

Patient Safety Alert

File Number: 16/17-01 June 6, 2016

USE OF THE TERM "BOLUS"

The term "bolus" is an accepted term in clinical nutrition practice and is used internationally. Bolus feeding is a common term used to describe tube feeding delivered in 200 – 400 mL volumes over a short period of time (not less than 10 – 15 minutes) using a 60 mL open syringe with gravity. (i.e. no plunger).

The term "bolus" is also used in health care to describe a method of administration of a discrete amount of medication which may be faster and more forceful in order to raise the concentration of that medication (e.g. in the blood) to an effective or therapeutic level. The incorrect interpretation of the term "bolus" may have been a contributing factor leading to a critical incident.

Recommendations

The Ministry of Health recommends:

- Regional Health Authorities ensure staff understand the differences in the term "bolus" when used in the clinical nutrition context compared to the medication administration context.

Attachments: Guidelines from Regina Qu'Appelle Health Region (two Supporting Documents).

Background of Critical Incident

A 79 year old patient was admitted to an acute care hospital for further investigation of aspiration pneumonia and difficulty swallowing (undiagnosed). The diagnosis most responsible for the patient's stay was documented as neurodegenerative disorder, not yet diagnosed. (NYD).

Approximately two days after admission, the patient, due to difficulty swallowing, continued to be high risk for aspiration, and poor nutrition. The patient consented to have a percutaneous endoscopic gastrostomy (PEG) tube inserted. A dietician was consulted to oversee nutritional administration.

At approximately 1800 hrs, the patient was bolus fed using a syringe plunger via PEG tube. Approximately half way through the feeding, the patient experienced shortness of breath. The care provider stopped the feed and administered oxygen and a nebulizer of salbutamol. The patient appeared to recover. The rest of the tube feed was delivered via gravity. Shortly after completion of the feeding (approximately 1850), the patient developed severe shortness of breath and despite efforts to assist, a code blue was called and the patient died later that evening.

Incidental Findings

Bolus feeds are commonly the mode of tube feed delivery in patients requiring long term nutritional support via a PEG tube, due to the ease and simplicity of delivery. The term “bolus” is an accepted term in clinical nutrition practice and is used internationally. The interpretation of the term ‘bolus’ may be different based on the work history of the health care provider. This may increase the risk for a client to receive a ‘bolus tube feed’ incorrectly. It is essential for health care providers to recognize the differences in administration techniques of a bolus tube feed versus that of a bolus medication dose.

Alerts may be issued by the Ministry of Health following the review of at least one critical incident reported to the Ministry. The intent of an alert is to recommend actions that will improve the safety of patients who may be cared for under similar circumstances.

A critical incident is defined as a serious adverse health event including, but not limited to, the actual or potential loss of life, limb or function related to a health service provided by, or a program operated by, a regional health authority (RHA) or health care organization (HCO).

Recommendations are intended to support the development of best practices and to act as a framework for modification so that the end result is a good fit within your RHA and HCO. When possible, RHA policies or initiatives that have been developed will be shared, to encourage adoption of similar policies or actions.

Alerts issued after April 2016 are posted online. Visit www.saskatchewan.ca and search for “critical incidents” or “patient safety alerts”.

Tube Feeding Administration Terminology

Continuous Feeding

Continuous feeding means formula is delivered at a relatively low flow rate (ex. 50 – 80 mL/hr) over 24 hours per day.

Cyclic Feeding

Cyclic feeding means formula is delivered over several hours (ex. 12 – 18 hours/day) followed by an extended time period without formula delivery (ex. 6 – 12 hours). Flow rate is dependent on nutrition required from formula. Cyclic feeding may be implemented nocturnally to supplement oral intake during the day.

Intermittent Feeding

Intermittent feeding means formula is delivered in larger volumes (~200 – 400 mL) over a 1 – 2 hour period, usually about 4 times per day depending on total volume required and feeding tolerance. Typical delivery rates are 100 – 300 mL/hr.

Bolus Feeding

Bolus feeding means formula is delivered in larger volumes (ex. 200 – 400 mL) over a short period of time (usually ~10 – 15 minutes/feed depending on tolerance), about 4 times per day. Bolus feeds are delivered using gravity only with a 60 mL open syringe. The syringe plunger is only used for water flushes.

Medication Administration Terminology

Bolus Dose of Medication

The administration of a discrete amount of a medication in order to raise the concentration of that medication (e.g. in the blood) to an effective or therapeutic level. Bolus doses are often given by a parenteral route but may also be oral. Example: a heparin bolus dose of 6,000 units may be administered IV prior to the start of a continuous infusion of heparin to reduce the time required to reach the desired state of anticoagulation.

Continuous Infusion of Medication

The administration of a medication at a constant rate without interruption, typically by a parenteral route such as IV or Sub-Q. Medicated transdermal patches also offer a form “continuous infusion” of medication while the patch is being worn. The continuous infusion of medication permits medication administration or replacement to be equal to, less than or exceed the rate of elimination depending on whether the treatment is to maintain the current drug level, or increase/decrease the current drug level based on goal of therapy. Example: a continuous infusion of heparin may be infused to maintain a patient’s activated partial thromboplastin time (APTT) between 1.5 and 2.5 times normal. The infusion rate may be adjusted after each APTT level to maintain this range.

Intermittent Dosing of Medication

The administration of a medication through non-continuous scheduling. Intermittent dosing may be ‘scheduled’ such as that dose given at known intervals (e.g. ceFAZolin 1 G administered IV every 8 hours) or ‘PRN’ such as doses are given when needed however the interval between doses is not standard (e.g. acetaminophen 325mg orally every 6 hours PRN may be administered at any interval greater than or equal to 6 hours)