Drugs with anticholinergic side-effects in primary care

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Abstract

Background: Anticholinergic drugs in elderly people have been associated with some serious side-effects. Patients in Turkey tend to attend primary care centers to have prescriptions of the drugs they chronically use. However, very little are known about how frequent that these drugs are prescribed and their side-effects in Turkish population. We aimed to investigate the usage and side-effects of drugs with anticholinergic properties in patients over 65 years of age attending to primary care centers.

Materials and Methods: Five hundred and sixty-three subjects were interviewed with a questionnaire of 16 questions inquiring their medication and possible side-effects. Timed up and go test (TUGT) and standardized mini-mental test (SMMT) were also performed.

Results: Medical records of 563 individuals were screened to detect anticholinergic medication. Twenty-eight patients were using anticholinergic medication. Mean duration of anticholinergic medication usage was 3.17 years. Mean number of falls occurred in the previous year was 1.14 ± 1.17. Mean SMMT score was 27.20 ± 1.13. Mean TUGT scores mean was 12.4 ± 1.25. Drowsiness in 18 patients (65%), dry mouth in 15 patients (53%), dry eyes in 15 patients (53%), constipation in 11 patients (39%), blurred vision in 11 patients (%39), urinary hesitancy in eight patients (28%), confusion in six patients (21%) were reported. We found that none of the subjects were evaluated in terms of fall risk or mental status by their doctors before the prescription of drugs with anticholinergic effects.

Conclusions: A suggested approach to improve drug safety was reported as to reduce the use of anticholinergic drugs when it is possible. Psychiatrists and family physicians should select less anticholinergic drugs for medication and have to evaluate their patients' fall risk and their cognitive status before prescribing drugs with anticholinergic side effects.

Key words: Anticholinergic side effects, cognitive status, fall risk, primary care

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Introduction

An adverse reaction is described as any reaction of the drug, which gives harm to a patient.

Such reactions can be seen with any drug use and variations of drugs' adverse reactions can be seen in different patients. As they could be encountered in 5.3% of all admissions to hospital, the adverse drug reactions are accepted as an important health issue.[1]

Due to the changes in metabolism and excretion, age is an important factor, which can affect the response to drugs. As elderly people can experience higher frequency of adverse effects to medications, many of such affects could be avoided or could be reduced.[2]

The growing percentage of advanced age group affects health systems both socially and financially.[3] Polypharmacy is a major concern in elderly patients. Increasing numbers of chronic diseases in old age leads

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to polypharmacy and polypharmacy leads to multiple side effects of the drugs.

Studies have reported that up to 20% of older adults were taking drugs with anticholinergic properties used for a wide variety of clinical disorders such as Parkinson's disease, urinary incontinence, cardiovascular diseases, depression, allergy, gastrointestinal disorders, and psychosis.[4,5] Anticholinergic drugs in elderly people have been associated with side-effects such as dry mouth, constipation, urinary retention or hesitancy, visual impairment, falls, confusion, drowsiness, delirium, and cognitive decline.[6-10]

Anticholinergics were mentioned in Beers criteria which was updated in 2012; as drugs, which may cause dementia and cognitive impairment, delirium or constipation and have to be avoided in patients over 65 year old.[11] It was also mentioned in screening tool of older people's potentially inappropriate prescriptions criteria as anticholinergics were potentially inappropriate medication to treat extrapyramidal side effects of neuroleptic medications due to risk of anti-cholinergic toxicity.[12]

In Turkey, people tend to attend to primary care centers to see their family doctors to have prescriptions of the drugs they chronically use because they can much easily reach medical attention. Very little is known about how frequent that the drugs with anticholinergic properties are prescribed in primary care and their side-effects in Turkish population.

Hence, we aimed to document usage and side-effects of these drugs with anticholinergic side-effects in patients over 65 years of age attending primary care.

Materials and Methods

Subjects over 65-year of age who admitted to Afton 5th Family Care Center, which serves 15,898 registered people with four family doctors were included into this study. 8.6% of this population, 1848 people were over 65-year of age. A total of 563 patients comprising 30.5% of all registered patients over 65-year of age admitting to our family center between October 14, 2013 and December 14, 2013 were consecutively recruited.

Ethical committee approval was held from Educational Department of Ministry of Health, Ankara. Informed consent was obtained from patients attending our survey. Each subject was interviewed with a questionnaire of 16 questions. Sociodemographic properties and side-effects were questioned by seven questions. Side-effects such as drowsiness, dry mouth, dry eyes, constipation, blurred vision, urinary hesitancy, and confusion were questioned. Furthermore, patients were questioned if they have fallen, while using drugs with anticholinergic side-effects. Whether their doctors asked for their falls or evaluated their mental status was checked with two questions.

Timed up and go test (TUGT) and standardized mini mental test (SMMT) were performed in each subject for the evaluation of risk of falling and cognitive status. A score of 14 s or more was considered as a risk for fall in TUTG. A score of 25 points was hesitancy stated as cut-off score for mild dementia.[13]

Results

Medical records of 563 individuals were screened to detect anticholinergic medication usage. Twenty eight patients were using anticholinergic medication. Twenty patients were male (71.4%), eight patients (28.6%) were female. Mean age was 71.32 ± 5.24 years (range 65-83 years).

Mean number of systemic diseases of subjects was; 2.46 ± 1.17. Mean duration of anticholinergic medication usage was 3.17 years. Mean number of falls experienced in the previous year was 1.14 ± 1.17. Mean SMMT score was 27.20 ± 1.13. Mean TUGT score was 12.4 ± 1.25.

Educational and marital status of patients was shown in Table 1. This data were consistent with Research of Population and Health in Turkey 2008 Report.[14]

Medications with anticholinergic side effects prescribed by psychiatrists and urologists were shown in Table 2. Reported side-effects of anticholinergic drugs were listed in Table 3. Two questions were asked to determine physicians' attention to prescribe these kinds of drugs. Subjects answered 100% as "no" to questions:

1. "Did your doctor ask whether you ever fall before prescribing your drug?"
2. "Did your doctor evaluate your mental status before prescribing your drug?"

Table 1: Educational and marital status of patients

Sex (%)	Educational status				Marital status	
	Illiterate/not finished primary school/(%)	Graduated from primary school/(%)	Graduated from secondary school/(%)	High school graduated or higher education/(%)	Married/(%)	Widowed/ single/(%)
Male (*n*=20) (28.5)	8 (40)	8 (40)	1 (5)	3 (15)	6 (21.4)	4 (14.2)
Female (*n*=8) (71.5)	7 (87)	1 (13)			12 (42.8)	6 (21.4)

Table 2: ARS of drugs

ARS 1 (16)	*n* (%)	ARS 2 (14)	*n* (%)	ARS 3 (14, 15)	*n* (%)
Essitalopram	14 (50)	Paroxetine	2 (7.1)	Oxybutynin	4 (14.2)
Citalopram	3 (10.7)			Tolterodine	3 (10.7)
				Flavoxate	2 (7.1)

ARS=Anticholinergic risk scale

Table 3: Side-effects of anticholinergic drugs

Symptoms*	*n* (%)
Drowsiness	18 (65)
Dry mouth	15 (53)
Dry eyes	14 (50)
Constipation	11 (39)
Blurred vision	11 (39)
Urinary hesitancy	8 28)
Confusion	6 (21)

*Multiple response

Discussion

In advanced age, patients' increasing number of diseases and drug usage is a challenging obstacle for a quality life. Inappropriate medication of drugs makes this a complex situation in elderly patients, which elimination, excretion and metabolism of drugs deteriorated and intoxication may be inevitable with inappropriate drug medication. In a follow-up of a cohort study, which have a total of 9,294 patients over 65-year of age, inappropriate medication with anticholinergic properties was found to be associated with an increased risk of falling.[15] In our study, we found that mean TUGT scores were low, verifying this data.

Use of anticholinergic medications has been associated with acute[16-19] and chronic cognitive impairment. The latter statement was proved in a research conducted with 13,004 participants.[18] Our subjects' SMMT scores were low, but they were just over the cut-off score. The leading side-effect in our survey was drowsiness. Drowsiness and blurred vision disrupt patient's stability in the upright position. So the patients under the influence of these side-effects of anticholinergic drugs have a tendency to fall. Studies about anticholinergic drugs found that these drugs were associated with increased risk of falling[20] and with acute and chronic cognitive impairment.[21-23] Falls in elderly patients are a major cause of morbidity and mortality.[19,24]

As far as we know this are the first study specifically investigating anticholinergic adverse effects of medications used in old age in Turkish population. However, small size of the population and lack of randomization are important limitations of our study.

Antidepressants were the most frequently prescribed anticholinergic drugs in our study. Even if selective serotonin reuptake inhibitors (SSRI's) were selected rather than tricyclic antidepressants (TCA's) in older patients, two published data about different classes of antidepressants and falls documented that older people who use SSRIs might not be any safer than those who use TCAs.[16,17]

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