DIABETES TECHNOLOGY
INSULIN PUMPS AND CONTINUOUS GLUCOSE SENSORS

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INSULIN PUMP PROTOCOL UCI

- Only short or rapid acting Insulin is in the pump.
- Safety First !!
- Can the patient safely operate their pump?
Hospitalized patients can continue on their pump if:

- Not hospitalized for glucose control
- They are assessed for their ability to operate the pump.
- If they have the correct supplies
- Endocrine Fellow, CDE and Pharmacy should be involved.
INSULIN PUMP DOCUMENTATION

- Assessment every shift for patients ability to operate the pump & assessment by CDE & Endo Fellow at time of admission.
- Basal Rates and times & Insulin Bolus doses need to be documented.
- On-going assessment for Hypoglycemia
IS HYPOGLYCEMIA LIFE THREATENING?
HYPOGLYCEMIA IS ASSOCIATED WITH CARDIOVASCULAR COMPLICATIONS

- Tachycardia and high blood pressure
- Myocardial ischemia
  - Silent ischemia, angina, infarction
- Cardiac arrhythmias
  - Transiently prolonged corrected QT interval
  - Increased QT dispersion
- Sudden death

COMMON FEATURES INCREASING RISK OF HYPOGLYCEMIA IN AN INPATIENT SETTING

- Advanced age
- Decreased oral intake
- Chronic renal failure
- Liver disease
- Beta-blockers

The Joint Commission considers insulin to be 1 of the 5 highest-risk medicines in the inpatient setting.

Consequences of errors with insulin therapy can be catastrophic.

In 2008, insulin accounted for 16.2% of harmful medication errors, more than any other product. (Pennsylvania Patient Safety Authority) = 1.8% resulted in Patient Harm.

Omission, wrong dose, Overdosage
Insulin Pumps Use only Rapid Acting Insulin in Two different Ways.

Basal Rate: a drip of Insulin every 12 min, more like how a functioning Pancreas works. (Also known as Background Insulin) Liver, fasting states.

Boluses: Programmed amounts of Insulin at mealtimes determined by the Pump after patient inputs Carb Grams and Blood Glucose.
CASE EXAMPLE

- Example: Karen's Blood glucose is 250mg/dl before Breakfast, she is consuming 45 grams of Carbs at that Meals, Bolus amount = ISF += 50 mg/dl, I:C ratio = 1:25, How much Bolus would her Pump give her?

- What happens if she only eats half of her meal??
CURRENT INSULIN PUMPS ON THE MARKET
CGM: CONTINUOUS GLUCOSE MONITORING: WHAT IS THAT??
LATEST IN CGM TECHNOLOGY DEX COM SHARE
CARING FOR A PATIENT WITH A CGM

- CGN worn for Seven Days, always check the Site for Infection.
- Can the patient operate the CGM safely?
- Calibration required every 12 hours, Patients meter or UCI POCT?
- CGM or Pump cannot be work during X-Ray, or MRI
QUESTIONS ???

"I think you should know that I'm very high in carbohydrates."

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