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Original Research

Knowledge, attitude and practice of parents towards antibiotic usage in children

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ABSTRACT:

Background: Lack of knowledge among parents regarding the judicious use of antibiotics in managing common childhood illnesses can result in its misuse. The main objective of this article is to assess the knowledge, attitude, and practices of parents regarding antibiotic administration in children. **Material and Method:** Data regarding demographic profile of patient or caregiver, idea regarding pediatric dosage forms, dosing of medicines, and medication errors during administration were recorded from 145 caregivers. Reconstitution of dry powder and measurement of 5 mL liquid medicine using measuring cup of the medicine phial was demonstrated by the caregivers. A standard questionnaire comprising of questions related to antibiotics, its indications, resistance and doctor-patient relationship was given to them and their responses were recorded. **Result**: Majority of participants were young and educated parents. Out of the 145 parent's majority of the respondents (63%) were mothers Most of them were not aware of the indications of antibiotics with only 19% agreeing that antibiotics have no role against viruses. Also only 23% accepted that antibiotics are not necessary for short duration fever and common cold. Most common symptoms to visit pediatrician included cough (27%), followed by ear pain (19%) and nasal discharge (14%). 98 respondents (68%) purchased antibiotics without a prescription, whereas 47 (32%) purchased it only after obtaining a prescription. However, only seven (5%) followed instructions regarding antibiotic usage, whereas majority did not receive any advice from their doctor regarding use. **Conclusion:** Physicians need to be aware of the limitations of knowledge and the possibility of wrong administration practices among caregivers of children. Majority of parents admitted to self-administration of antibiotics. There is a need of intervention to increase awareness regarding use of antibiotics and to check un-prescribed dispensing of antibiotics. The high level of trust on doctors by parents should encourage physicians to be rational in their antibiotic prescriptions.

Key words: Children, Antibiotic misuse, Antibiotic resistance.

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INTRODUCTION:

Infectious diseases contributed to high mortality and morbidity throughout the world before the invention of antibiotics; which was considered one of the greatest inventions of 20th century.[1]And in the following years, antibiotic resistance became an emerging issue worldwide due to the rampant and excessive use of antibiotics for any and every condition. At present, antibiotics are the most commonly sold drugs in the developing countries which have been the cause for escalation of antibiotic resistance. Misuse of antibiotics is also related to cultural factors, behavioral characteristics such as self-medication, socioeconomic status and level of education.[2] In addition, lack of health education is another major factor that contributes to antibiotic misuse. The collective impact of antibiotic misuse not only affects the patients but also the entire community due to increasing antibiotic resistance in bacteria, which is already an alarming issue.

In India similar to other developing countries, it is not necessary to bring a valid prescription for buying the prescription only drugs. Most of the medicines including antibiotics can be bought even without a prescription.[3] A major role is played by the public in the emergence and spread of bacterial resistance to antibiotics. In 2000, the WHO Report Overcoming Antimicrobial Resistance identified three key issues for public involvement: improving access to medical services, reducing unnecessary use of antimicrobial drugs and not sharing medication with other people or keeping part of the course for another occasion.[4]

Children have to depend on their caregivers for their medication. In addition, they are often fed liquid medicines, the dosing of which requires more time and care than the administration of tablets or capsules. Proper dosage forms for children, keeping in mind quality, palatability, and ease of administration are often lacking. Where they do exist, inability on the part of caregivers to exercise due diligence may lead to imprecise dosing and medication errors. We undertook this study to assess the knowledge, attitude, and practices, regarding medicine administration and literacy in allied matters, of caregivers of children hospital.[5] This should contribute toward formulating counseling needs and implementing measures to improve pediatric medicine administration practice.

MATERIAL AND METHODS:

This cross sectional study was conducted in Department of Pediatrics, after obtaining institutional ethical clearance. After obtaining informed consent to participate, parents were given a pre-tested questionnaire comprising of questions related to antibiotic usage and resistance. The questions were selected after reviewing previous studies. Parents either filled up the questionnaire independently or the researcher read the questions and recorded the answers for them.

Demographic data like age sex, education level and number of children comprised the initial part of questionnaire. Remaining questions can be broadly grouped under four major categories- knowledge related to antibiotic indications, means of accessing antibiotics, antibiotic resistance and doctor-patient relationship.

Accordingly, this study intended to determine the parents' knowledge, attitude and practices on antibiotic use by their children in different parts of North India. The findings of this study would provide data for stakeholders to better strategize interventional plans and implement necessary measures to reduce the impact of antibiotic misuse.

RESULTS:

Majority of participants were young and educated parents. Out of the 145 parent's majority of the respondents (63%) were mothers (92) whereas only 53(37%) were father. Most of them were not aware of the indications of antibiotics with 43% agreeing that antibiotics have no role against viruses. Also 43% (63) accepted that antibiotics are not necessary for short duration fever and common cold.

Most common symptoms to visit pediatrician included cough (27%), followed by ear pain (19%) and nasal discharge (14%). 36 respondents (24%) purchased antibiotics without a prescription, whereas 61 (42%) purchased it only after obtaining a prescription. However, only few followed instructions regarding antibiotic usage, whereas majority did not receive any advice from their doctor regarding use.

There was very little difference in percentage of respondents that disagreed with notion that antibiotics must be administered in any case of fever (43%) as compared to those who disagreed to this statement (38%) while 19% were uncertain, 42% mentioned that antibiotics were not always necessary in ARI and 41% were uncertain . A total of 37% of the parents were aware of the fact that antibiotic misuse drives bacterial resistance; still 54% parents would still give antibiotics because they thought that recovery would be faster when antibiotics were used and , 23% agreed that antibiotics have their own side effects. Finally, half of the respondents believed that new stronger antibiotics are always available.

Table 1: Demographic details of participants

Characteristics	No of participants
Gender	
Male	53
Female	92
Age	
<30	32
31-40	69
41-50	27
50-60	13
>60	4
Level of education	
Illiterate	15
Primary	18
Secondary	36

Graduation	67
Post graduation	9

Table 2: Queries to assess knowledge of parents

Query	Agree	Disagree	Uncertain
Antibiotics must always be administered in case of fever	63	71	11
As most ARI are of viral origin, antibiotics must not be administered	64	22	59
Antibiotics decrease recovery time	82	36	27
Antibiotics do not have side effects	34	76	35
Frequent use of antibiotic can increase the resistance of bacteria to them & decrease future effectiveness	54	67	24
Antibiotics should always be prescribed by a doctor	61	48	36
Left over antibiotics should not be reused at a later date	72	51	22
Antibiotics should not be purchased as over the counter drugs from pharmacy/chemists	61	57	27

DISCUSSION

In our study, similar to other studies, parents and physicians have a trusted relationship because most parents were content with the information provided to them and also would not change their doctor's whether antibiotics were used too much or too little.

Majority of the parents also preferred other drugs given for symptomatic therapy. Most common symptoms to visit pediatrician included cough (27%), followed by ear pain (19%) and nasal discharge (14%); whereas in other similar studies major complaint for which they went to the doctor was for running nose.[6,7] Majority of parents expected the pediatrician to prescribe antibiotics for sore throat, cough, and fever and ear pain, similar to other studies in which majority of the caregivers requested antibiotics for earache: whereas in another study less than one fourth (21.5%) considered ear infection in children always doesn't require antibiotic treatment.[8,9] However similar to previously done studies, symptoms for which parents never expected their pediatrician to prescribe antibiotics were cold (29.3%) and nasal discharge (32.8%).

The results on the understanding of the respondent's knowledge clearly show a high level of misunderstanding. This is evident from the fact that 47% were aware that antibiotics are not effective against viruses and less than half knew that bacterial infections are treated with antibiotics. Similarly 44% were of the notion that bacterial infection does not cause colds. These finding are in agreement with several recent reports from India and western countries.[10,11] They have a general misconception that infection of any origin needs antibiotic treatment.[12]

This could be attributed to the fact that while explaining the nature of the disease to a layman, physicians use the general term as microbes rather than clearly stating it as bacterial or viral.[13]

Several countries have reported a lack of knowledge toward antibiotic use among the public and medical professionals, which can result in misuse.[14,15] Misuse, in turn, can result in increasing antibiotic resistance in bacteria, thereby impacting the overall burden of diseases.[16,17] To successfully manage community- based antibiotic resistance, behavioral modification such as understanding the judicious use of antibiotics should be promoted among community stakeholders including parents of children.

Unsurprisingly, this study found that parents are less anxious when their child is prescribed an antibiotic. Such

perception of the parents is likely because of over prescription of antibiotics by physicians. Further, although 61 (42%) respondents always obtained prescription for antibiotics from their doctor, only few followed their doctor's advice, whereas most under dosed their children in consideration of safety. This is compounded by the lack of explanation provided by the physician to parents when antibiotics are prescribed, likely leading to the low knowledge observed in the current study.

Pediatric patients are susceptible to medication error due to lack of appropriate pediatric formulations, liquid nature of pediatric dosage forms, availability of non standardized devices for measurement, dose calculation mistakes, ignorance of caregivers, and inadequate information and counseling by physicians.[18,19,20] Our study found that under supervised conditions of indoor wards, medications errors are less frequent than in the OPD setting. Most errors were wrong timing of the dose or the amount of dose fed, committed by the mother or other primary caregiver.

Our study has the limitations of being only hospital based and of relatively short duration. Despite this, in conclusion, we can say that clinicians should be aware that many caregivers still continue potentially wrong practices in measuring and administering liquid medicines to children. Once the knowledge gaps and wrong practices can be identified by spending time over these issues, remedial measures can be implemented, beginning with rapport building between the treating physicians and the caregivers who look after these children and continuing with counseling at every opportunity. This would contribute to making medicines safer and more effective for sick children.

CONCLUSION

Physicians need to be aware of the limitations of knowledge and the possibility of wrong administration practices among caregivers of children. Remedial measures in this regard can reduce the risk of medication errors. Majority of parents admitted to self-administration of antibiotics. They contribute less than we expected on misuse of antibiotics and buying over the counter antibiotics. Parents also realize the benign course of most upper respiratory tract infections and that unnecessary antibiotic use is harmful. There is a need of intervention to increase awareness regarding judicious use of antibiotics and to check un-prescribed dispensing of antibiotics. Strategies for effective communication with patients and prudent prescription of antibiotics should be included in physician education to ensure patients' adherence to advice and consequently to reduce self-medication with antibiotics.

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