

Dartmouth Hitchcock Medical Center
 Lebanon, NH 03756
 Continuous Intravenous Insulin Protocol
Critical Care* (Adult)
 PHYSICIAN'S ORDER SHEET

Attachment B

Addressograph

Any order preceded by a box must be checked to enable the order. All other orders will be automatically implemented.

Target Blood Glucose **80-110 mg/dl**

- Known Diabetes Mellitus: Initiate protocol.
- Hyperglycemia: If initial blood glucose (BG) >110, repeat BG in 1 hr, if still >110, initiate protocol.
- Regular human insulin** bolus & infusion via pump as follows:

| <u>Initial IV Insulin Bolus:</u> | | <u>Continuous Infusion Rate (select one):</u> | |
|----------------------------------|----------|---|---|
| <u>Blood Glucose</u> | | <input type="checkbox"/> <u>Type 1 Diabetes</u> | <input type="checkbox"/> <u>Type 2 Diabetes/Hyperglycemia</u> |
| 80 - 119 | 0 | 0.5 units/hr | 1 units/hr |
| 120 - 179 | 0 | 1 units/hr | 2 units/hr |
| 180 - 239 | 4 units | 2 units/hr | 3.5 units/hr |
| 240 - 299 | 8 units | 3.5 units/hr | 5 units/hr |
| 300 - 359 | 12 units | 5 units/hr | 6.5 units/hr |
| ≥ 360 | 16 units | 6.5 units/hr | 8 units/hr |

- Test Blood Glucose (BG) by arterial or venous access. If no access, use fingerstick. Frequency of BG is as follows:

- If BG < 65 or > 150mg/dl: check BG every 30 minutes;
- If BG 65-150 mg/dl: check BG every hour.
- When BG within target range and insulin rate remains unchanged x **4 consecutive hrs.**, check BG q 2 hrs. Resume hourly testing after any change in insulin rate.

- Insulin Titration:** Nurses may titrate insulin to rapidly achieve and maintain BG in target range (80-110 mg/dl) (maximum dose not to exceed 40 units/hour) using the following as guidelines.

| <u>Blood Glucose</u> | <u>Action</u> |
|----------------------|---|
| < 50 | • Stop Insulin; give 12.5 Gms (25 ml) Dextrose 50% IV. Check BG in 30 minutes and when BG >75 restart with rate 50% of previous rate; or if previous rate had been 0.5 units/hr restart at 0.5 units/hr when BG >100. |
| 50-65 | • Stop Insulin; if previous BG > 100 give 12.5 Gms (25 ml) Dextrose 50% IV and recheck BG in 30 minutes. When BG >75 restart insulin with rate 50% of previous rate. |
| 66-79 | • If BG <u>much lower</u> (≥ 20 mg/dl lower) than last test, decrease rate by 50%. If BG is the same or <u>only a little lower</u> (< 20 mg/dl lower) than last test, decrease rate by 0.5 units/hr. If BG <u>higher</u> than last test maintain same rate. |
| 80-110 | • If BG drops 20 mg/dl or more in each of two consecutive BG tests, reduce insulin rate by 1 unit/hr. Recheck BG in 30 minutes. If BG drops 50 mg/dl or more in a single BG test, reduce insulin rate by 50%. Recheck BG in 30 minutes. Otherwise maintain same rate. |
| 111-150 | • If BG <u>much lower</u> (≥ 20 mg/dl lower) than last test - same rate. Otherwise, increase rate by 0.5 units/hr. |
| 151-240 | • If BG <u>much lower</u> (≥ 30 mg/dl lower) than last test - same rate. Recheck BG in 30 minutes. If BG is the same or <u>only a little lower</u> (<30 mg/dl lower) <u>OR higher</u> than last test increase rate by 1 unit/hr. Recheck BG in 30 minutes. |
| > 240 | • Increase rate by 1 unit/hr. <u>AND</u> bolus with regular insulin as per "Initial IV Insulin Bolus" scale above (see Item #3). Recheck BG in 30 minutes. |

If BG > 150 mg/dl and has not decreased after 3 consecutive increases in insulin, then bolus per #3 above AND double insulin rate.
 If BG > 300 for 2 consecutive readings, call MD for additional IV bolus orders.

- Meal associated subcutaneous (SC) Insulin Aspart (Novolog®)** in addition to insulin infusion protocol when oral intake advanced beyond clear liquids:

- If patient:
- eats 50% or less of servings on breakfast, lunch or dinner tray, give 3 units of **Insulin Aspart (Novolog®) SC** immediately following that meal.
 - eats more than 50% of servings on breakfast, lunch or dinner tray, give 6 units of **Insulin Aspart (Novolog®) SC** immediately following that meal.

- Consult: Dietitian Diabetes CNS Endocrinologist

- Continue IV insulin until _____

- At time of conversion to subcutaneous insulin or oral agent obtain MD order for glycemic control medications. Make the change at the time of a meal and discontinue the IV insulin infusion 1 hour after regular insulin SC or 30 minutes after **Insulin Aspart (Novolog®) SC**, or _____ minutes after oral agent.

Physician Signature: _____

Beeper # _____

PRINT Name: _____

Date & Time: _____

A generic equivalent may be administered when a drug has been prescribed by brand name unless the order states to the contrary.

Original to the medical record

Yellow Copy: Pharmacy

Pink Copy: MAR

Approved by: P&T: 09/22/04 (P-234)

Medical Records: 11/19/04

F-1041

*Adapted from Portland Continuous Intravenous Protocol (v.2003.1c), Anthony Furnary, MD.