

# HOME MANAGEMENT PROTOCOL OF DIABETIC KETOACIDOSIS DURING CO-VID EMERGENCY 2020.

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# INTRODUCTION

Diabetic ketoacidosis (DKA)

- a serious complication of  type 1 diabetes and,
- less commonly, of type 2 diabetes.

**DKA happens when**

**Blood sugar is very high + Acidic substances (ketones) build up to dangerous levels in your body.**

DR DEEPAK DALAI'S

## KETOACIDOSIS VS KETOSIS

### KETOACIDOSIS



Inadequate insulin to process high level of glucose in the blood



Dangerous if not treated

### KETOSIS



Due to Low Carbohydrate diet



Not Harmful

**For home management of KetoAcidosis following steps to be taken:**

**A. Buy the following things from the chemist: check expiry dates without fail**

1. Ketodiasitix
2. Glucometer and 50 strips with a spare battery for glucometer
3. Urine Measuring Flask or Container
4. Tablet Ondem or Tablet Pan D (in case of acidity and nausea)
5. For INSULIN INJECTION

Check the name of the Insulin mentioned by Dr. Deepak Dalal in the prescription and purchase it (in case you already have it then do not buy another one. Check the expiry date before using)

- o Disposable Insulin pen
- o Insulin pen injecting 4 Needle's (Size 4MM)
- o Alcohol Spirit and Cotton
- o 100 IU 2 Insulin syringes,

*If pen doesn't work use U-100 syringe and cartridge as bottle. Take out desired dose directly without putting any extra air in cartridge.*

## **B. Diet:**

Start following treatment till essential medical supply is available:

### **Salty liquids:**

- ℵ salted chhaas
- ℵ nimboo pani with salt
- ℵ daal-pani
- ℵ moong paani
- ℵ liquid khichdi

Thereafter for Breakfast Lunch and Dinner: Give Vegetable Khichdi + Buttermilk.

## **C. To Do**

1. **Patient Experience:** <https://www.youtube.com/watch?v=FCwoPI-qmZ4>
2. **How to use glucometer:** <https://www.youtube.com/watch?v=WuvBFqYfoTs>
3. **How to check Urine Ketone:**
  - Collect the urine in container
  - Write today's date on bottle and use within three months.
  - Take out one strip dip paper end of strip in urine and take it out immediately.
  - Wait for 30 seconds and see change in colour at top of paper.
  - It will show different shades of brown to orange and after 40 seconds see above this brown paper and it will show different shades of purple.
  - Check it with colour indicator on bottle and write down in logbook

## **D. Insulin Injection Technique:**

Link: <https://drdalaldiabetes.com/insulin-injecting-technique/>

- ℵ Mark the site abdomen or thighs
- ℵ One for short acting insulin one for intermediate or long acting insulin (Lantus)
- ℵ Put the needle firmly tight on the pen.
- ℵ Prime the pen by allowing few drops to flow freely.
- ℵ When drops are flowing freely from needle it is ready for use.
- ℵ Prefer thighs if giving for the first time.
- ℵ If Urine Ketone 4-5-6 and Blood sugar more than 400 do not take skin pinch, give directly on skin without pinch.

Once the insulin, keto diastix and glucometer is available it's the ACTION time.

Start with the 4 Hourly regime mentioned below.

## **E.4 Hourly Regime:**

- a. Following things to be checked every 4 hourly (9am-1pm-5pm-9pm, 1am-5am-9am) initially for 3-4 days or as advised
  - Blood Glucose by Glucometer
  - Give insulin as per instruction + correction dose
  - Check Blood pressure in sleeping position
  - Check 24 hours urine.
  - Give dal Khichdi 4 times a day

## **F. Lab Testing:**

Do renal function, kidney function, thyroid function, B12 & D3 level, HBA1 C as soon as possible.

## **G. Recovery:**

Once blood sugars are below 200mg/dl and Ketone is negative patient has recovered. If there is regression in the patients' health, Blood sugars are increasing, ketone in the urine is increasing and symptoms are worsening then hospitalize the patient immediately.

## **Fluids and Food:**

### **Most important part of therapy.**

#### **1. Give fluids as per thirst.**

Patient may need 3-5 liters of liquids i.e 15 - 25 cups of 200ml tea cups, when severely dehydrated.

#### **2. Safe way of giving fluids.**

Keep on giving fluids 4 hourly as per urine output.

Measure urine in urine pot (or mineral water 500 ml bottle) and record every time patient passes urine.

**DIET simple easy to make and feed diet. No fancy diet plan, till patients recovers fully.**

#### **3. Give Vegetable khichdi**

One part rice, two parts Dal (tur-mung-masoor-chana), two parts vegetables, regular oil or ghee tadka and masala as per choice. No need of bland flavor, can be little spicy and tasty too.

#### **4. Give same khichdi preparation till 4 hourly regime.**

#### **5. Free fluids that can be given through the day besides Dal Khichdi**

Vegetable smoothy , chhaas, veg soups, boiled mung or tur daal paani, panipuri pani.

## 6. When regular food resumed

Each meal will contains

20 gm chapatti or rice + 20 gms thick dal + 20 gms cooked vegetables + 20 gms green leafy vegetables or salads or sprouts (cooked allowed)

Each food round must contain this formula whether Breakfast Lunch snack or dinner.

No dumping of chapatti or rice. Have equal proportions of all 4 and then have as much as per your appetite.

7. In short each food morsel has 25 % of rice or wheat, 25 % ,Dal, 25%, cooked vegetables, 25 % raw vegetables or salads.

8. When blood sugars less than 200 and potassium not high

200 gm ANY FRUITS AND 30 GMS ANY DRY FRUITS ALLOWED DAILY.

### Pearls:

1. Blood sugars are likely to go up and down for one week, be prepared for that.

2. Hypo instructions when sugar less than 80mg/dl , rule of 15/15.

Check blood sugar , if less than 80mg/dl give 3 teaspoon -15 gms powdered sugar or sugar paste , apply on gums if patient drowsy or unconscious and allow him to suck if alert. Repeat sugar after 15 minutes and if less than 80 repeat same procedure till blood sugars more than 80mg/dl.

After 80 give small snack containing cereals and pulses eg date chana laddoo.

3 .Start exercise ie walking in house once urine ketone is 2-3.

### **Alert signals:**

3. Progressive abdominal pain, vomiting, breathlessness, drowsiness .

4. Urine ketone 4-5-6 and blood sugar more than 400mg/dl for more than 12 hours of home treatment

5. If urine out put is less than 60 ml per hour and 240 ml ( ½ bottle of 500 ml bottle) in 4 hours,
6. BP less than 100/60and progressively falling

### **Compulsory homework and explanations**

1. **Put rubber band on vial or pen (cap and body) of short acting insulin. This is most important to differentiate between two insulin injections so that there is no mistake in Identification of basal and bolus Insulin.**
2. When sugar readings come abnormal high or low, take another reading immediately from the other finger. This can happen, so repeat. If difference is gross ie 100mg/dl against 400mg/dl and complaints don't match, check again properly and still gross difference, talk to doctor immediately.
3. Take expiry dates picture of ketodiastix, blood sugar strip, insulin vial or pen and share it with the doctor.
4. Send video of all 3 procedures for audit, edit and record –documentation purpose, after first time and then every week.

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