



Emergency Medical Training Services

Emergency Medical Technician – Basic Program Outlines

Outline Topic: **DIABETES**

Revised: 11/2013

DEFINITIONS

- Target cells - Hormones are released in the blood stream until they arrive at the targeted cell to work.

Diabetes Mellitus

- Results most common from pancreatic dysfunction
- Islets of Langerhans are islands in the pancreas that produce insulin.
- Insulin opens the cell membrane to let sugar in.
- You cannot produce pure energy in a cell unless both oxygen and sugar are present.
- DO NOT THINK OF THE INSULIN LEVEL BUT RATHER WHAT IS THE SUGAR LEVEL.
- You can have plenty of insulin and still be a diabetic. As you get older less "doors" are on the cell to let sugar in, as you get older the pancreas starts to produce less insulin, if you get pregnant you are eating for 2 and the pancreas cannot keep up, trauma to the pancreas, infection to the pancreas.
- 2 types of diabetes. 1) Type 1 and 2) Type 2.
- Type 1 also known as adolescent, or insulin dependent. Need from childhood - cannot produce insulin.
- Type 2 is also known as adult, or non-insulin dependent. Most common from obesity. Fix lifestyle, then give medication to stimulate more natural production of insulin, then finally placed on insulin daily.

Problems of Diabetes

- Causes nerves to fail.
- Causes increased pressure in retina - blindness.
- Causes weak, thin blood vessels that burst.
- Cause poor wound care - a pebble in a shoe can lead to the leg being cut off.

Sugar Testing

- D-Stick & glucometer.
- Prick skin and collect capillary blood onto test strip.
- 80 to 120mg/dL is normal range.

Hypoglycemia

- Low sugar levels less than 80mg/dL.
- Also called Insulin Shock.
- THIS IS THE TRUE DIABETIC EMERGENCY. WHEN THE BRAIN IS OUT OF GAS (SUGAR) IS DOESN'T RUN ANYMORE.

- S/S - acute onset in minutes, truly hungry, not nauseated, taken insulin but not eating, worked out hard and used up sugar, normal breathing. normal BP,

Hyperglycemia

- High sugar levels more than 200mg/dL.
- Also known as Diabetic Coma.
- S/S - onset 12 to 24 hours, they think they are hungry so they eat and then vomit, are nauseated, eat without taking insulin, fast deep breathing (Kussmaul's), candy breath, urinating sugar, lower BP due to sweating and urination and rapid breathing.

DKA (Diabetic Ketoacidosis)

- Blood sugar of 300mg/dL or higher. Body uses back up way to make energy and has more waste (acids).
- This is untreated hyperglycemia. This has all the S/S of diabetic coma but worse.
- the 3 "p's" - 1) polyuria, 2) polydipsia (thirst), 3) polyphagia (hunger) (eat a lot).
- This person has too much sugar and needs dialysis.
- Provide O2 and ABC support.

Treatment

- If any question as to hyper or hypo give sugar. It will help the most serious one which is too little sugar.

If it was already high a little more will not kill them.

- If low sugar give .5 to 1g/kg (25 to 50g) of oral glucose.
- Differential Considerations in Diabetic Emergencies (chart);

| FINDINGS | HYPOGLYCEMIA | HYPERGLYCEMIA |
|--------------------|-------------------------|---|
| Other name | Insulin shock | Diabetic coma |
| Food intake | Insufficient | Excessive |
| Insulin Dosage | Excessive | Insufficient |
| Onset | Rapid | Gradual 12-24hours |
| Hunger | Intense | Absent |
| Vomiting | Uncommon | Common |
| Breathing | Normal | Deep/rapid Kussmals |
| Breath odor | Normal | Acetone (fruit) smell |
| Blood pressure | Normal | Low |
| Pulse | Normal | Rapid/weak |
| Skin | Pale/moist | Warm/dry |
| Headache | Present | Absent |
| Consciousness | Irritability, Seizure | Restless |
| Urine | Absent for sugar | Present for sugar |
| Treatment Response | Immediate after glucose | Gradual after medication and fluid replac |