Journal of Research in Medical and Dental Science
2022, Volume 10, Issue 11, Page No: 230-233

Available Online at: www.jrmds.in
eISSN No.2347-2367: pISSN No.2347-2545

Medication Errors in Dentistry

Bhavika Satish Vidhwani*, Kumar Gaurav Chhabra, Amit Reche, Priyanka Paul

Department of Public Health Dentistry, Sharad Pawar Dental College and Hospital, Datta Meghe Institute of Medical Sciences (Deemed to be University) Sawangi (Meghe) Wardha, Maharashtra, India

ABSTRACT

A pharmaceutical error is a flaw in the treatment that threatens to harm the patient. Medication errors might occur while following these steps: Deciding which medicine and dosage to be used; prescribing the prescription; manufacturing the medicine; dispensing the formulation; taking the medication. Despite the fact that pharmaceutical errors can be deadly, they are uncommon and usually small. Minor system failures, on the other hand, must be recognized since they may lead to more catastrophic errors later. The construction of a blameless and non-punitive environment should encourage people to report mistakes. Prescription errors include irrational, incorrect, ineffective prescribing, under prescribing or overprescribing. Medication errors must be avoided during prescribing, using a medicine that is correct for the patient's condition and in a dosage regimen that optimizes the benefit to harm ratio within the restrictions imposed by the ambiguity that surrounds therapeutic decisions. In balanced prescription, the drug's mechanism of action should be linked to the disease's path physiology. Medication errors are caused by system problems; however, when the practitioner, pharmacist, and patient are all responsible, the chances of an error are reduced. It is the responsibility of all three persons to ensure that the correct drug, its form, dosage, and procedure are used.

Key words: Medication error, Drugs, Prescription, Prevention, Dosage

HOW TO CITE THIS ARTICLE: Bhavika Satish Vidhwani, Kumar Gaurav Chhabra, Amit Reche, Priyanka Paul, Medication Errors in Dentistry, J Res Med Dent Sci, 2022, 10 (11): 230-233.

Corresponding author: Dr. Bhavika Satish Vidhwani
E-mail: bhavika13713@gmail.com
Received: 02-Sep-2022, Manuscript No. JRMDS-22-49531;
Editor assigned: 06-Sep-2022, PreQC No. JRMDS-22-49531 (PQ);
Reviewed: 21-Sep-2022, QC No. JRMDS-22-49531;
Revised: 03-Nov-2022, Manuscript No. JRMDS-22-49531 (R);
Published: 10-Nov-2022

INTRODUCTION

Pharmaceutical errors can occur anytime in the medication administration. As practically everyone today takes medication at some point, the risk of adverse drug effects and medication errors has elevated. The distinct aspects of dental work, on the other hand, pharmacotherapy reduces the risk of harmful medication reactions. Medication errors are unintended mistakes made while a healthcare practitioner, patient, or consumer is in charge of prescribing, distributing, or administering a medicine. As part of dental care, dentists are responsible for prescribing medicines to the patients. There are just a few medicines that are commonly utilized in dental treatments. The contraindications and side effects of the drugs that make up their own complications are all well-known to most dentists. As a result, practicing dentists face a continuing difficulty in understanding drug errors and obtaining credible new information in this area. This article highlights the common medication errors that occur during the practice and their prevention measures (Table 1) [1].

LITERATURE REVIEW

Table 1: Types of errors are shown below.

Types	Definition
Prescription error	Improper dose, quantity, form, route, rate of administration, concentration and directions for usage of a drug product ordered; illegible prescriptions or medication orders resulting in errors.
Omission error	Prior the next scheduled dose, incapability to give a patient an ordered dose.
Incorrect time error	Medicine is given out of a predetermined time from when it is supposed to be given.
Unauthorised drug error	Administrating the medication to a patient that has not been authorized by the practitioner.

Improper dose error	Administrating a dose to which is more or less than the amount prescribed by the practitioner or administrating duplicate doses to the patient.
Incorrect dosage form	Administrating medicine to patient in a dosage form other than that prescribed by the practitioner.
Incorrect administration technique	Incorrect approach in delivery of a medicine.
Deteriorated drug error	Administrating a medicine which has reached the end of its shelf life.
Monitoring error	Failure to analyse patient's reaction to recommended therapy using relevant clinical or laboratory data.
Compliance error	Inappropriate patient conduct when it comes to sticking to a drug schedule.

Prescription error: Prescription errors are frequently the consequence of slips, lapses, or blunders, such as prescribing a dose that is of magnitude more or less than the correct one due to erroneous arithmetic, or erroneous prescription due to identical drug brand names or pharmaceutical names. One of the most important aspects of the treatment process is prescribing. A prescription can be used to assess the level of medical education, as well as the medical community's laws and regulations, socio cultural views, and medical status. Irrational prescription can be caused by mistakes such as prescribing the incorrect amount of drug, faults in writing, problems in pharmaceutical form, drug dosage, administration route, and treatment length. These mistakes might result in inadequate therapy, a protracted sickness, or worse, injury to the patient. The error will have adverse effects, to prevent that following measures can be taken:

- Automation of the prescribing process, resulting in a reduction of complexity in the act of prescribing.
- Educated prescribers and the use of online tools improved prescriber knowledge.
- Monitoring of intervention effects and feedback control systems.

Omission error: A drug omission occurs when a patient does not receive the required prescription, either because the medication was not prescribed or because it was not administered. When the patient fails to administer the drug as prescribed or the assistant fails to administer drug as per the prescription. It can be prevented by:

- **Make lists:** Make a list of all the critical duties that each of your reports is responsible for each week, month, and year. They should be updated on a regular basis.
- It's the equivalent of inquiring about a peer's most recent inspection or audit. Learning how others were evaluated may motivate you to ensure that you are not cited for a similar omission.

Incorrect time error: Administration errors that occur at the wrong moment are the most common. While many wrong time errors are not harmful, some drugs must be administered within a very limited time in order to achieve the desired response and to avoid adverse effects. Medications that must be administered separately from other medications, as well as specific premedication, are examples. The permissible administration window for a medicine dosed twice daily that is not time critical is one hour before or after the planned time for non-time critical scheduled medications. Nursing orientation and education must have the hospital's policy on drug administration scheduling. Further, as for time critical scheduled appointments, important information should be available at the point of service. Prevention measures to avoid wrong time errors:

- High alert drugs, which have a higher potential of causing serious harm if misused mistakenly, require extra caution at every stage of the medication use process.
- Patients, prescribers, pharmacists, and nurses should be aware of the medication's hazards and the measures in place to mitigate them.

Unauthorised drug error: Administration of medication administrating medication to a patient without corrects authorization by the prescriber also if administration is out of the guidelines. Medication of one patient given to another or if nurse gives medication without practitioner order leads to error. Refilling prescriptions that have no space left can create confusion and ultimately an error. A patient sharing the prescription is also a favourable condition for error. To prevent the error:

- Follow correct medication process.
- Checking the procedure twice or thrice.
- Have the practitioner re-read it.
- Consider a name alert.
- Mention zero before the decimal point to avoid confusion.
- Keep the record of everything.
- Medicines efficacy increases with correct storage.
- Learning about medication administration regulations and guidelines.
- A drug guide should be available every time.

Improper dose error: When a patient is given a dose that is more or less than the given dose improper dose error might occur.

Cause: Delay or absence in documenting a dose. Incorrect amount of an oral liquid is an error. Exclusive from this category are:

- Doses that can't be measured correctly.
- Not specified like in topical application.

It is critical that pharmacists provide the correct drug at the precise dose. Like looking medicines, difficult to read physician handwriting can all lead to prescription errors. Pharmacists must take precautions while filling each prescription order. These mistakes can also cause complications, either because you take too much or too little of a drug. From prescription to dispensing and consuming the dose should be checked and rechecked. Pharmacist should explain the dose for better understanding; this can help in preventing improper dosage.

Incorrect dose form: Incorrect dose form errors are doses that are provided or dispensed in another form than which is specified by the practitioner. According to the health care facility guidelines, dosage forms can be altered as per the requirement of the patient. Like taking a liquid formulation without the prescription by the practitioner only because of inability to swallow the tablet leads to change in the dose form and ultimately increases the chances of errors. It can be prevented by using the drug in the same form as described by the dentist [2-4].

Incorrect administration technique error

- Failing to activate the drug before placing intravenously to get good mixture.
- Administrating an eye drops in the other eye than the damaged one.
- When intravenous medications are administered very rapidly
- Failure to flush an IV line.
- Mixing a drug with an incompatible solution leads to precipitated forms. Errors occur due to lack of knowledge, deficiency in performance and not binding to the protocols. Training of correct administration method and use of infusion pumps or dispensing devices which would help in reducing the error.

Deteriorated drug error: Medicines that are consumed or administered after their shelf life has ended become less effective and lack potency. Drugs that have been refrigerated and stored at room temperature may degrade and their potency is compromised. As a result, keeping track of product expiration dates and storage is crucial. It can be avoided if you do the following:

- Renewing drugs on a regular basis.
- Checking the medication's expiration date at the time of purchase.

Monitoring error: When patients are not monitored carefully before or after they received a drug, monitoring error occurs. Also, if a pharmacist fails to recheck a patient's medication history before dispensing a medication resulting in a significant drug-drug interaction leads to emergence of such errors. Situations like:

- Ordering serum drug levels but not checking them.
- Not responding to level outside of the required range.
- No ordering of drug levels when required.
- Giving antihypertensive agents and then not recording the blood pressure. To prevent these errors correct record should be maintained regarding the requirements.

Compliance error: Patient mistake is the most common cause of non-compliance. A medication error happens when a patient's recovery is hampered because the patient took medication wrongly, maybe due to misunderstanding what the doctor and/or pharmacist said. A medication error by a patient could also be the consequence of the patient trying to save money since the prescription drug is not on the insurance plan's formulary and the patient cannot afford it. Instead of requesting an alternative medicine with a reduced co-payment, the patient could take one pill every third day rather than daily. To boost the patient compliance:

- Understand each patient's medicine taking behaviours.
- Educate about side effects.
- Maintain the record.
- Include the patients.
- Consideration of the financial burden to the patient.
- Assess health literacy.
- Reduce complexity.
- Follow up with patients.

DISCUSSION

Pharmaceutical errors can occur anytime in the medication administration. As practically everyone today takes medication at some point, the risk of adverse drug effects and medication errors has elevated. The distinct aspects of dental work, on the other hand, Pharmacotherapy reduces the risk of harmful medication reactions. Medication errors are unintended mistakes made while a healthcare practitioner, patient, or consumer is in charge of prescribing, distributing, or administering a medicine. As part of dental care, dentists are responsible for prescribing medicines to the patients. There are just a few medicines that are commonly utilized in dental treatments. The contraindications and side effects of the drugs that make up their own complications are all well-known to most dentists. As a result, practicing dentists face a continuing difficulty in understanding drug errors and obtaining credible new information in this area. This article highlights the common medication errors that occur during the practice and their prevention measures [4-8].

CONCLUSION

Medication errors in dentistry can occur due to various reasons and it's the responsibility of the practitioner to be aware about various errors and the ways to prevent it. The prevention of errors saves the patient from adverse effects of the wrong medication. The dentist should always be cautious while prescribing the medications.

REFERENCES

1. Chhabra KG, Sharma A, Chhabra C, et al. Knowledge, attitude, and practices regarding pharmacovigilance and adverse drug reaction reporting among dental students in a teaching hospital, Jodhpur, India: A cross sectional study. J Contemp Dent Pract 2017; 18:964-969.
2. Chhabra C, Chhabra KG, Sharma A, et al. Pharmacovigilance: The least understood and least practiced science in dentistry. World J Dent 2019; 10:403.
3. Kumar M, Deolia S, Totade S, et al. Knowledge, attitude and practices of pharmacovigilance among healthcare professionals in a medical and dental institute: A comparative study. Int J Curr Res 2017; 9:55139-55144.
4. Sangeetha P, Prabhawati PI, Inamadar PI. Awareness of dentists about medication errors: A pilot study. J Evol Med Dent Sci 2014; 3:488-494.
5. Velo GP, Minuz P. Medication errors: Prescribing faults and prescription errors. Br J Clin Pharmacol 2009; 67:624-628.
6. Araghi S, Sharifi R, Ahmadi G, et al. The study of prescribing errors among general dentists. Glob J Health Sci 2016; 8:32-43.
7. Aronson JK. Medication errors: What they are how they happen and how to avoid them. J Med 2009; 102:513-521.
8. Rodziewicz TL, Houseman B, Hipskind JE. Medical error reduction and prevention. In: Stat pearls. Treasure Island (FL): Stat pearls publishing, 2022.