Misunderstanding Prescription Physician's Oral Instructions in Patients with Low Back Pain

Alireza Khoshnevisan[*1], Mir Saeed Yekaninejad[2], Amir Haji Agha Pakpour[3], and Azam Mardani[4]

[1] *Department of Neurosurgery, BASIR Center, Tehran University of Medical Sciences, Tehran, Iran*

[2] *Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran*

[3] *Department of Public Health, Qazvin University of Medical Sciences, Qazvin, Iran*

[4] *BASIR Center, Imam Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran*

Received: 22 Dec. 2009; Received in revised form: 13 May 2010; Accepted: 6 Aug. 2010

Abstract- Medication errors and adverse drug events can bring about hospitalization, permanent injury, or death. Patients due to lack of adequate understanding of instruction may unintentionally misuse a prescribed medicine. The aims of the study were to examine whether patients with low back pain were correctly able to understand physician's instructions regarding drug use and also to identify influencing factors in patient's misunderstanding. The sample of the study included patients with low back pain who had been referred to five clinics in order to follow their treatment procedure. The patients completed a questionnaire to assess understanding of physician's instructions by the patients. Afterwards, physician provided them oral instructions on how they must use medications. Once the physician finished the oral instruction, he was asked patients to repeat whatever he said about the instructions. This procedure repeated frequently until the patients described correctly Instructions of the medications use. One hundred and five patients participated in the study. The mean age of the participants was 57.5 (±13.9) years. Thirty three patients were female (31.4%) and 75.2 percent were married. Almost 80% of the patients misunderstood the oral prescription instructions at first time of presentation instruction. Gender, educational level, back pain history and drug use history were risk factors for misunderstanding prescription medication oral instructions for patients. The study affirmed that patients with low back pain suffered from a poor understanding of oral instruction.

Acta Medica Iranica 2010; 48(6): 407-411.

Key words: Low back pain; health literacy; prescription drugs; safety

Introduction

Back pain is a public health problem in societies and it is prevalent as many individuals suffer from it. Studies shows that 70–85% of all people have back pain at some time in life (1). Low back pain is second the most common reasons for consulting a primary care physician and also fifth the most common reasons for admission to hospital (2-3). Moreover, low back pain is a leading reason for disability, work loss (3). Furthermore, studies reports decreased quality of life in these patients and depression is a prevalent issue among them. (4-5). Low back pain is also responsible for direct health care expenditures of more than $20 billion annually (6). There are many ways in treatment of patients with low back pain such as analgesic, Anti-inflammatory, muscle relaxant drugs, benzodiazepines, Antidepressants, epidural injection, exercise therapy, behavior therapy and etc. however; drug therapy for low back patients is one of the many possible treatment choices for symptom relief in patients with low back pain (7-9).

Reducing side effects associated with medication errors in the care of patients is a major goal patient safety for physicians (10-13).

Medication errors and adverse drug events have multiple sources. They may be related to professional practice; health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education of the patient or health care professional; and monitoring of use (14).

Despite of that there is more focus on drug-related errors regarding doctors and system failure but there is

***Corresponding Author:** Alireza Khoshnevisan
Department of Neurosurgery, BASIR Center, Tehran University of Medical Sciences, Tehran, Iran
Tel: +98 912 1007205, Fax: +98 21 88602219 , E-mail: akhoshnevisan@yahoo.com

less attention to misunderstand and misinterpret for patients who start using drugs (13, 15).

While the focus of health care delivery has shifted from inpatients to outpatients settings, quality control for drugs use is more important in patients. Moreover, patients have more responsibilities in comparison with their health care providers regarding drugs use (13, 15).

However, patients do not always use medications as prescribed. As a result, drug adverse events occur for the patients (13, 15). Previous studies have shown that many patients did not fully understand oral or written instructions from their physicians about the proper use of medications (16-19).

More than 7000 inpatient deaths due to medication errors. According to the institute of Medical (IOM), more than one third of the 1.5 million adverse drug events occur in United States has been by outpatient settings (14).

Medication errors and adverse drug events can bring about hospitalization, permanent injury, or death. Yet, many of the adverse drug events are preventable and easily avoidable (14).

Inappropriate patient's adherence to use medications are prescribed by physicians is one of the most important causes for medication errors and adverse drug events. The Patients due to lack of adequate understanding of instruction may unintentionally misuse a prescribed medicine. Therefore, improving patient's health and efficacy of treatment depended on the appropriate use of medicines by patient.

The aims of the study were to examine whether patients with low back pain were correctly able to understand physician's oral instructions regarding drug use and also to identify influencing factors in patient's misunderstanding.

Patients and Methods

The sample of the study included patients with low back pain who had been referred to five clinics in order to follow their treatment procedure. The recruitment method used was based on a convenience sampling approach. Inclusion criteria were being on understanding Persian language, agreeing to complete questionnaire survey, and being older than 18 years. The study received approval from the ethics committee of Tehran University of Medical Sciences. All participants gave their oral consent, and information about the participants was kept strictly confidentially. Exclusion criteria were; severely impaired vision, hearing problems, illness too severe to participate, and inability to speak Farsi.

Two Nonsteroidal anti-inflammatory agents (NSAIDs) including Ibuprofen and piroxicam ointment and methocarbamol were prescribed for all patients. Next, the patients completed a questionnaire. Afterwards, physician provided them oral instructions on how they should use medications. Once the physician finished the oral instruction, he was asked patients to repeat whatever he said about the instructions. The physician restated oral Instructions of the medications use if the patients didn't correctly describe medications use. This procedure repeated frequently until the patients described correctly Instructions of the medications use.

Measurement

A questionnaire was used to assess understanding of physician's instructions by the patients. The questionnaire comprised two parts. The first part related to demographic characteristics including accommodation, age, gender, level of education, marital status, history of back pain during the past two years and history of drug use. The second part included frequency of repetition of medications instruction when a patient correctly described medications use.

Statistical analyses

Demographic and clinical variables were analyzed using descriptive statistics.

An ordinal logistic regression model was created to describe the effects of covariates like, backache history, education and drug history on number of times repetition of medications instruction for the patients. Variable selection was based on a priori assumptions and model fitting and not via automated variable selection methods. Two subjects with four times to understand completely prescription was too small for response variable to become a category, and no subjects had a repetition times of 5 or More, so ordinal logistic regression was performed in which the subjects with a response Score ≥ 3 were considered a group to minimize a sparse problem. Thus, the response variable was subdivided into three categories for analysis as follows: 1, 2, and 3–4. The proportional odds assumption for ordinal logistic regression was confirmed. A p-value of less than 0.05 was considered to indicate statistical significance. Data analysis was performed using Stata software, Version 8.

Results

One hundred and five patients participated in the study. The mean age of the participants was 57.5 (± 13.9)

years. Thirty three patients were female (31.4%) and 75.2 percent were married. The most of the patients had education level with higher than diploma (46.7%). About 55 percent of the patients reported that they had a history of back pain during the past two years. Moreover, the most of the patients did not use any drug previously (52.4%). For more detailed characteristics of this patient group, see Table 1.

Table 2 shows the number of repetitions needed for patients to understand instructions of the medications use completely.

At first time of oral presentation of the instructions by physician, only 21 % of the patients could correctly repeat whatever was presented by the physician. Almost 79% of the patients misunderstood the oral prescription instructions at first time of presentation instruction. The most of the patients (56.1%) could correctly express medication instructions at second time. Repetition of oral medication Instructions continued until fourth time for 2 patients (1.9%).

Tables 1. Demographic characteristics of patients

Variable	n (%)
Educational status	
Under diploma	17(16.2)
Diploma	39 (37.1)
Higher Diploma	49(46.7)
Gender	
Male	72 (68.6)
Female	33(31.4)
Marital status	
Married	79(75.2)
Single/divorced/widowed	26(24.8)
Accommodation	
Urban	75(71.4)
Rural	30(28.6)
Back pain history	
Yes	58(55.2)
No	47(44.8)
Drug use history	
Yes	50(47.6)
No	55(52.4)
Age , years(Mean±SD)	57.5±13.9

Table 2. The number of repetitions needed for patients to understand Instructions of the medications use completely.

The number of repetitions	n (%)
First time	22(21.0)
Second time	59(56.1)
Third time	22(21.0)
Forth time	2(1.9)

Table 3. Risk factors for misunderstanding prescription medication oral instructions. An ordinal multiple logistic regression model

Variable	OR (95% CI)	*P*-value
Gender		
Male	2.76 (1.08,7.06)	0.03
Female (Ref)		
Age (years)	0.97 (0.93,1.01)	0.11
Education		
Less than Diploma	4.17 (1.18 , 14.76)	0.03
Diploma	2.79 (1.09 , 7.17)	0.03
Higher Diploma (Ref)		
Back pain history		
Yes	5.00 (1.16 , 20)	0.03
No(Ref)		
Drug History		
Yes	0.29 (0.07 , 1.18)	0.08
No(Ref)		

Finally an ordinal logistic regression model was performed in order to identify risk factors for misunderstanding prescription medication oral instructions for patients.

Lower education contributed for higher misunderstanding prescription medication oral instructions for patients. The odds of number of times repetition of medications instruction for the patients was statistically higher for less educated patients, with an OR of 4.17 (95% CI = 1.18 to 14.76) for patients with under diploma education level and 2.79 (95% CI = 1.09 to 7.17) for patients with diploma education level compared to higher diploma. Gender had a significant effect on Male patients had higher odds with an OR of 2.76 (95% CI = 1.08 to 7.06). Those patients who had history of backache had significantly higher odds, with an OR of 5 (95% CI = 1.16 to 20), although the effect of previous usage of backache drugs was not statistically significant (*P*=0.08).

Discussion

Patient's Perceptions of medication use instruction is very important issue. Patients due to lack of adequate understanding of instruction may unintentionally misuse a prescribed medicine. To the best of our knowledge, the study was first study to examine misunderstanding perceptions in a sample of low back pin.

Physicians may assume patients can simply understand their oral instruction. Yet, current study revealed that 79% of the patients misunderstood oral

instructions. The prevalence of misunderstanding is rather high in the study. A close study to our investigation by *Davis et al.* reported that approximately 46.3% of their patients were unable to read and correctly state 1 or more of the label instructions on 5 common prescriptions. Maybe, the reason for this is that low literacy effect negatively on the patient's understandings. In the other words, limited literacy significantly impairs one's ability to ear and demonstrate an understanding of instructions and warnings said by physicians. As the study showed patients with lower education had higher risk of misunderstanding in comparison with those had higher level of education. Results from other studies have indicated that low literacy as a factor in patient's increases non-compliance to treatment, which also has a deteriorative effect on patient's health (14, 20-22).

Regarding age, the study didn't find any significant effect on the patient's understandings. However, age showed a directional response that was in agreement with what had been anticipated as higher age had higher rate of misunderstanding perceptions. Similar findings were reported by other authors (14).

The present study has shown a significant association between poor understanding of oral instruction and gender, as male patients had a higher rate of misunderstanding. It is not clear its reason but it may assume that culture and gender have effect on listening. Women in interpersonal commutation consider listening as an opportunity to personally connect and ask questions to keep the conversation going. While males talk and interrupt more. *Davis et al* found similar findings (14).

History of drug use was significant association with understanding of oral instruction as the patients who had been used drug previously, reported low rate of misunderstanding. This finding could be the result of the patient's experience as these patients had been received the oral instructions and they were rather familiar with these instructions. We observed significant associations between poor understanding of oral instruction and back pain history. As, the patients who had back pain previously, received a high rate of misunderstanding. There is not a clear reason for it but a potential reason for it is that the patients had not an appropriate adherence to the treatment or they perceived that the treatment was not effective. Therefore, they ignored to oral instructions. Furthermore, another reason might be depression. Previous studies have supported the idea that anxiety and depression play a significant role in both intensify and chronic low back pain (23). Thus, depression may led to non-compliance to treatment and ignore oral instructions. We affirmed that patients with low back pain suffered from a poor understanding of oral instruction. Such patients are in continual contact with the healthcare system, which therefore needs to prioritize the tailoring of interventions in terms of treatment goals, to facilitate and optimize physician-patient communication, to promote shared decision-making and to improve physician's perception regarding their oral instruction to the patients. It is our hope that the results of this survey will be added to the existing literature addressing misunderstanding Prescription in patients with low back pain and

Perhaps more importantly, be used to improve clinical practice.

References

1. Norris C, Matthews M. The role of an integrated back stability program in patients with chronic low back pain. Complement Ther Clin Pract 2008;14(4):255-63.
2. Hart LG, Deyo RA, Cherkin DC. Physician office visits for low back pain. Frequency, clinical evaluation, and treatment patterns from a U.S. national survey. Spine (Phila Pa 1976) 1995;20(1):11-9.
3. Deyo RA, Cherkin D, Conrad D, Volinn E. Cost, controversy, crisis: low back pain and the health of the public. Annu Rev Public Health 1991;12:141-56.
4. Patrick DL, Erickson P. Health status and health policy: quality of Life in health care evaluation and resource allocation. New York: Oxford University Press, 1993.
5. Clairborne N, Vandenburgh H, Millard-Kraus T, Leung P. Measuring quality of life changes in individuals with chronic low back conditions: a back education program evaluation. Eval Prog Plan 2001;25:61-70.
6. Luo X, Pietrobon R, Sun SX, Liu GG, Hey L. Estimates and patterns of direct health care expenditures among individuals with back pain in the United States. Spine (Phila Pa 1976) 2004;29(1):79-86.
7. Report of the Quebec Task Force on Spinal Disorders. Scientific approach to the assessment and management of activity-related spinal disorders. A monograph for clinicians. Spine (Phila Pa 1976) 1987;12(7 Suppl):S1-59.
8. Hides JA, Jull GA, Richardson CA. Long-term effects of specific stabilizing exercises for first-episode low back pain. Spine (Phila Pa 1976) 2001;26(11):E243-8.
9. Nachemson AL, Jonsson E, editors. Neck and Back Pain. The Scientific Evidence of Causes, Diagnosis, and Treatment. Philadelphia: Lippincott Williams & Wilkins; 2000. p. 271-305.

10. Kohn L, Corrigan J, Donaldson M, editors. To Err Is Human: Building a Safer Health System. Washington, DC: National Academy Press, 2000.
11. Altman DE, Clancy C, Blendon RJ. Improving patient safety: five years after the IOM report. N Engl J Med 2004;351(20):2041-3.
12. Elder NC, Dovey SM. Classification of medical errors and preventable adverse events in primary care: a synthesis of the literature. J Fam Pract 2002;51(11):927-32.
13. Gandhi TK, Weingart SN, Borus J, Seger AC, Peterson J, Burdick E, et al. Adverse drug events in ambulatory care. N Engl J Med 2003;348(16):1556-64.
14. Institute of Medicine. In: Aspden P, Wolcott J, Bootman L, Cronenwett LR, editors. Preventing medication errors. Washington, DC: National Academy Press, 2006.
15. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. The incidence and severity of adverse events affecting patients after discharge from the hospital. Ann Intern Med 2003;138(3):161-7.
16. Morris LA, Tabak ER, Gondek K. Counseling patients about prescribed medication: 12-year trends. Med Care 1997;35(10):996-1007.
17. Metlay JP, Cohen A, Polsky D, Kimmel SE, Koppel R, Hennessy S. Medication safety in older adults: home-based practice patterns. J Am Geriatr Soc 2005;53(6):976-82.
18. Davis TC, Wolf MS, Bass PF 3rd, Thompson JA, Tilson HH, Neuberger M, et al. Literacy and misunderstanding prescription drug labels. Ann Intern Med 2006;145(12):887-94.
19. Wolf MS, Davis TC, Shrank W, Rapp DN, Bass PF, Connor UM, et al. To err is human: patient misinterpretations of prescription drug label instructions. Patient Educ Couns 2007;67(3):293-300.
20. Davis TC, Wolf MS, Bass PF 3rd, Thompson JA, Tilson HH, Neuberger M, et al. Literacy and misunderstanding prescription drug labels. Ann Intern Med 2006;145(12):887-94.
21. Davis TC, Wolf MS, Bass PF 3rd, Middlebrooks M, Kennen E, Baker DW, et al. Low literacy impairs comprehension of prescription drug warning labels. J Gen Intern Med 2006;21(8):847-51.
22. Wolf MS, Davis TC, Tilson HH, Bass PF 3rd, Parker RM. Misunderstanding of prescription drug warning labels among patients with low literacy. Am J Health Syst Pharm 2006;63(11):1048-55.
23. Mok LC, Lee IF. Anxiety, depression and pain intensity in patients with low back pain who are admitted to acute care hospitals. J Clin Nurs 2008;17(11):1471-80.