

Medication incidents associated with patients undergoing dialysis

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The kidneys are one of the main organs responsible for eliminating medications from the body. If dosing adjustments are not made based on a patient's kidney function, increased exposure to the medication may put the patient at risk of side effects, serious harm, or even death. Dialysis is a life-saving way to remove toxins from the blood of people with severely reduced renal function. There are several modalities of dialysis, each with its set of complexities.

As patients who undergo dialysis require an increasing number of medications, situations of inappropriate medication use may become more frequent. The likelihood of medication incidents is particularly high in community pharmacies, where there is often limited access to patient medical records and lab values. However, pharmacists are uniquely positioned to intervene and resolve scheduling and dosing errors concerning dialysis patients. The objective of this article is to present results from a multi-incident analysis of medication incidents reported in community pharmacies involving patients undergoing dialysis.

METHODS

A total of 134 incident reports were extracted from the ISMP Canada Community Pharmacy Incident Reporting (CPhIR) program www.cphir.ca from June 2014 to May 2019 and met the inclusion criteria for the analysis. A collection of broad search terms such as "GFR", "Dialysis", "Kidney" and "Renal" were used to capture incidents involving patients with renal impairment. Thirty-eight incidents were excluded as they did not involve the target patient population. Two

Incident Examples	Contributing Factors	Commentary
Metoprolol was supposed to be placed in blister packaging except for dialysis days. Medication was placed in the wrong slot in compliance packaging. Pharmacist noticed mistake when checking packages and mistake was corrected.	Ambiguity of prescriptions or lack of indicated changes in therapy	Dialysis introduces complexities in medication therapy management in patients. This includes medication errors due to scheduling complexities.
Prescription was misinterpreted: Keflex 500 mg po daily (to give after dialysis on Tuesday / Thursday / Saturday) for 2 weeks. Medication was filled as 6 tablets for the 3 days of the week indicated for 2 weeks. Patient phoned back to explain that the medication is supposed to be taken every day for 14 days after dialysis on the indicated days so as not to get dialyzed and removed from the patient.	Lack of independent double checkst	

Table 1 – Medication Incidents Associated with Patients Undergoing Dialysis

independent analysts conducted a multi-incident analysis of the data identifying common themes, sub-themes, contributing factors, and recommendations to improve patient safety. The results presented in this article focus on a subset of the reports pertaining to dialysis.

Of note, 86 of the 134 incidents analyzed were classified by reporters as "Near Misses" that were intercepted before reaching the patient. Therefore, many of the incident examples and contributing factors or interventions should be interpreted as demonstrating best practices by pharmacy professionals, rather than errors that should be avoided.

RESULTS

Incident examples, potential contributing factors, as well as recommendations to improve the care of patients undergoing dialysis are provided in

RECOMMENDATIONS

Access to patient's medical records, lab values, and test results by health-care professionals would help improve the quality of care provided to patients undergoing dialysis. This includes pharmacists who would require access to indicators of patient's renal function in order to evaluate the appropriateness of medication therapy and to recommend suitable alternatives if applicable.

FOR PHARMACISTS

- Consider implementing an independent double check system for medications prescribed to patients receiving dialysis.
- Ask patients about changes to their medical/medication history at every visit and document changes prominently in the patient profile.
- If there are concerns that the dose or medication is not appropriate for a patient on dialysis, contact the prescriber

to verify the degree of renal impairment.

- Utilize the pharmacist's expanded scope of practice to adapt prescriptions as appropriate for patients with renal impairment.

FOR PRESCRIBERS

- Include relevant lab values (e.g. CrCl, SCr, INR, A1C, etc.) directly on prescriptions to allow pharmacists to independently assess appropriateness of therapy
- Include rationale supporting changes in therapy on prescriptions (e.g. patient on dialysis or renal function declining, etc.)

CONCLUSION

Patients on dialysis are prone to medication incidents. They are often cared for by multiple providers, and collaboration is needed within the circle of care to prevent errors and provide the best possible care. ■

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