions was related to the knowledge about antibiotic use. A total of 67% of subjects use antibiotics by themselves for their children and 33% of them disagreed that antibiotics should not be used by fathers without description. 60.1% of subjects usually used antibiotics for any feverish children. Also, there was insufficient knowledge among parents as the majority of them thought that the antibiotics would make their children get better faster. A lack of knowledge was found among parents as only 39.1% know that URTIs had a viral origin and don't need antibiotic as they are self-limited. In addition, 54.8% of subjects had a wrong concept that antibiotics had no side effects. On the hand, 77.3% of subjects had better information regarding the side effects of overuse of antibiotics that results in bacterial resistance. Also, there was a better awareness in 76.8% of participants regarding the interference of antibiotics with certain drugs that reduce its efficiency (Figure. 1).

Table (2): Awareness regarding the excessive use of Antibiotics:

	Agree	Disagree
Q1: You can use antibiotics for children by yourself	366 (67%)	181 (33%)
Q2: Antibiotics are used for any child with fever	329 (60.1%)	218 (33.8%)
Q3: Children with flu like symptoms get better faster after using antibiotics	382 (69.8%)	165 (30.2%)
Q4: Most URT infections are of viral origin and don't need antibiotics they are self-limited	214 (39.1%)	333 (60.9%)
Q5: Using antibiotics poses no side effects	300 (54.8%)	247 (45.2%)
Q6: Overuse of antibiotic drives bacterial resistance	423 (77.3%)	124 (22.7%)
Q7: Antibiotics interfere with certain drugs and reduce its efficiency?	420 (76.8%)	127 (23.2%)

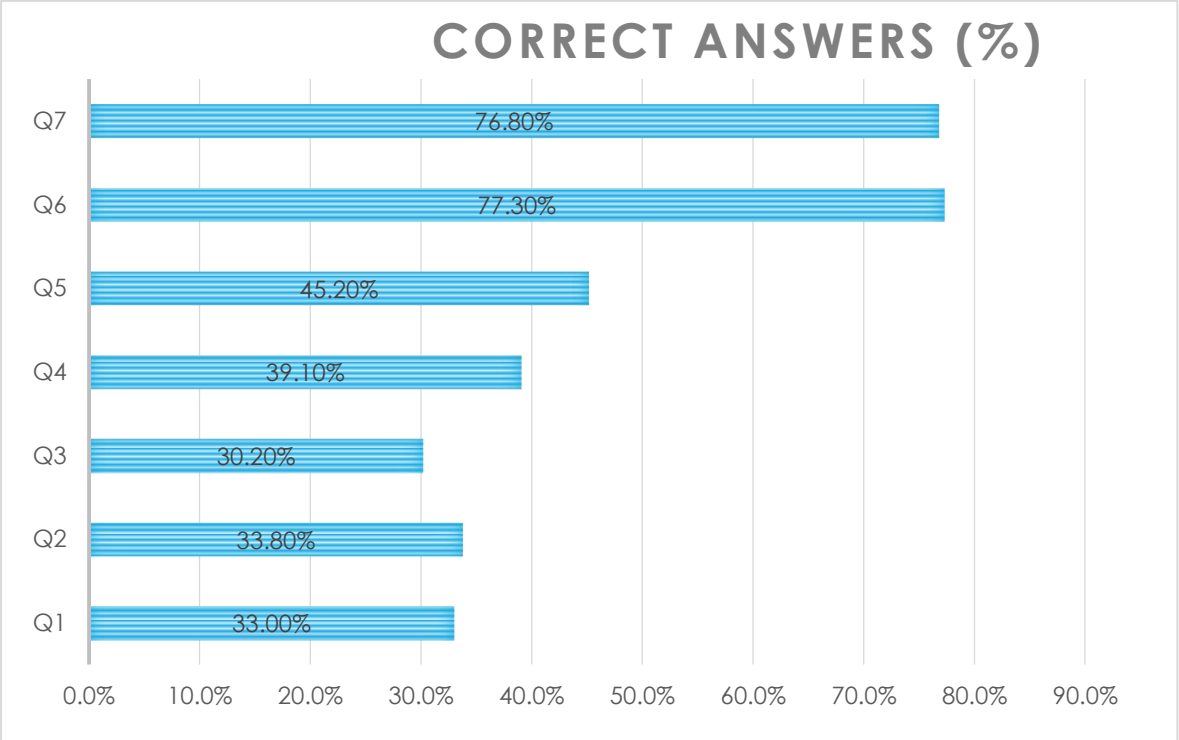

Figure. 1: Correct answers regarding the antibiotic use awareness for URTI in children

- **Assessment of subject's attitude:**

Table 3 showed that the attitude of subjects was good in 52.8% of subjects as they thought that they should be informed about cautions of antibiotic use. 60% of subjects had positive attitude toward bot using antibiotics for URTI treatment as it is a self limited disease. Most of subjects had wrong attitude as 69.7% would reuse the remaining antibiotics when URTIs symptoms occur. Also, 74% of them wouldn't change the pediatrician when prescribing antibiotics every visit. However, 81.1% wouldn't change the doctor for not prescribing antibiotic according to the request of the parents.

Table (3): Attitude of respondents toward antibiotic use (n=547)

Yes	289	52.8
No	258	47.2
Yes	328	60
No	219	40
Yes	166	30.3
No	381	69.7
Yes	142	26
No	405	74
	99	18.1
	448	81.9

Practice pattern of included subjects:

The practice pattern of included subjects showed that 60.1% of subjects declared that pediatrician prescribes antibiotic for URTIs according to the request of the parents. Although, 77.1% had a good practice toward following the instructions of pediatrician. There was a poor practice pattern regarding asking physician to prescribe antibiotics for URTIs. 71.8% of subjects had good practice toward asking the physician about the requirements of using antibiotic in URTI (Table 4).

Table (4): Practice pattern of respondents toward antibiotic use (n=547)

1. Pediatrician prescribes antibiotic for URTIs when parents ask him to do?	**329 (60.1%)**	**218 (39.9%)**
2. Do you follow all instructions of pediatrician?	**422 (77.1%)**	**125 (22.9%)**
3. Do you ask the physician to prescribe antibiotic for URTIs?	**366 (66.9%)**	**181 (33.1%)**
4. Do you ask the physician about the requirements of using antibiotic in URTI?	**393 (71.8%)**	**154 (28.2%)**

Level of KAP pattern

The level of knowledge, attitude, and practice (KAP) of included subjects toward using antibiotics in URTI for children was very low among 72% of subjects and was good in only 28% of subjects showing that there was inappropriate level of KAP among studied population (Table 5 & Figure. 2).

Table (5): Respondents' KAP of antibiotic use

KAP level	Frequency	Percent (%)
Good	153	28
Poor	394	72
Total	547	100,0

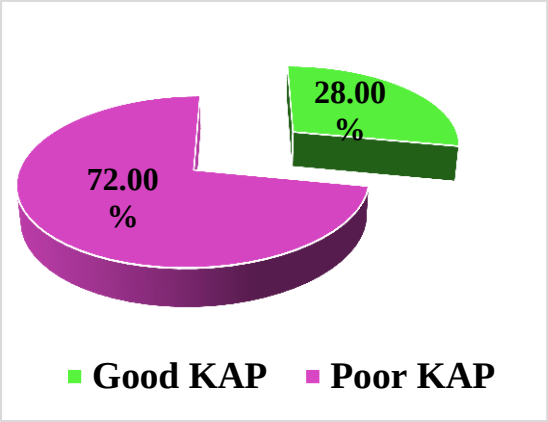

Figure 2. Respondent's KAP about antibiotic use

DISCUSSION AND CONCLUSION

The present study was conducted to evaluate the KAP of a random sample of Saudi parents for providing better management of UTRIs without need for prescribing antibiotics. This study demonstrated that most of the subjects enrolled in the study were mothers suggesting that mothers are significantly concerned about the health of their children when compared to fathers [19, 20].

Although most of participants had a high educational degree, their level of KAP toward using antibiotics was insufficient. This also, was seen in other studies conducted in KSA showing that most of Saudi subjects have a wrong knowledge and belief about using antibiotics [19, 20]. Also, most of participants had poor knowledge regarding the adverse effects of using antibiotics. In addition, many of them had wrong conceptions about prescribing antibiotics of their own as well as prescribing antibiotics for every feverish child. But, there was a good knowledge regarding the effects of antibiotics on drug resistance as well as interacting with other medication and interfering with its activity.

These wrong beliefs about using antibiotics for URTI in children had led to poor attitude and practice outcomes. In the same respect, the issue of using antibiotics to treatment of URTI is very obvious in many counties around the world [21-23]. Also, other studies in KSA showed the same pattern of inappropriate use of antibiotics even without medical prescription [19, 20, 24].

In conclusion, Saudi parents have inadequate knowledge about antibiotic use in children for treating URTIs that showed incorrect answered for attitudes and practices. These results also proposed that parents around the world had an inappropriate knowledge and conceptions about antibiotic use for URTIs in children. Thus, it is important to provide patients and parents with adequate information about antibiotic use for URTI to help doctors to manage these infections without prescribing antibiotic treatment for URTI without need and this could be done through regulations policies for fair use of antibiotics and restrict dealing with antibiotics unless prescription is allowed through medical

authorities specially with the presence of medical health insurance in KSA especially with the presence of health insurance in KSA. Also, educational campaigns should be conducted on media, TV and internet for better treatment of URTI.

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