



Evaluation of Drug Use and Its Effective Factors in Elderly

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Abstract

Introduction: The use of medicine as a link in the treatment chain is inevitable, and medical experts believe that proper and regular use of the drug can improve in many cases. One of the population groups that are more likely to take self-medication because of their illnesses is the elderly. Given that older people are at greater risk of misuse and the consequences of drug abuse because of their special status, including loneliness, neglect, and sometimes social isolation, therefore, this study was designed and conducted to evaluate the rate of use and factors affecting drug use in the elderly and to determine its relationship with some variables. This is a cross-sectional descriptive-analytical study that was done on 100 elderly people in Amol city in 2018 selected by multistage sampling. Data were collected using a questionnaire consisting of three sections: demographic characteristics, medication use, and factors affecting drug use. Descriptive statistics and chi-square and variance analysis were used for data analysis. Of the samples, 65% of the elderly were taking medication for three months prior to self-examination. The most important causes were previous drug use and remission and symptoms similar to 20.1%. Self-medication was significantly associated with marital status ($P=0.020$), education level ($P=0.005$) and number of children ($P=0.003$). The mean drug use was 3.04 ± 0.28 pens per day. 65% of the samples observed more than 4 drugs simultaneously. Around 75% of the elderly had self-medication. Cardiovascular drugs were the most common drug group among the 71.2%. Aspirin, Atenolol and Ranitidine were the most commonly used drugs in the elderly. There was a significant relationship between age and age with arbitrary drug use ($P < 0.020$). The mean age of the subjects was 67 years with a standard deviation of 6.89. 73% of the elderly were male. 72% kept the drug at home, the most important reason being caution and 58% storage. Analgesics were the 15% of most home remedies. This study shows that arbitrary drug use among the elderly is lower than the general population, but it is still high compared to developed countries.

Keywords: Medication; Consumption Pattern; Self-treatment; Elderly

1. Introduction

Nowadays, scientific and industrial advances in medicine and pharmacy have made it possible to access a variety of medicines, and if this access is not accompanied by a specific program, it can cause many problems such as unnecessary and improper drug use (Tavakoli, 2001). Proper use of the drug is directed to the prescribers on the one hand and prevents the patient from self-medication or improper use of the drug. Drug use is one of the most important issues in the community, due to its side effects, the risks of death and the very high costs it incurs in the state budget for pharmaceuticals, insurance companies and the general public. Inappropriate drug use is a global problem, according to a national survey conducted by the National Institute on Drug Abuse (NIDA) in the United States in 2003, between 2002 and 2003, the use of analgesic drugs in individuals aged 18-25 was significantly increased (from 22.1 to 32.7%) (National survey on drug use and health (NSDUH), 2012)]. Over the past decade, drug use in our country has also increased exponentially, and studies have shown that consumption in the country lacks the correct pattern and efforts to correct this pattern have not been successful. The purpose of this study was to determine the pattern of drug use, the number and forms of medication used, drug groups used, how to prepare the drug, arbitrary use of medication, adherence to medication, problems during drug use, and polypharmacy. Self-medication with some medicines is one of the reasons why our drug consumption is higher than our average and standard in the world (Ministry of Health and Medical Education IR of Iran. Statistics Medical Letter. Tehran. 2006). Studies conducted in some parts of the country confirm the use of irrational drugs and indicate a high prevalence of self-treatment. Between 2000 and 2050, the proportion of the world's elderly population aged 60 and over is expected to double from 10% to 21%, while the global child population is projected to decline by about one-third from 30% to 21% (Health Deputy of Gonabad University of Medical Sciences. Vital Statistics in 2010, 2011)]. In this regard, most countries that are facing, or will face, aging populations in the near future, have focused them on services that promote elderly health through healthy lifestyle training as well as preventive services including early diagnosis and treatment, prevention of disease progression and disability. Over the past decade, drug use in our country has increased tremendously, and studies have shown that drug use in the country lacks the right pattern and efforts to correct this pattern have not been successful. Today, proper and rational use of medication is one of the goals of the World Health Organization and consequently the Ministry of Health. Drug use is one of the most important issues in society due to its adverse effects, risks, mortality, and its very high costs in government pharmaceutical budgets, insurance companies and the general public. Due to the fact that the elderly is more at risk of inappropriate drug use and its complications due to their special status such as loneliness, inattention and social inequality, the present study attempts to investigate drug use in this population of people, therefore, this study was designed and conducted to investigate the rate of drug use and the factors affecting the rate of drug use in the elderly and to determine its relationship with some variables.

2. Method

This is a cross-sectional study that was performed on 100 women and men aged 60 years and over in Amol in 2018 who were selected through systematic stratified sampling. Inclusion criteria were over 60 years old and exclusion criteria were cognitive problems. Sample size was determined based on the $n = z^2 pq / d^2$ formula with 95% confidence ($p = 0.3$). Questionnaires were completed by referrals and interviews with the elderly at their homes. This researcher-made questionnaire included 8 questions on demographic characteristics, 14 questions on drug use pattern and 8 questions on factors affecting drug use pattern. Reliability of the questionnaire was determined using internal consistency reliability and Cronbach's alpha coefficient. All questionnaires were completed after sufficient explanation for the elderly and with their consent. Data were analyzed using SPSS software, descriptive statistics, and chi-square test to compare qualitative variables and analysis of variance for quantitative variables. P value < 0.05 was considered significant.

3. Findings

A total of 100 individuals aged over 60 years were studied. The mean age of the subjects was 65 ± 3.89 year. 27.6% were in the age range of 60-64 years and 22.9% were in the 70-74 years. 73% were male and 27% were female. 70% of research units were located in the village and 30% in the city. 64% were illiterate and 78% were married. 75% of the medications used in the past 3 months were taken as tablets and the next ones were in capsule, syrup, spray, ointment, ampoule, drops and suppositories. 80% of people were taking medication (Table 1).

Table 1. Distribution of absolute and relative frequency of research units by drug use

Frequency of drug use	Number	Percentage
Yes	80	80
No	20	20
Total	100	100

Of the 15 most commonly used daily medications among the research units A.S.A, atenolol and ranitidine were the most commonly used drugs. The average daily drug use in all research units was 5.3 ± 0.10 drug use, but there was little difference between different ages. 53.3% of the elderly surveyed had taken self-medication in the past 3 months (Table 2).

Table 2. Distribution of absolute and relative frequency of research units by arbitrary drug use

Arbitrary drug use	Number	Percentage
Yes	75	75
No	25	25
Total	100	100

65% of the research units that took the drug had polypharmacy (taking more than 4 drugs a day). Cardiovascular drugs were the most common drug group in research units and medicinal plants were 71.2% and 34.9% respectively. In terms of how to prepare the medicine, most of the research units referred to various physicians for administration and preparation of their medicines, 68%. Most of the drugs that were used arbitrarily included anti-cold, analgesic and hypnotic drugs (Table 3).

Table 3. Distribution of absolute and relative frequency of research units by drug use groups

Arbitrary drug groups	Number	Percentage
Analgesic	15	15
Anti-cold	20	20
Vitamins and supplements	5	5
antibiotics	9	9
Dreamy	10	1
Cardiovascular	5	5
Gastrointestinal	7	7
Others	4	4

54% of people had taken arbitrary medication without referring to a physician. Most of the drugs that have been taken arbitrarily over the past 3 months were 68% anti-cold and 52% analgesic. 74% fully adhere to their prescriptions. The most common reason for not following the 24% medication was due to forgetfulness of drug use among research units. 51% followed the recommended diet when taking the drug or illness. 75% of seniors pay attention to the expiration date of the drug. 41% of the elderly had a history of drug and tobacco use. There was a significant relationship between adherence to medication and having a companion, so having a companion in life led to better adherence to medication. There was a significant relationship between visual impairment and adherence to medication, and in the elderly who

did not have visual impairment, complete adherence to medication was 67.8%. There was a significant relationship between forgetting time to medication and adherence to medication, and in older adults who did not forget their medication time, complete adherence to medication was 91.4%. There was a significant relationship between motor problems and medication adherence, and in elderly people with no motor problems, adherence to medication was 75.4%. There was a significant relationship between the multiplicity of medications and their similarity in shape and color, and in the elderly who did not encounter the multiplicity of medications and their similarity in shape and color, 76.1% had complete compliance. There was a significant relationship between the expiry date and the age groups, so that the elderly in the lower age groups paid more attention to the expiration date. There was a significant relationship between attention to expiration date and level of education, so that older people with higher education had more attention to expiration date.

4. Discussion

In this study, which aimed to investigate the drug use in the elderly, it was found that 80% of the samples use 80% of the drugs, which can indicate high and chronic diseases in the elderly (Table 1). 85.2% of the drugs used in the last 3 months were taken as tablets and the following were in the form of capsules, syrups, sprays, other medications, ointments, ampoules, drops and suppositories. In Davati et al.'s study (2007) 80% of the elderly taking pills were in the form of syrups, capsules, puffs, ampoules, ointments, sprays and suppositories, respectively. As most drugs used to treat diseases are produced in the form of tablets and capsules, on the other hand, it is more difficult to get ampoules and suppositories without a prescription, and less information on the subject, the greater the number of pills and capsules used in over-the-counter medications. In Haider et al.'s (2008). study, the average daily drug intake was 4.4, which is consistent with the findings of the present study. The most commonly used drugs in this study were A.S.A (30.4%), atenolol (28.7%) and ranitidine (24%) (Table 2). In the study, Ahmadi et al. [8] also found that A.S.A and atenolol had the highest prevalence. The present study showed that the highest daily medication was in the age group of 81-90 years and older (4.5 drugs) and the lowest daily medication was in the age group of 67-80 years (3.69 drugs). But in the study of Ahmadi et al. [8], the highest and the lowest daily intake were in the age groups of 65-74 years (3.59 drugs) and 55-64 years (3.14 drugs) respectively. The results of the present study are inconsistent. The findings of this study show that 65% of the samples were polymorphic, which in Ahmadi et al. (2008), 39.6% of the samples and Haider et al. (2008) in 42.2% of the samples were polymorphic, which contradicts our findings. The most common cardiovascular drug groups were 71.2%, gastrointestinal (42%) and anticoagulant (31.7%), whereas in the study of Haider et al in Sweden (Haider, 2008) the most common drug groups include antithrombotic (42.5%), beta-blockers (28.3%) and diuretics (28%) and in the study of Woo et al. in China (Woo J, 1995) drug groups were the most common antihypertensive drugs, skin drugs, and vitamins and minerals. In this study 34.9% of the samples used medicinal plants. Referrals to multiple physicians can exacerbate polymorphism and drug interactions, and taking prescription drugs from the pharmacy without a prescription can slow the course of disease recovery and drug side effects. In our study of 75 patients, 75% of elderly people had taken self-medication during the past 3 months, the most commonly used drugs being anti-cold, analgesic and hypnotic (Table 3). Other studies confirm that Lovola Filho et al. Studies of 1606 persons over 60 years of age in Brazil are similar to the results of this study (Lovola Filho, 2005). Also in the study of Linjakumpu et al. (2004) in people over 64 years of age and in the study of Riedeman et al. (2009) in Germany, similar results have been obtained that seem to be a practice accepted by most countries for self-medication. In addition, if we take into account the health of the elderly who go to the park, the prevalence of arbitrary drug use in the elderly population seems to be higher than the percentages mentioned.

According to the findings of our study, the most important causes of arbitrary drug use and non-referral were: previous drug use and symptom recovery have been similar to prescription medication, and symptoms are minor and physician inaccessibility. A study in Tavakoli in 1999 aimed at examining the

impact of important economic, social and cultural variables on arbitrary drug use has indicated symptomatic treatment of diseases and not being considered important (Tavakoli,2001). In Davati et al.'s study (2004), 57.7% of the sample had used arbitrary medication, with the majority of arbitrary medication being analgesics, anti-colds and gastrointestinal drugs, which is consistent with the results of the present study. 58% of the samples did not need any medication, 16% had children helper and 9% had a spouse, and 17% had no helpers. In this study, three main reasons for not following medication instructions,forgetting time to take medication,ameliorating symptoms,and unfamiliarity with medication. In the study of Ahmadi et al. (2008), the main reason for not following medication was the feeling of recovery and need for medication, forgetfulness and fatigue from long or high drug use, which the two causes of forgetfulness of drug use and improvement of symptoms in this study are in line with the present study. 71% of the samples had no problems referring to physician and most of them had problems with referring to physician or drug prescribing distance from research offices or medical centers, which is probably due to the fact that the majority of the research units were 73% resident in the village. The results of the study showed that 59 subjects had no history of drug and tobacco use and cigarettes had the highest frequency of drug use among the study units. Among the drug users, 46 patients had drug side effects, with more than two-thirds of them referring to a physician in response to the condition. Failure to follow the prescription can lead to pathogenicity and a significant increase in mortality in the elderly. There was a significant relationship between gender and use of medicinal plants ($P=0.048$). There was a significant relationship between the use of arbitrary drug with age ($P<0.02$), so that the lower age groups had more use of arbitrary drug. There was no significant relationship between self-medication and educational attainment, whereas in Porteous et al.'s study of 2708 people over 18 years of age in Scotland (Porteous, 2005), an opposite result was obtained. Correlations between problems with medication and adherence to medication were evaluated. There was a significant relationship between visual impairment, forgetfulness of drug use, movement problems and multiplicity of medications, and similarity of shape and color with medication adherence.

Due to the elderly having multiple diseases at the same time, drug therapy and polypharmacy are often one of the most important issues in this period that require serious attention. Impaired drug metabolism, impaired kidney and gastrointestinal function, pharmacokinetic changes of the drugs, and the inability of the elderly to use the drugs correctly can lead to increased drug side effects. Memory disorders, visual impairments, and inability to perform daily activities have been implicated in misuse and overuse of medications. Consider the principles and criteria such as getting a complete history of the elderly, controlling their previous medications, using other non-pharmacological treatments such as physiotherapy and diet, using high-indexed drugs, using minimal medications and the minimum possible dose, and gradually increasing the dose of medication if needed will reduce drug poisoning. The problem of self-medication and self-medication in the elderly is another problem in the elderly that can be very dangerous and sometimes even fatal, Therefore, it is the duty of family and acquaintances to never prescribe medication recommended to them by the elderly.

Conclusion

Elderly people, due to their life experiences and awareness, sometimes allow themselves to interfere with drug treatment processes and to change their medication regimes arbitrarily, which can have a major impact on drug outcomes. If an elderly person lives with other family members, it is advisable for a family member to take responsibility for drug treatment and control of drug use at home. It is important to pay attention to the status of medication use during home visits as well as in integrated health care programs for the elderly. Pharmaceutical companies should also label the drugs used by the elderly with a wider line of the subject so that the elderly can read them easily, and pharmacies will use larger labels with a readable line to use the drugs correctly.

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