

Analysis of Related Factors Affecting Medication Safety of Elderly Patients and Nursing Measures

Yinxia Dou, Xiyu Sun

Zhengzhou Shuqing Medical College, Zhengzhou, Henan, 450000, China

Keywords: Elderly patients; medication safety; influencing factors; nursing measures

Abstract: The objective of the essay is to explore the influencing factors and nursing measures of clinical drug safety in elderly patients. Methods Selected 100 elderly patients treated in our hospital during 2019.1-2020.1, analyzed the factors affecting the medication safety of elderly patients, and proposed scientific nursing measures for medication. Results There are many factors affecting drug safety, including drug absorption, drug metabolism, drug distribution, psychological dependence and cognitive impairment, comparing the proportion of 100 elderly patients. Conclusion The drug safety of elderly patients is affected by different factors. Scientific nursing measures can help elderly patients to correct and standardize drug use, which has clinical promotion value. With the continuous growth of age, the body function of the elderly patients gradually decline, the organ function is easy to be infected with various diseases, and clinical drug treatment is the primary means to delay the disease. Due to the many types of diseases in elderly patients, the medication situation is also more complicated, often causing medication safety problems due to drug reasons and personal reasons. Therefore, actively carry out scientific nursing measures, to help to guide the elderly patients to use drugs scientifically, play the role of drugs, to avoid the generation of drug safety problems.

1. Data and methods

1.1 General information

100 elderly patients treated in our hospital from 2019.1 to 2020.1 were selected as the study objects, and the general data of all patients are shown in Table 1. In the cases, there was no history of mental illness and drug allergy, and they had a good compliance awareness. The 100 elderly patients included 32 patients with diabetes, 18 patients with CAD, 20 patients with hypertension, and 30 patients with other diseases.

Table 1: General data of the study subjects

Example number	Male / female	Age (year)	Mean age (years)
100	52/48	52~83	69.26±4.18

1.2 Methods

The following nursing interventions were implemented when guiding clinical medication safety in 100 elderly patients.

1.2.1 Strengthen their own ability and accomplishment

(1) Nursing staff should actively improve their mastery of professional pharmaceutical knowledge, learning rich pharmacology knowledge, master the pharmacodynamics and pharmacokinetics, enrich their mastery of common drug nouns and generic name, pay attention to the taboo of common drug incompatibility, combined with the clinical characteristics of elderly patients, familiar with elderly patients medication principle, clear different drugs will produce all kinds of adverse reactions. The hospital can organize internal training activities, carry out business lectures and clinical exchanges, improve the drug knowledge level of nursing staff, strengthen the nursing staff's safety awareness of elderly patients, and ensure the safety of clinical drug use for elderly patients.[1]

(2) Strengthen the self-cognition of nursing staff, and ensure the rationality of prescription and drug distribution. Clinical medication is not a simple process, which not only requires doctors and nurses to have rich clinical experience and solid professional knowledge, but more importantly, to have a good professionalism and uphold a serious and responsible attitude for each patient. Fully understand the significance of drugs to patients, do a good job in each link of medication management, with a good attitude to look at drug management and guidance and other nursing work. In elderly patients, patients should implement the patient's condition, clarify the diagnosis results, and actively find the key points[2], and do a good job in the accuracy of the treatment goal should be the most important cause affecting health, drugs should be used with caution to avoid drug safety caused by medical problems.

1.2.2 Assessment of medication ability

(1) Evaluation of medication tolerance of elderly patients. 1) Vision: Due to the gradual decline of elderly patients, they are prone to the same drug color, drug packaging labels, and some elderly patients will use expired drugs wrongly; 2) Hearing: about 30% of elderly patients over 65 have a certain degree of hearing impairment, which is also the root cause of the medication error. Due to hearing loss, elderly patients often take more drugs or take less drugs. 3) Memory: elderly patients generally memory ability decline, coupled with the lack of attention to the medication standard, often appear repeated medication or forget to use drugs and other phenomena. 4) Reading ability: some elderly patients due to the low level of education, coupled with the impact of vision cannot read the instructions correctly, resulting in the occurrence of blind or wrong medication phenomenon.

(2) Evaluation of the medication history of the elderly patients. Establish a perfect drug file for elderly patients, including the past and current drug situation of patients, record the drug allergy of elderly patients in detail, and master the cognitive level of patients on self-use drugs.

(3) To evaluate the organ system function in elderly patients. Focus on the evaluation of the liver and kidney function of elderly patients. When the renal system function of elderly patients is obviously decreased or the dysfunction appears, the use of drugs excreted through the kidney should be avoided to avoid the poisoning of drug accumulation. [3,4]

1.2.3 Medication monitoring and nursing care

In the work of medication safety nursing for elderly patients, we should not only implement the

principle of "three checks and seven pairs", but also carry out the whole process of medication monitoring and nursing work carefully.[5]

(1) Pre-drug administration monitoring: most drugs have certain clinical adverse reactions and indications, so the blood routine indicators and vital signs of elderly patients should be strictly observed before taking some drugs, for example, when using insulin and digoxin. Elderly patients are generally combined with multiple diseases, so there are many kinds of drugs, and the probability of adverse drug reactions is 2~3 times that of normal people. The incompatibility between drugs, drug effect interactions and drug instability will have a certain degree of impact on the treatment of patients' diseases, so it is necessary to make reasonable predictions before administration. Before guiding patients, nurses have the obligation to inform and supervise the necessity of drug use and explain the possible adverse reactions of medication.

(2) Monitoring of drug use and medication methods: Due to their own reasons, elderly patients have various medication methods, which need to be adjusted according to their actual needs. Most elderly patients take oral medication method, but intravenous infusion and intramuscular injection are also often used in elderly patients. For example, insulin injection in diabetic patients is subcutaneous injection. Take oral drugs as an example, they are usually taken, taken and swallowed. Although these are oral drugs, there are still some differences in their effects. Most controlled release tablets and sustained release tablets should be swallowed to ensure that the efficacy can be released continuously at the specified time. If crushed or washed, it will destroy the characteristics of slow release of efficacy, resulting to the dosage of patients.

(3) Drug time monitoring: combined with pharmacodynamics and pharmacokinetic knowledge, for elderly patients reasonable planning different medication time, to ensure that drugs can maintain good drug concentration in the body, nursing staff should accurately grasp the constant and dosage, avoid dosage repetition, in strict accordance with the correct medication regimen. The time interval of medication should not comply with the nursing work arrangement, and the personalized medication time should follow the doctor's advice by combining the dosage, drug characteristics, efficacy and dosage relationship as well as the influence of patient differences. For example, elderly patients with knee osteoarthritis should take isosorbide nitrate at 7 a. m. Elderly patients with gastrointestinal diseases use peridone or Xisha Belgium, should keep taking before meals, effectively promote the secretion of gastric juice in patients. In the use of aluminum hydroxide and compound aluminum hydroxide and other antacid drugs, should choose to take 1h after meals. When using hypolipidemic drugs, they should be taken before bed. [6-8]

(4) Post-medication monitoring: closely observe whether there are adverse reactions in elderly patients after medication. In the process of medication, nursing staff should communicate with patients from time to time to evaluate the patient's body function, adaptability, cognitive ability and self-care ability, so as to ensure the safety of medication.

1.2.4 Drug use education and nursing

(1) Overcome the subjective influencing factors. We should strengthen the medication health education of elderly patients, especially do a good job of medication system services for elderly patients, and actively cultivate the ability and safety awareness of independent drug use of elderly patients. The effects of drugs should be introduced systematically, and the necessity and significance of drugs should be instilled, so as to improve patients' medication compliance. Nursing staff should effectively play the role of the community and the family, to help correct the patients' non-standard medication and medication does not pay attention to the form. In addition, some drugs are prone to trigger reversible additional reactions in elderly patients, such as cabaclow and riboflavin, where patients have light red or dark yellow urine. In addition, the patient's stool after taking the drug is black. Nursing staff should inform patients of these adverse reactions in advance

to avoid causing tension in patients and improve the confidence of drug treatment. [9,10]

(2) Avoid objective influencing factors. 1) Oral medication guidance. Nursing staff should carefully describe the purpose of drugs, drug principle, drug effect, time and method of drug use, introduce drug contraindications and adverse drug reactions, and improve patients' drug compliance. When faced with patients with insufficient vision level and reading disorder, the nursing staff should take a simple way to inform them. If the patient's memory is poor in the coming year, the nursing staff can record the medication instructions and methods in detail through written ways, and can also directly tell the patient's family to ensure the accuracy of the patient's medication. 2) Nursing staff timely inform patients and their families of the attention to medication, such as improper medication posture will produce esophageal damage or reduced efficacy and other factors, to ensure that patients to take sitting or standing words, when the medication should not immediately lie supine, to avoid drug retention esophagus, have adverse effects on patients with digestive dysfunction. When patients use hypoglycemic drugs, the nursing staff should inform the patient to correctly grasp the medication time to avoid the phenomenon of hypoglycemia.[11]

1.3 Observed indicators

The indicators used in this thesis were drug absorption, drug distribution, drug metabolism, cognitive dysfunction, and psychological dependence in 100 elderly patients who received a clinical drug safety care intervention.

1.4 Statistical methods

Using spss23.0 statistical software, the measurement is represented by " $\bar{x} \pm s$ ", t as the test index, χ^2 as the intergroup comparison, $P < 0.05$ indicates that the differences were statistically significant.

2. Results

The results of this study showed that the factors affecting the medication safety of elderly patients mainly include drug absorption, drug metabolism, drug distribution, psychological dependence, and cognitive impairment, and the proportional results are shown in Table 2.

Table 2: Factors that influence medication safety in elderly patients

influencing factor	Example number	scale
drug absorption	28	28%
drug metabolism	25	25%
drug distribution	22	22%
Psychological dependence	16	16%
cognitive disorder	9	9%

3. Discussion

With the continuous development of The Times, the current aging trend in China is constantly advancing, and the number of clinical elderly patients is also increasing. Based on pharmacokinetic point of view, drug distribution, drug absorption, and many other aspects will directly affect the safety of patients, it also brings certain test to clinical nursing work, only for elderly patients with scientific medication guidance nursing, to ensure the safety of elderly patients, to achieve the ideal drug treatment effect, improve the elderly patients treatment self-confidence. [12,13]

From the current medication situation of the elderly patients, the common factors affecting the

medication safety of the elderly patients include the following points: (1) physical metabolic function. The drug metabolism function of elderly patients is significantly weaker than the body metabolism capacity of young adults. At the same time, the absorption capacity of drugs is relatively poor. With the continuous growth of people's age, the gastric function of elderly patients is gradually weakened, and the gastric mucosa appears atrophy, leading to the decrease of gastric acid secretion. In the face of this body state, it is often difficult for elderly patients to achieve effective absorption of efficacy when taking drugs, and the pH value in the gastric environment is constantly rising, resulting in the gastrointestinal peristalsis rate of patients to slow down, reducing the gastrointestinal absorption capacity of the drugs, so it is easy to cause drug safety problems for elderly patients. (2) Drug use safety factors caused by drug factors. When older patients take the drug, the drug works into different organs in the circulation, and the whole process is also called the drug absorption process. When the drug enters the blood circulation system of the elderly patients, it is rapidly distributed throughout the whole body through the blood circulation. Therefore, drug distribution factors are also an important part of the body circulation, including not only the binding of plasma to drugs, but also the binding to other tissues. With the continuous growth of patients' age, the number of cell fluid in the elderly patients decreases, and there is water shortage in the body circulation system, resulting in high concentration and content of drugs in the blood, and high content of drugs in the blood circulation system of patients, which has a great impact on the absorption of drugs. For example, with lidocaine, it leads to an increased half-life. Due to the attenuation of the body function of the elderly patients, the protein content is gradually reduced, and the effect of drugs and proteins is affected to a certain extent, resulting in the insufficient drug energy storage level in the patients, resulting in the decrease of efficacy. (3) Drug metabolism factors. The phenomenon of metabolic function is generally exists in elderly patients. As the organ of human metabolic drugs, with the continuous growth of age, the liver function of patients will gradually weaken, generally only 40% of the liver function of young and middle-aged people. The activity of liver cells and microsomal enzyme system is decreased, resulting in the loss of metabolic drug function in patients. Under the action of drug mechanism, the probability of drug severity in elderly patients increases. As the main organ of drug excretion, human kidney function can filter and eliminate the toxins in drugs. [14] However, with the decline of kidney function in the elderly, the ability of drug excretion is insufficient, and the metabolic function and endocrine ability decline. In the long run, this will lead to various adverse reactions and drug safety problems. (4) Lifestyle influence. With the elderly lifestyle changes, prone to loss of appetite, anorexia, directly cause elderly patients body protein and trace elements, affect metabolic power, show metabolic dysfunction such as phenomenon, so the efficacy of the drug play a certain influence, even if the use of normal drug quantity is difficult to play a good effect. Some elderly patients have bad habits such as drinking and smoking, which have a great impact on the safety of medication. Due to the large amount of residual nicotine in the liver of patients, the activity of the microsomal enzyme system is insufficient, which affects the play of efficacy.

To sum up, the safety of drug use in elderly patients is affected by many factors, so actively carrying out scientific nursing measures can help elderly patients to correctly and standardize drug use, and guide and monitor the physical conditions of elderly patients, so as to ensure that drug treatment can achieve the ideal effect.

References

- [1] Gao Yongping, Zhang Lingling, Wang Xiaohong, Qiao Qiuge, Gao Ru. The current situation and related influencing factors of oral medication safety behavior of elderly patients hospitalized in cardiovascular medicine of a third A hospital [J]. *Chinese Journal of Gerontology*, 2022, 42 (10): 2513-2518.
- [2] Xu Liang. Impact of medication guidance on improving medication safety in elderly hypertensive patients [J].

- Journal of Clinical Rational Drug Use*, 2020, 13 (17): 138-139.
- [3] Tan Ran. Research on the safe drug use of elderly patients and nursing countermeasures [J]. *Modern Diagnosis and Therapy*, 2020, 31 (11): 1829-1830.
- [4] Hu Xuemei. Analysis of the impact of medication guidance on improving medication safety in elderly hypertensive patients [J]. *Electronic Journal of Clinical Medical Literature*, 2020, 7 (38): 35.
- [5] Gan Lin. The impact of continuity of care on medication safety in elderly patients with chronic diseases [J]. *Electronic Journal of Clinical Medical Literature*, 2020, 7 (36): 181.
- [6] Zhang Fenglei. Factors affecting medication safety and management countermeasures in elderly patients [J]. *Journal of Traditional Chinese Medicine Management*, 2019, 27 (07): 164-166.
- [7] Zhou Dan. Factors affecting medication safety and management countermeasures in elderly patients [J]. *Journal of Traditional Chinese Medicine Management*, 2019, 27 (03): 178-179.
- [8] Chen Sheng, Wang Yuqi. Impact of health education on safe medication use in elderly patients [J]. *Electronic Journal of Clinical Medical Literature*, 2019, 6 (08): 130.
- [9] Zhang Yeke, Bao Xiaoping, Hong Yun. Factors affecting medication safety and management countermeasures in elderly patients [J]. *Journal of Traditional Chinese Medicine Management*, 2018, 26 (22): 79-81.
- [10] Wang Ya. Analysis of the impact of health education on safe medication in elderly patients with chronic diseases [J]. *Electronic Journal of Practical Clinical Nursing*, 2017, 2 (50): 48 + 51.
- [11] Li Aiqiong, Yue Yuejuan, Li Wufei, Ding Jianhua, Liu Liucheng. Investigation on the influencing factors of medication safety and health education needs in elderly patients with chronic diseases [J]. *Pharmacy in China*, 2016, 27 (27): 3751-3754.
- [12] Li Xuqin, Zhou Jianhong, Huang Lixin, Yuan Hongxia, Ma Xiuqiang. Investigation on medication safety and influencing factors of elderly patients with hypertension and diabetes in Zhenxin District, Jiading, Shanghai [J]. *World Clinical Medicine*, 2016, 37 (07): 465-469.
- [13] Liu Xueru. Analysis of the impact of medication guidance on medication safety in elderly diabetic patients [J]. *Electronic Journal of Clinical Medical Literature*, 2016, 3 (12): 2408-2409.
- [14] Zhang Chen. Analysis of the impact of medication guidance on medication safety in elderly patients with diabetes [J]. *China*, 2016, 10 (02): 270-271.