



## Intravenous Medication Safety and Role of Pharmacist

**Dr. Manjula Devi**

Professor, Department of Pharmacy Practice, College of Pharmacy,

Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore, Tamil Nadu

Healthcare industry is one among the fastest growing sectors in India. Growth is seen across all sectors of healthcare such as medical devices, pharmaceuticals, labs, hospitals, IT services and other providers. Safe and correct medication is one of the principal responsibilities of healthcare professionals during patient care. Medication safety involves giving the right person the right medication in the right dose at the right time and by the correct route. Though there are several strategies to improve patient safety within hospital settings, medical errors continue to increase. India reports 5.2 million medical injuries a year. Medication error is one of the most common medical errors. The Institute of Medicine (IOM) estimates that 98,000 people die every year in US at a cost of \$ 29 Billion due to medication errors. Since the prevalence of drug errors is high, it is crucial that all healthcare professionals understand the factors leading to errors, and avoids them to the best of their ability. Consequences of medication errors include permanent harm to patient, prolonged hospitalization, loss of trust and reliability about the provider and facility. Medication errors include prescribing error, administration error, dispensing error and documenting error.

Intravenous route is the most preferred route for drug administration when the patient is critically ill because it gives immediate therapeutic effect of medications but unfortunately this route is associated with high risk of patient harm. The number of available IV medications continues to expand. Several drug safety issues arising from intravenous drug administration are due to mistakes in dose calculations, incorrect route and rate of administration, incorrect diluents and dilution, Di (2-ethylhexyl) phthalate (DEHP) release from medical devices, drug adsorption on the IV set and poor aseptic techniques. Several studies have reported the use of wrong diluents for IV drug reconstitution. Use of wrong diluents can cause reduction in drug solubility and stability problems. The most frequent IV medication errors are related to the administration rate, usually higher than that recommended. Rapid IV drug administration is associated with phlebitis, pain, and other complications.

A proportion of drug is always lost between preparation and administration because of drug degradation, interaction with the diluents or with the giving set which in turn causes physical or chemical instability of drugs. Mixing of drugs becomes necessary when the patient is given with multiple medications. It is always better to avoid mixing of drugs. If circumstances are so compelling, there should be evidence from published compatibility data. Two types of incompatibilities are commonly seen during IV drug administration: physical and chemical. Physical incompatibilities can be most easily detected and are evidenced by visible changes such as turbidity, precipitation, and colour change or gas formation. Chemical incompatibilities can be detected using suitable analytical methods.



Pharmacists have an integral role in ensuring safe, effective and appropriate use of intravenous medications through systematically conducted medication chart review, monitoring and evaluating intravenous drug related issues as well as preparing and implementing IV drug preparation and administration protocol.