Pharmacy Employees' Knowledge and Dispensing Recommendations for Treatment of Diarrhea in Republic of Armenia

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Summary

Background: Pharmacy employees are the most accessible healthcare professionals and they are often involved in managing minor ailments within the community setting.
Aim and objective was to study and evaluate pharmacy employees' knowledge and dispensing recommendations for treatment of diarrhea in Republic of Armenia (RA).
Methodology: The survey was conducted among 330 pharmacy employees selected randomly sampling during 2018-2019. Primary information was collected using a questionnaire. Pharmacy employee in Armenia were asked about their knowledge and dispensing recommendations to manage diarrhea. On each question are attached diagram or table. The results were analyzed with SPSS statistical software, version 12.0.
Result: The advice given by pharmacy staff to purchasers was poor. The most common medicines recommended by pharmacy employees were Antimotelities 27%, then Probiotics 21%, Intestinal adsorbent 17%, Antibiotics 8%, Oral rehydration solutions (ORS) 7%, Antimicrobial 7%. 10% of respondents didn't answer.
The most common demanded medicines by consumers were also Antimotelity medicines 27%, Antibiotics 24%, then Probiotics 15%, Intestinal adsorbent 11%, ORS 5%, Antimicrobial 4% and 14% of consumers didn't answer.
In question what are the major side effects of medicines you are offered, most pharmacy staff (55%) did not respond, 20% of pharmacy employees noted side effects on the gastrointestinal system , 7% on the nervous system. 8% of pharmacy employees noted allergic reaction and 10% other different side effects.
Conclusion. It is important to improve pharmacy employees' knowledge in the area of Pharmaceutical care during minor illnesses such as diarrhea and to develop pharmaceutical care algorithms that will help the pharmacy employees in consumer consultation.

Keywords: Pharmaceutical care, Pharmacy employee, diarrhea, minor ailment, ORS

Introduction

Pharmacy employees provide primary healthcare services to communities, and are important sources of advice, medicines and treatment for minor ailments both in high and low-to middle income countries [1,2]. Minor ailments are common or uncomplicated conditions which can be diagnosed and managed without medical intervention [3,4].
Diarrhea is one of the most common diseases worldwide, including in RA. According to WHO, diarrhea is a major public health threat with nearly 1.7 billion cases annually worldwide occurring in all age groups [5]. Thus, pharmacy employees can play a useful role in the prevention and treatment of diarrhea and its often encountered complication-dehydration. [6]
Pharmacists can be seen and consulted without appointments, they are a good source of primary healthcare services especially in poor resource setting countries [1]. Quality of pharmacy services represents optimum patient care to meet consumer's or patient's needs. There must be a minimum standard of practice in pharmacy setting. The International Pharmaceutical Federation (FIP) has recommended set of areas and domains e.g. supply of Over the counter (OTC) medicines for self-care, and interaction with patients as minimum requirements for practice [7]. It is important to ensure that the right patient receives the appropriate medicine in the correct dose and form that is rational medicine use [8].
The roles of pharmacy employee have evolved from product oriented, dispensing of medicines to more patient-focused services such as the provision of pharmaceutical care, which includes the identification, prevention and resolution of medicine-related problems [9].
If the diarrhea is self- medicated using OTC preparations, good advice should be provided by the pharmacies because diarrhea can be a symptom of a wide range of diseases [10,11]. An important prerequisite for that is an appropriate assessment of the patient. However, good advice is an important criterion not only for patients, it can provide an important competitive advantage [12, 13]. According to the literature, good advice covers aspects such as safety, clinical effectiveness and cost-effectiveness of medicines [9]. For pharmacotherapy of

diarrhea in RA there are medications available that require a medical prescription. These are primarily antibiotics (such as tetracycline, levomycetin, ciprofloxacin, azithromycin and metronidazole) and antimicrobial medicines (such as nifuroxazide). In addition to oral rehydration solutions, the active ingredients loperamide, probiotics, adsorbents (such as smectite dioctaedric) are available as a OTC for self-treatment. There is insufficient data on how pharmacy employees in RA manage common medical conditions.

Thus, this study aimed at evaluating the practices of RA pharmacy employees when managing symptoms of diarrhea in adults, with specific focus on medication dispensing, advice, information giving about side effects and also consumers preferences about medicines.

Methodology

This study is a cross-sectional study that analyze the pharmacy staff of community pharmacies in Armenia during 2018 - 2019. The survey was conducted among 330 pharmacy employees selected randomly sampling. Primary information was collected using a questionnaire (structured questionnaire) and as a result of statistical processing of the data obtained during a sociological survey we received the final result.

To determine the level of knowledge, assessing the counseling services provided by pharmacy employees in the Republic of Armenia, we used the questionnaire survey method developed on the basis of standard WHO consultation questionnaires (2006), taking into account the specifics of work [14].

Number of questionnaires distribution in the RA was determined by The Survey System Version 11.0, taking into consideration the volume of the surveyed, the first type error is with 5% probability (α = 0, 05), the evaluation accuracy is 3% (Δ = 3%). We considered the worst-case scenario - P = 0.5, since the results of similar studies conducted in Armenia were not found.

Taking into account the multiple content of the survey, we have presented questionnaires suggested by YSMU SRC and approved by YSMU Ethics Committee: Pharm Test A, PharmTest B, PharmTest C, PharmTest D, each of which includes a specific questions [15]. Analyzes of other data related to pharmacy activity assessment will be commented later.

The results of this study were made by statistical methods that were universally recognized. The collected data were registered in statistical the SPSS software package (version 12.0).

Result

The pharmacy employees dispensed antimotility, ORS, probiotics, even antimicrobial and antibiotic medicines. The first preparations with the highest recommendation by pharmacy staff are the active ingredient: loperamide 27% (with brand names of Imodium and Loperamide). Next we have probiotics (21%), then intestinal adsorbent (17%), antibiotics (8%) and the least were ORS (7%), antimicrobial (7%). Must be noted that 10 % of participants didn't want to answer to this question (see Table 1).

Table 1. Medicines suggested by pharmacy staff

Therapy dispensed	Number of pharmacy employee (percent) suggested by pharmacy staff
Antimotility (loperamide)	27%
ORS (Rehydron)	7%
Intestinal adsorbent	17%
Probiotic	21%
Antibiotics	8%
Antimicrobial	7%
No response	10%

The results of the study show that the following medicines are most often sold in accordance with the client's demands for diarrhea: antimotility 27%, antibiotics 24%, probiotics 15%, then intestinal adsorbent 11%, ORS 5% and the least was antimicrobial 4%. Must be noted that 14 % of participants did not want to answer to this question (see Table 2).

Table 2. Medicines demanded by consumer

Therapy dispensed	Number of pharmacy employee (per cent) suggested by pharmacy staff
Antimotility (loperamide)	27%
Antibiotics	24%
Probiotics	15%
Intestinal adsorbent	11%
ORS (Rehydron)	5%

Therapy dispensed	Number of pharmacy employee (per cent) suggested by pharmacy staff
Antimicrobial	4%
No response	14%

In question what are the major side effects of the medicines you are offered, most pharmacy staff 55% did not respond, pharmacy employees noted side effects on the gastrointestinal system (20%): stomach and abdo minal pain, nausea, constipation, vomiting. With regard to the effects on the nervous system pharmacy employees listed the following side effects (7%): dizziness, headache. 8% of pharmacy employees noted allergic reaction , 10% other different side effects (See Illustration 1).

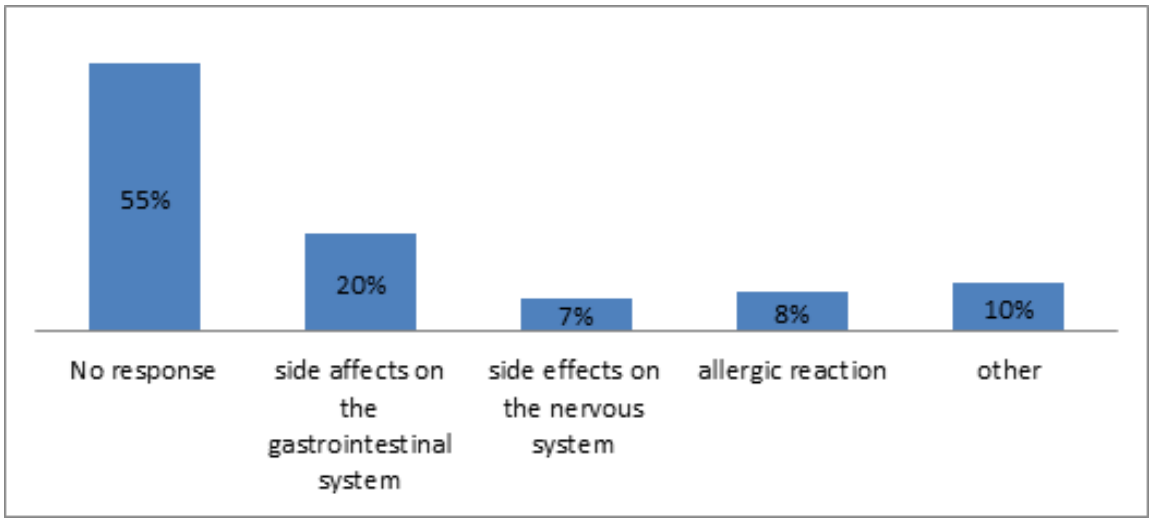

Illustration 1. The major side effects of medicines offered by pharmacy employees

Discussion

According to our study antimotelity group of medicines (with active ingredient loperamide) was the most dispensed medicine. Pharmacy employees recommended loperamide with different brand names. Parralel to it we have only few % of pharmacy employees in our study recommended and dispensed a pack of oral rehydration salt to the patients. This is not surprising as other study has also reported similarly low rates of ORS [16] and high rates of antimotility agents, antimicrobials and adsorbents recommendations in the management of adult diarrhea, though these drugs have no therapeutic value [17] and are not endorsed by the World Health Organization (WHO) guidelines. The WHO contribute ORS to treat acute diarrhea, and emphasises this approach for pharmacists in the publication 'The Treatment of Acute Diarrhea – Information for Pharmacists' [18]. However, as it turned out in our study, very few pharmacy employees in Armenia follow this appropriate advice. Financial factor for pharmacy could be a reason for this inappropriate advice. In RA as in other countries with poor resources rehydration salts are very cheap medicines, while other medicines for diarrhea are much more expensive and they can bring more benefit to the owners of the pharmacies. That's why pharmacy workers often recommend more expensive medicines than cheaper ones. Our research discovered probiotics are also most recommended by pharmacy employees, though according to literature , there is no evidence to support the prescribing of probiotics for adults with diarrhea [19].

Antibiotics and antimicrobial medicines were not widely recommended treatment options in this study. This is contrast to the study in Qatar that have shown that antibiotics are often widely used (44%) in the management of diarrhea [16]. Although we have a low % of antibiotic and antimicrobial recommendations, however, taking into account the fact that they are included in prescription medicines list in the RA, and pharmacy staff can recommend only OTC medicines, it was believed that consultation with these drugs should be expelled at all. Beside this according to standard treatment protocols from the WHO, this treatment is not appropriate for diarrhea. When we study medicines that a consumer demands during diarrhea without consulting a pharmacy employee, it is surprising since a large number of consumers require and buy antibiotics during diarrhea. Even though every medicine used in self-care needs responsibility, the high rate of antibiotic use in self-medication needs special emphasis. This inappropriate use could be

life threatening to severely ill patients and could contribute to reported widespread bacterial resistance to antibiotics. In this case, the rational use of antibiotics can only be carried out by a knowledgeable pharmacy employee.

The research reveals that the antimotelity group medicines and ORS mention in advice of pharmacy employee and consumers preferences are practically the same. Consumers may not have enough information about the advantages and disadvantages of these medicines

The study also tested the knowledge of pharmacy staff about the side effects of the medicines they offered. Most pharmacy employees (55%) did not answer that question. It can be assumed that they avoided answering that question because they did not have sufficient knowledge and information about the side effects. Good advice is helpful for the patients or consumers but there is a need for improvement among community pharmacists in RA. Without sufficient knowledge of the side effects of the drug, pharmacy staff cannot provide a consumer with the necessary information about the risks associated with medicines. Similar, in a recent study in Germany and Qatar, where the authors reported poor quality counseling for acute diarrhea [16,20]. The German study showed that information about dosage was the most commonly provided, while the least common information given was about side effects. The study in Qatar also highlighted the fact that the counseling practices were below expectation. In this case consumer can use medicines without realizing the actual damage to their health, which can be the cause of further health problems. The medicine information pharmacists receive mainly comes from guidelines or from medical representatives. However, some guidelines are out of date and information from medical representatives can be subjective.

Appropriate steps should be taken to improve the quality and quantity of the information provided a consumer, which will allow the consumer to evaluate the advantages and disadvantages of medicines more realistically.

Conclusion

Research data can be considered as an indicator that pharmacy care algorithms can be developed for minor ailments like diarrhea, which will help the pharmacist, facilitate his work, save time and, if necessary, refer the patient to the doctor.

Continuing education on prevention and control of diarrhea is recommended nationwide, to increase public awareness about ORS and encourage pharmacists to promote its use in diarrhea irrespective of age.

Acknowledgement

All the community pharmacy employees who provided their valuable responses are highly acknowledged.

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Abbreviations

RA- Republic of Armenia
ORS- oral rehydration solutions
OTC- Over the counter
WHO- World Health Organization
FIP- International Pharmaceutical Federation
YSMU- Yerevan State Medical University
SRC- Scientific Research Center
SPSS- Statistical Package for the Social Sciences