INSULIN MANAGEMENT (SUBCUTANEOUS)

PURPOSE: To outline the management of the patient receiving subcutaneous insulin therapy.

SUPPORTIVE DATA: Subcutaneous insulin may be given routinely or STAT. Sliding scales/supplemental dose are used for emergent insulin coverage or while determining a routine insulin regimen. Insulin is used to correct hyperglycemia but may cause hypoglycemia. Frequent glucose and potassium level monitoring is required during insulin therapy.

Caution: Hypoglycemia is a serious adverse effect of insulin. If a patient who is receiving insulin has a decrease in nutritional intake (e.g. NPO order, vomiting, decrease in appetite), the insulin dosing must be evaluated. The provider may order to hold, decrease the dose of insulin, and/or increase dextrose intravenous intake.

Implement this standard for any patient receiving subcutaneous insulin injections.

ASSESSMENT:

1. Ensure the following prior to each dose of insulin:
   - There have been no changes in
     - Diet consumption,
     - Tube feeding
     - IV fluids containing dextrose (including total parenteral nutrition (TPN)
   - There are no planned nutritional status changes (e.g. procedure, NPO status) prior to giving each dose of insulin.
2. Assess for the following a minimum of every 4 hours:
   - Signs and symptoms (S/S) of hypoglycemia (onset usually rapid):
     - Dizziness, confusion, irritability
     - Deterioration in level of consciousness
     - Seizures
     - Visual disturbances
     - Diaphoresis
     - Trembling
     - Headache
     - Tachycardia
   - S/S of hyperglycemia/ketoacidosis (onset usually gradual):
     - Polydipsia, polyuria, polyphagia
     - Signs of dehydration: flushed skin, dry mucous membranes
     - Nausea/vomiting, abdominal pain
     - Deep, rapid breathing; fruity breath
     - Deterioration in level of consciousness
3. Assess blood glucose level no more than 30 minutes before each insulin dose.
4. Assess intake and output every 8 hours as ordered.
5. Monitor amount of food intake with each meal and snack time.
6. Obtain weight weekly or as ordered (Pediatrics, obtain daily weights).

ADMINISTRATION:

7. Verify with a second licensed nurse using an independent double check process prior to administration that the type and dosage of insulin from each vial match the MAR.
8. Administer insulin as ordered.
9. Administer regular insulin no more than 20-30 minutes before meals or after meals, as ordered. Ensure meal/food is at bedside prior to administration of lispro (Humalog).
10. Avoid injecting within 1-2 inches of umbilicus or into tissue that is:
    - Atrophied
    - Hypertrophied
    - Reddened
    - Edematous
    - Scarred

SAFETY:

11. Ensure rotation of injection sites.
12. Ensure two licensed staff verify and document MAR matches type and dose.
13. Clarify any additional insulin coverage ordered which deviates from the usual regimen.

HYPOGLYCEMIA:

14. Obtain point of care testing (POCT) blood sugar if there are signs/symptoms of hypoglycemia as ordered
15. Perform the following if blood sugar level is less than 70 mg/dL
    - Administer/ give juice, dextrose, or glucagon as ordered. Notify provider STAT
    - Obtain follow up POCT blood sugar levels as ordered
    - Start I.V. line as ordered

HYPERGLYCEMIA:

16. Perform the following for elevated blood sugar level as ordered:
    - Notify provider
    - Start I.V. line as ordered
    - Draw labs as ordered
    - Administer insulin as ordered

REPORTABLE CONDITIONS:

17. Report the following to provider:
    - Perform Insulin Pause: Patient has had a change in the following and has an order for insulin:
        - Diet consumption,
        - Tube feeding
        - IV fluids containing dextrose (including total parenteral nutrition (TPN)
    - Altered mental status
    - S/S of hypoglycemia or blood glucose below 70 mg/dL
    - S/S of hyperglycemia or blood glucose as ordered
    - Missed or delayed meals, or extra or inadequate food/calorie intake

PATIENT/FAMILY TEACHING:

18. Instruct on the following:
    - Purpose of insulin
    - Need to report signs and symptoms of adverse reactions
    - Signs/symptoms of hyperglycemia/hypoglycemia
    - Insulin administration
    - Blood glucose monitoring

DOCUMENTATION:

19. Document in accordance with “documentation standards”.
20. Both licensed staff document on MAR.

Types of Insulin		
Generic Name	Trade Names	Action
Lispro	Humalog	Ultra rapid
Regular	Humulin R, Novolin R	Rapid
NPH	Humulin N, Novolin N	Intermediate
Insulin glargine	Lantus	Long acting
70:30	Novolin 70:30	Mixed, 70% NPH, 30% Regular

References:

LAC+USC Clinical Resources: Micromedix (2010-2011) and UptoDate drug info (Lexi-comp 2011)

Consult: LAC+USC Department of Pharmacy

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