
Diabetes Mellitus and Dental Treatment

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DIABETES MELLITUS AND DENTAL TREATMENT

Diabetes mellitus is an Endocrine Disease Characterized by Hyperglycaemia and Abnormalities of Carbohydrate and lipid Metabolism due to absolute or relative deficiency of insulin. Diabetes mellitus may be primary or secondary in nature.

Primary Diabetes

- (A) Type I- Insulin Dependent Diabetes Mellitus (IDDM)
- (B) Type-II- Non Insulin Dependent Diabetes Mellitus (NIDDM)

Secondary Diabetes – It is mainly caused by
Pancreatic Destruction
Endocrine Disorders
Drug Involved

CLINICAL FEATURES OF DIABETES

The Importance of Clinical Features lies in the fact that by knowing the clinical features dentists could suspect diabetes in a patient and through investigations can even Diagnose Diabetes in a patent clinical features of diabetes are –

Characterized by 3P'S

- Polydypsia
- Polyphagia
- Polyurea
- Increased susceptibility to infection: because of diminished motility and chemotactic activity of polymorpho-nuclear leucocytes, diabetics show increase susceptibility to infection.

Other clinical features include

- Chronic Fatigue
- Malaise
- Unhealed Ulcers
- Hypertension
- Muscular Weakness
- Foot Ulceration and Gangrene
- Deterioration of vision from cataract or Retinopathy

ORAL MANIFESTATIONS OF DIABETES MELLITUS

- Major oral manifestation is Median Rhomboid Glossitis or MRG
- It is well Demarcated Non ulcerated red area on middle third of tongue

Other oral Manifestations

- Gingivitis
- Periodontal Disease
- Dry Socket
- Oral Candidiasis
- Retinopathy
- Nephropathy
- Neuropathy Particularly Peripheral
- Atherosclerosis

INVESTIGATIONS FOR DIAGNOSIS OF DIABETES

Preprandial Test

Elevation of Blood Glucose Level Greater Than 120 mg/dL on two separate occasions following overnight fasting confirms Diabetes.

Post Prandial Test

It is positive when blood glucose concentration is 180 mg/dL or Higher After A 75 g Intake of Oral Glucose

Urine Sugars

Urine Sugars test is positive when blood glucose level exceeds 180mg/dL.

Test Paper Strips

Strops (Dextrostix) are available for direct estimation of blood glucose level. Blood Obtained by Prick is applied to the strip and strip is washed. Subsequent colour change Compared to standard charts. Results obtained through these tests are accurate and importance of test lies in fact that it can be performed by patient himself.

Haemoglobin Test

- This test is used to monitor the degree of control of diabetes hence test the efficacy of the treatment Principle Behind this test is haemoglobin Becomes Glycosylated over a period of time. Greater the severity of Hyperglycemia. Higher is the concentration of Glycosylated Haemoglobin. Useful Differentiating Hyperglycemia Caused infraction and diabetes because Glycosylated Haemoglobin Concentration is Normal in Infarction.

TREATMENT OF A DIABETIC PATIENT BY A DENTIST

This is to be empathised here that Diabetes is not a contraindication for dental procedures but a dentist has to take certain precautions while treating diabetic patients and they are

- Early Morning Appointments of Shorter Duration are Preferred.
- While Carrying Out Dental Procedures it is Advisable to use minimal amounts of epinephrine because

- (a) Epinephrine Elevates blood glucose level
- (b) Increase the changes of dry socket because it further reduces blood supply by vasoconstriction
- Adequate Antibiotic Coverage must be given to prevent any infection. Usually Complicated oral procedures must be avoided in uncontrolled diabetes. Physician's advise must be sought before giving local anesthesia, patient is advised to take a heavy breakfast. Even after taking all the above precautions. If a patient lands into state of emergency then dentist must be fully aware of steps that are to be taken in the management of that situation Usually diabetic emergency arises as a result of two conditions-
 - (a) Hyperglycemia
 - (b) Hypoglycemia

Before we go for the management part we must know the Diagnostic Features of Hyper & Hypoglycaemia and they are-

Skin	Hyperglycaemia Dry & Warm	Hypoglycaemia Pale & Moist
Respiration	Rapid, Deep Respirations	Shallow Respirations
Consciousness Level	Altered BP- Decreases Rapid Weak Pulse	Headache & Dizziness
Smell of Acetone	Present	Absent

Management of Hyperglycaemia in a Conscious Patient

A patient with clinical signs of Hyperglycaemia should not be given any Dental Treatment. Immediately Physician should be consulted and Patient must be hospitalized.

Management of Hyperglycaemia in an Unconscious Patient

Step1 – Terminate Dental Procedure

Step2- Patient should placed in supine position with legs slightly elevated

Step3- Basic life support such as positioning, Checking, Vital Signs and Airway, must be given, Most Important of which is maintenance of airway.

Step4- Summon Medical Assistance

Step5- Intravenous Infusion basic aim here is to make an in line patent. Intravenous infusion of normal saline should be given.

Step6- Administer Oxygen: Oxygen can be administered at any time during this situation

Step7- Administer Glucose Paste: If any doubt is present regarding cause of unconsciousness Hypoglycaemia should be assumed and glucose pastes should be administered in buccal folds.

Step8- Hospitalization arrange for the hospitalization of the patient.

Hypoglycaemia as a Diabetic Emergency

Management of Hypoglycaemia in Conscious and alert patient

Step 1- Recognize Hypoglycaemia

Step 2- Terminate Dental Procedures

Step 3- Change the position of patient: Patient should be placed in that position in which he is most comfortable

Step-4- Administration of oral Carbohydrates

- Oral Carbohydrates in TH form of
- 20-40 g of Glucose
- Orange juice and
- Candy Bars, should be given

Step-5- Permit the patient to recover

Patient should be carefully observed for one hour before he is allowed to leave the clinic

Management of Hypoglycaemia Unresponsive but Conscious Patient

Additional Steps that must be taken other than previous situation (In Management of Conscious and Alert Patient are)

Step 1- Basic life support should be administered

Step 2- Summon Medical Assistance

Step 3- Administration of Parental Carbohydrates: If oral carbohydrates prove ineffective or patient is not ready to take them then 1mg of Glucose or 50 ml 50% Dextrose should be administered intravenously

Step 4- Monitor the vital signs and arrange for Hospitalization: Management of Hypoglycaemia in Unconscious patient

Step 1- Terminate Dental Procedure

Step2- Change Position of Patient: Patient should be in supine position with legs slightly elevated

Step 3- Basic Life support: Basic life supports such as positioning, Checking vital signs, Airway etc. should be given: most important of which is maintenance of airway.

Step 4- Definitive Management: An unconscious patient with prior history of diabetes must be presumed Hypoglycaemic unless other cause of unconsciousness is known Definitive Management includes Administration of 1mg Glucagon or 50 ml 50% Dextrose Intravenously Here it must be stressed that an Unconscious Patient must never be given any Liquid substance because this may cause Pulmonary Aspiration.

Step 5- The Transmucosal Application of Sugar although it is important that Liquids must not be placed in the Mouth of the Patient. But in the absence of any parenteral route, a thick paste of Glucose or ICING can be placed in Buccal Folds but if this is done. Oral cavity must be suctioned every five minutes.

Step 6- Recovery and Discharge: After Patient gains consciousness he can be discharged if no other Damage has occurred.

This was all about the management of Diabetic Emergency but in the end again I would like to Emphasize the point that if it is not possible to Diagnose Whether it is a Hyperglycaemic Emergency or Hypoglycaemic, then it should be treated as Hypoglycaemic Emergency this is because Administration of Glucose in a

hyperglycaemic Patient would not cause much harm, but Hypoglycemia if left untreated, can prove to be Fatal.

REFERENCES :

- i. Harrisons Principles on internal medicines vol-1. Edition 2001
- ii. Burkits Oral Medicine 2003. Pg 563.
- iii. Scaling, Root planning and diabetes. Arthur H Friedlander. Oral and maxillofacial surgery. Feb 2010 Vol 141 pg 133.
- iv. Stanley F. Malammed. Medical emergencies in dental office.

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