Original Article

Determination of Information and Behaviors of Inpatients in Internal Medicine Clinics About Rational Drug Use in Turkey: A Descriptive Cross-Sectional Study

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Abstract

Background: Incorrect and unnecessary drug use is a problem that affects health. Irrational drug therapy causes reduced treatment compliance, drug interactions, resistance to some drugs, recurrence of diseases, prolonged treatment, increased frequency of side effects and increased treatment costs. Therefore, it is important to evaluate the rational drug use of patients.
Obective: The purpose of the study is to find out the knowledge and behaviors of inpatients in internal medicine clinics about rational drug use.
Methods: It is cross-sectional study. The study was conducted in internal medicine clinics of a hospital. The study was conducted with 372 patients in internal medicine clinics between May 2017 and November 2017. Data collected with "Rational Drug Use Inpatient Survey" prepared by the Republic of Turkey.
Results: It was determined that 74.2% of the patients in research group had at least one chronic illness, 61% of them used drug consistently, 48.1% of the patients did not read prospectus, 18% of the participant used drug upon the advice of relatives, 21.8% of the person requested the doctor to prescribe analgesic in case, 9.7% of the patients bought a drug in a drugstore without a prescription. The distinction between age, gender, education level, income status, chronic illness, consistently drug use and prospectus reading rate was found statistically significant ($p<0.05$). There was statistically significant distinction between the rate of buying a drug in a drugstore without a prescription and education level ($p<0.05$).
Conclusion: In the study, it was found that the patients' drug use behaviors were rational, but not in expected levels.

Key words: Behavior; Drug therapy; Medication therapy management; Drug utilization; Habits; Inpatients.

Introduction

With recent developments in the field of health, the number and variety of drugs used in treatment are on the increase. On the other hand, population is getting older, dietary habits are changing and an increase is seen in chronic diseases with developments in technological fields (Surmelioglu et al., 2015; Akici et al., 2011). These diseases are also known as non-communicable diseases (World Health Organization. 2014). In a study conducted on 2.403 individuals and reported by Turkish

Statistical Institute (TUİK), the rate of individuals reporting regular drug use is 9,9%. Of these individuals, 45.6% use regular drugs for blood pressure, 27.8% for diabetes, 16.5% for cardiac diseases, 9.7% for cholesterol and 6.7% for stomach problems (Turkey Ministry of Health, 2013).[4]

Institute for Healthcare Informatics (IMS) issued a report that drug expenses will reach 1,4 trillion dollars globally until 2020 (Institute for Healthcare Informatics. 2015). In Turkey, while drug consumption was 750 million boxes in 2002, this number reached 1 billion 950 million boxes in 2014 (Turkey Grand National Assembly, Board of Budget, 2015). According to the predictions of WHO, more than half of all drugs are prescribed inappropriately and 50% of patients cannot take their drugs properly (World Health Organization, 2002).

WHO has defined rational drug use as "Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (World Health Organization, 2002). Since drug is not a simple consumable item, one should be rational about its use (Aydin, & Gelal, 2012; Akici et al., 2011; Ergin et al., 2014; Ugrak et al., 2015).

Patients are the party who are primarily responsible for rational consumption of drugs. Patients are responsible for using their drug treatment in the way that is recommended to them (Demiroglu, Polat, & Dogan, 2017; Yapicıı, Balikci, & Ugur, 2011).

Another party responsible for the rational use of drugs is nurses. "Correct principles" followed during drug applications which are among the curative roles of nurses can be accepted as Rational Drug Use (RDU) principles concerning nurses (Oguz, Alaşehirli, & Demiryurek, 2015; Ulupinar, & Akici, 2015). Irrational drug use has a great number of reasons such as managerial, economic and sociocultural reasons in addition to insufficient education of behaviours (Ekenler, & Kocoglu, 2016). In the light of this information, it is extremely important for nurses who aim to know the individual and to give the care an individual needs to present patients' behaviours abut RDU through researches. This study was conducted to find out the knowledge and behaviours of patients hospitalized in internal medicine clinics in which chronic disease and drug use rates are high and there are a great number of patients, on rational drug use.

Materials and Methods: This cross-sectional study was conducted in a hospital in Turkey. The research data was collected between May 2017 and June 2018 in a hospital internal medicine clinics which have a capacity of 354 beds and in which 75 nurses are working. The universe of the study consists of patients who were treated in internal medicine clinics between May 2017 and November 2017. Patients who were 18 and older, who did not have speech and/or hearing problems and psychological problems were included in the study. In data collection, "Rational Drug Use Inpatient Survey" prepared by the Republic of Turkey, Ministry of Health, Drug and Medical Device Institution Rational Drug Use Unit was used. The survey includes questions about patients' socio-demographic characteristics, their states of providing, keeping and disposing of drugs and their habits and behaviours about drug use. The data were collected by the researcher in internal medicine clinics through face-to-face interview technique. The data obtained from the study were analyzed with IBM SPSS Statistics 18 program by using computer. Numbers, percentages and Chi-square test were used in the assessment of data. 08.05.2017 dated and 2017-4/4 numbered ethical board permission was taken from Ethical Board to conduct the study. 02.08.2017 dated and 42190979- 302.08.01-E.1700214874 numbered official permission was taken from Centre Department of Internal Medicine.

Results

In the study which was conducted on inpatients in Internal Medicine clinics, it was found that 148(39.8%) of the patients were 65 years old and older, 207(55.9%) were male, 190(51.1%) were

primary school graduates and 260(69.9%) had a moderate level of income. Of the 372 subjects 276(74.2%) of the patients were found to have at least one chronic disease and 172(46.2%) were found to have cardiovascular disease. Of the total, 227(61%) of the patients were found to use drugs continuously, 134(36%) of the patients were found to receive antihypertensive therapy (Table 1).It was found that 135(36.3%) of the patients read prospectus, while 190(51.1%) checked the expiration dates of drugs (Table 2).It was found that 136(36.6%) of the patients threw left-over drugs into trash, 89(23.9%) gave to health institutions and 57(15.3%) kept them to use when needed. 264(71.1%) of the patients were found to keep drugs in room temperature, while 108(28.9%) kept in refrigerator. Patients, 200(53.8%) were found to keep cold chain drugs in refrigerator storage door, 169(45.4%) kept in refrigerator shelf. While reusing the drugs at home, 212(57%) of the patients paid attention to their relevance with the disease, 208(55.9%) paid attention to expiration date, 184(49.5%) paid attention to unimpaired package, and 56(15.1%) paid attention to nothing. While 245(65.9%) of the patients preferred healthcare personnel as a source of information while reusing drugs at home, 77(20.7%) did not get information from anyone since they used the drug before and 50(13.4%) got information from an acquaintance/neighbour/relative (Table 3).While 317(85.2%) of the patients were found to consult physicians in case of an illness, 26(7%) were found to try to be cured with drugs at home, 21(5.6%) were found to use herbal therapy methods and 91.9% were found to inform the physician about the previously used drugs and their chronic diseases. While 174(46.8%) of the patients were found to use the drugs prescribed by the physician as long as the recommended period of time, 119(32%) were found to use until the drug was finished and (79)21.2% were found to use until their complaints went away. It was found that in case of flu, common cold and cold, 269(70.7%) of the patients did not use antibiotics before they were examined. It was found that 191(51.4%) of the patients learned information about the use of drugs and possible side effects from health personnel, 172(46.2%) learned from prospectus. A 9(2.4%) learned from the internet and when there were side effects of the drug, 84.9% referred to physician, 224(60.2%) checked whether the drugs they bought were the drugs prescribed by the physician and 275(73.9%) did not accept the equivalent of drugs recommended by the pharmacist while getting drugs (Table 4).It was found that 83(22.3%) of the patients had drugs prescribed without being sick. The drug group which is prescribed the most without being sick in case it may be required is analgesic drugs with a rate of 81(21.8%). It was found that 67(18%) of the patients used drugs on recommendation, 44(11.8%) recommended drugs to their acquaintances that had similar complaints, 18(4.8%) used drugs after asking the health personnel and 19(5.1%) used products advertised in the media after asking their acquaintances who used the drugs. It was found that 227(61%) of the patients got analgesic drugs from the drug store with prescription, while 129(34.7%) got drugs from the drug store without prescription. Pleasingly, 336(90.3%) of the patients were not found to get drugs from drug store without being examined.

Discussion

The rate of reading prospectus was found as 36.3% in the patients who participated in the study (Table 2). In other studies (Yapıcı, Balıkçı, & Uğur, 2011; Esin et al., 2007; Ozkan et al., 2005; Buyukturan & Buyukturan, 2017; Mete, & Unal, 2017) this rate was higher, which was reported to be between 63-91%. When compared with other studies conducted, it was found that the rate of reading prospectus was not satisfactory. As a result of the study, it was found that 51.1% of the patients checked the expiration date of drugs (Table 2.). This rate was found this result is lower than other studies (Oguz, Alaşehirli, & Demiryurek, 2015; Mete, & unal, 2017; Baybek, Bulut, & Cakir, 2005; Gogeldi et al., 2009; Pinar et al., 2013; Yilmaz et al., 2014; Karataş et al., 2012) between 71-93%. It was thought that this could be due to the fact that 74% of the patients had chronic diseases and they were taking their drugs regularly.

The rate of keeping leftover drugs after treatment in case they might be needed was found as 15.3% (Table 3.). In other studies (YapiciIici, Balikçi, & Ugur, 2011; Goçgeldi et al., 2009; Yilmaz et al., 2014; Şendir et al., 2015) this rate was higher, which was reported to be between 37-67%. It was thought that since 74% of the patients in the study had at least one chronic disease and 61% used continuous drugs, they were conscious about the use of drugs and the management of wastes.

In the question which was asked to find out what the patients did as first in case of an illness, 85.2% answered that they preferred to consult a physician (Table 4.). The result of this research were found to be similar to other studies (Ugret et al., 2015; Yapici, Balikçi, & Ugur, 2011; Ozkan et al., 2005) between 69-89%. When the results of studies given in chronological order were analyzed, it was found that the rates of patients who consulted a physician first in case of all illness increased. This result can be interpreted as a behaviour expected from individuals as a result of health services becoming easier to access.

Table 1: Distribution of the patients' chronic disease and continuous drug use status

Features	n	%
Chronic disease status		
Present	276	74.2
Absent	96	25.8
Chronic diseases which are present*		
Cardiovascular diseases	172	46.2
Cancers	77	20.7
Diabetes	74	19.9
Chronic respiratory tract diseases	54	14.5
Neurological diseases	14	3.7
Renal failure	10	2.7
Hormonal diseases	7	1.9
Continuous drug use status		
Yes	227	61
No	145	39
Continuously used drug groups*		
Antihypertensive	134	36.0
Anticoagulant	86	23.1
Cardiac drugs	64	17.2
Oral antidiabetic	49	13.2
Hormone therapy drugs	39	10.5
Bronchodilator	31	8.3
Other drugs groups**	76	20.6
Total	372	100.0

*More than one option was chosen, **Other drug groups; Antimuscarinic, antiepileptic, antihyperlipidemic, steroid, immunomodulator, dopaminergic, antirheumatic.

Table 2: Distribution of the patients' status of reading prospectus and checking the expiration dates of drugs

Features	n	%
Reading prospectus		
Yes	135	36.3
No	179	48.1
Sometimes	58	15.6
Checking the expiration dates of drugs		
Yes	190	51.1
No	136	36.6
Sometimes	46	12.3
Total	372	100.0

Table 3: Distribution of the patients' information and behaviours about keeping, reusing and disposing of drugs

Questions	Answers	n	%
What do you do with leftover drugs?	-Throw into trash	136	36.6
	-Give to health institution	89	23.9
	-Keep it	57	15.3
	-Other*	90	23.1
Where do you keep the drugs?	-Room temperature	264	71.1
	-Refrigerator	108	28.9
Where do you keep the cold chain drug?	-Refrigerator storage door	200	53.8
	-Refrigerator shelf	169	45.4
	-Freezer	3	0.8
What do you pay attention to while reusing drugs? **	-Relevance with the disease	212	57.0
	-Expiration date	208	55.9
	-Unimpared package	184	49.5
	-Some drug forms not having exceeded the period of time specified in the directions for use	161	43.3
	-None of the above	56	15.1
Who do you take information	-Healthcare personnel	245	65.9

from while reusing the drugs at home?	- No one	77	20.7
	-Acquaintance/ neighbour/ relative	50	13.4
	Total	**372**	**100.0**

*Finish, Give to drug store, Give to acquaintances who ask for them, Flush. **More than one answer was given

Table 4: Distribution of the patients' information and behaviours about getting and using drugs in case of an illness

Questions	Answers	n	%
What do you do in case of an illness?	-Consult the physician	317	85.2
	-Try to be cured with the drugs at home	26	7.0
	-Try herbal medicine methods	21	5.6
	-Ask people who have had a similar illness before	5	1.4
	-Consult nurse/pharmacist/health professional	3	0.8
How long do you use the drug prescribed by the physician?	-Recommended period of time	174	46.8
	-Until the drug is finished	119	32.0
	-Until my complaints go away	79	21.2
Do you use antibiotics without getting examined in situations such as the flu?	-Yes	73	19.6
	-No	263	70.7
	-I do start, but I stop using when I feel good	36	9.7
Where do you learn the information about the use of the drug and possible side effects?	-Healthcare personnel	191	51.4
	- Drug prospectus	172	46.2
	- Internet	9	2.4
While getting drugs, do you check whether they are the prescribed drugs?	-Yes	224	60.2
	-No	148	39.8

Do you accept an equivalent drug recommended by the pharmacist?	-Yes	97	26.1
	-No	275	73.9
	Total	**372**	**100.0**

Table 5: Distribution of the patients' information and behaviours about drug use

Do you have drugs prescribed without being sick?	**n**	**%**
Yes	83	22.3
No	289	77.7
Which groups of drugs do you have prescribed? *		
Analgesic drug	81	21.8
Cold medication	22	5.9
Antibiotics	14	3.8
Other drug groups**	54	14.4
Do you use drugs on recommendation?		
Yes	67	18.0
No	305	82.0
Do you recommend drugs?		
Yes	44	11.8
No	328	88.2
Do you use products advertised in the media?		
Yes; after asking the health personnel	18	4.8
Yes; after asking people I know who used them	19	5.1
No	335	90.1
How do you get Analgesic Drug?		
From drugstore with prescription	227	61.0
From drugstore without prescription	129	34.7
Neighbour/acquaintance	11	3.0
Store/supermarket	5	1.3

Do you get medication from the drugstore without getting examined?		
Yes	36	9.7
No	336	90.3
Total	**372**	**100.0**

* More than one option was chosen, **Other drug groups; vitamin, pomade and stomach medication

As a result of the study, it was found that 91.9% of the patients informed physicians about their existing chronic diseases and the drugs they used when they referred to a physician (Table 4). This rate was founded in other studies (Ugrak et al., 2015; Buyukturan, & Buyukturan, 2017) as 60% and 93%. It is thought that the patients included in the study showed behaviours expected of them and that they were conscious about this issue.

As a result of the study, it was found that 46.8% used the drugs prescribed by the physician within the recommended period of time (Table 4). This rate was found as similar to the results of other studys (Ugrak et al., 2015; Yilmaz et al., 2014). The rate of using drugs as described was 61.1% in a study.[21] Another study (Mete, & Unal, 2017), 71.9% of the patients stated that they stopped using drugs when the time recommended by the physician was over. The behaviour expected from individuals for the time of using the drugs prescribed by the physician is during the period of time as recommended. The result obtained from this study was found to be low.

The rate of using antibiotics without being examined was found as 19.6% in situations such as flu, common cold and cold (Table 4.). This rate was 30.5% in Pinar et al.'s (2013) study. In Karataş et al.'s (2012) study, it was found that 16.7% of the patients frequently used antibiotic without asking the doctor, while 77.5% sometimes used antibiotic without asking the doctor in cases of flu and cold. In Demiroglu, Polat, & Dogan, (2017) study, 20.2% of the patients stated that they used antibiotics without being examined. The results of this study were found to be in parallel with the results of other studies previously conducted.

It was found that while 51.4% of the patients got information about drug use and side effects from health personnel, 46.8% learned from drug prospectus (Table 4). In Yilmaz et al.'s (2014) study, it was found that 66.2% of the patients got information from prospectus, while 25.6% learned from health personnel. The results obtained from the study are in parallel with the results of other studies.

As a result of the study, it was found that when the patients had a side effect of drugs, 89.5% referred to health personnel (Table 4). In other studies (Ugrek et al., 2015; Buyukturan, & Buyukturan, 2017; Mete, & Unal, 2017; Pınar et al., 2013; Yilmaz et al., 2014; Esin, 2015; Ozçelikay, 2001), this rate was found to be between 40-87%. In a study conducted on students by Gundogar, & Kartal (2017), it was found that almost all of the students referred to physician when they came across a side effect. When the results of the study are analyzed, it can be said that when patients come across side effects, they care about the situation and behave rationally by referring to health personnel immediately.

The patient's rate of having drugs prescribed or buying drugs and keeping at home with the thought that they may be necessary was found as 22.3% (Table 5). In other studies (Buyukturan, & Buyukturan, 2017; Mete, & Unal, 2017; Pınar et al., 2013; Yılmaz et al., 2014; Karataş et al., 2012) this rate was reported to be between 20-52%. In their study, Gocgeldi et al. (2009) found that 43.6% of the participants went to a health institution within the last year to have drugs prescribed. In a study conducted by Yilmaz et al. (2014), it was found that 40.8% of the participants collected drugs at home in case they may be needed, while this rate was 79.8% in Demiroglu, Polat, & Dogan, (2017) study. In a study conducted on individuals who referred to family health centre, Şendir et al. (2015) found that 61% of the patients wanted physicians to prescribe drugs. When compared with the results

of previously conducted studies, the results of this study were found to be low.

As a result of the study, it was found that the drugs prescribed the most thinking that they may be needed were analgesic drugs with a rate of 21.8% (Table 5.). In two research (Göçgeldi et al., 2009; Karataş et al., 2012) this rate was 23%. It was found that the results of this study were in parallel with the results of previously conducted studies.

As a result of the study, it was found that 16% of the patients used drugs with neighbour/acquaintance recommendation (Table 5) This rate varies between 8-28% in other studies (Ugrak et al., 2015; Yapici, Balikci, & Ugur, 2011; Ozkan et al., 2005; Mete, & Unal, 2017; Pinar et al., 2013; Yilmaz et al., 2014; Karataş et al., 2012; Bilgili, & Karatay, 2005). In a study conducted by Arpaci, Açikel, & Simsek (2008) on old population, 93.5% stated that they used drugs on doctor's recommendations. It was found that the results of this study were in parallel with the results of previously conducted studies.

As a result of the study, it was found that 11.8% of the patients recommended drugs to people they knew who had similar complaints (Table 5). In some studies (Yapici, Balikci, & Ugur, 2011; Ozkan et al., 2005; Pinar et al., 2013; Karataş et al., 2012; Yilmaz et al., 2011), it was determined that they recommended 15-25% drug to their acquaintances. This result was in parallel with the results of previous studies.

Patients' rate of using products advertised in the media was found as 9.9% (Table 5). It was found that 4.8% of these patients used these products by consulting health personnel. In Ugrak et al.'s (2015) study, it was found that 23.3% of the patients used such products by consulting the physician. The fact that the patients in the present study were not using these products without consulting health personnel shows that they are behaving rational on this issue.

It was found that 34.7% of the patients in the study got analgesic drugs without prescription, while 61% got them from the drug store with prescription (Table 5). In some studies (Ugrak et al., 2015; Yapici, Balikci, & Ugur, 2011; Yilmaz et al., 2014; Ozçelikay, 2001; Bilgili, & Karatay, 2005; Auta et al., 2012), it was determined 28-54% got analgesic drugs without prescription. Differences were found in the results of the studies conducted. It is thought that the analgesics' being sold without prescription in our country also can influence these rates.

The rate of getting drugs from the drug store without being examined by physician was found as 9.7% (Table 5). This rate varies between 11-75% in some studies (Uğrak et al., 2015; Demiroglu, Polat, & Dogan, 2017; Yapici, Balikçi, & Ugur, 2011; Yilmaz et al., 2014; Ozçelikay, 2001; Bilgili, & Karatay, 2005; Hatipoglu, & Ozyurt, 2016). It can be said that there were significant decreases between the results of the present study and Ozçelikay's (2001) study conducted in 2001. In line with these results, it can be said that awareness studies conducted about rational drug use have a positive influence on the society and drug stores.

Conclusion: It was found that most of the patients disposed of the leftover drugs after treatment, kept the drugs in room temperature, got information from health personnel while reusing drugs at home and referred to health personnel in case of illness, used the drugs prescribed by the physician within recommended period of time, did not use antibiotics without being examined in case of situations such as flu, etc and got information from about drug use and its side effects and referred to health personnel when they saw a side effect, checked the drugs prescribed while buying drugs and did not accept the recommended equivalent drugs. It was also found that most of the patients did not have drugs prescribed unless they were ill, did not use drugs on recommendation and did not make recommendations, did not use products advertised in the media, got analgesic drugs with prescription and did not get drugs from the drug store without prescription.

In parallel with these results, the following recommendations were made;

- Informing individuals and the society for rational drug use,
- Conducting more extensive studies in society so that other factors that can influence drug use are assessed in more detail.

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