

Manitoba Health, Healthy Living & Seniors (MHLS) supports reporting and learning from patient safety events. The focus of a patient safety review is to closely look at the health care system that surrounds and interacts with those giving and receiving care. The goal is to identify risks to patient safety and recommend the most effective ways to minimize risk and improve the delivery of healthcare.

Patient Safety Learning Advisory

Error Related to Lithium Dosage Conversion

Summary:

A personal care home resident had been taking Lithium Carbonate (150mg capsule) twice daily for many years. This medication was effective in controlling the symptoms of Bipolar Disorder.

When tested, the resident's serum Lithium level was found to be elevated. As a result, a reduction in the Lithium dose was required. Lithium Carbonate is not available at the lower required dose. As a result, Lithium Citrate (syrup) was dispensed to meet the prescribed dose. The resident received a medication dose that was 38 times the amount prescribed.

The resident required transfer to the Intensive Care Unit for dialysis due to toxic levels of Lithium.

The resident recovered and was transferred back to the personal care home.

Keywords:

Lithium toxicity

Device Name (if applicable):

Drug/Name/Fluid Name: (if applicable): Lithium Citrate, Lithium Carbonate

Type of Analysis: single event

Topic: Medication

Findings of the Review:

The discrepancy between the units ordered (mg) and the units supplied (mmol/ml) required a dose conversion. This conversion did not occur when dispensed by the pharmacy.

There were no maximum dose warnings generated by the pharmacy software.

The dose had been calculated at the pharmacy and printed on a label. The label had been affixed to the outside of the Lithium Citrate bottle concealing information on the bottle.

Lithium Citrate is not considered to be a “High Alert” medication; independent double checks were not required.

The Lithium Citrate bottle supplied was 500ml. With the dose prescribed, there would be 217 doses in one bottle. Therefore, when the larger dose was dispensed at the time of medication administration, it was not noted to be a large amount taken from the bottle.

System Learning:

Explore the feasibility of expanding “High Alert” criteria to include medication with narrow therapeutic indexes.

Explore the feasibility of expanding “High Alert” criteria to include medications which require calculation when there is a discrepancy between the unit dose ordered and the unit dose supplied.

Consider implementing maximum dose alerts in order entry software for Lithium, especially since dosing units may not be as expected.

Develop and implement guidelines related to maximum bottle size when dispensing liquid medications.

Implement a mandatory “call-back” system when a medication that has never been used by nursing is received. The staff should clarify the order and dose with a pharmacist prior to administering the medication.

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