

## **Cystic fibrosis**

It is an autosomal-recessive disorder occurring in 1 of every 2000 births. It is the most common lethal genetic disorder affecting whites. The genetically altered protein affects exocrine gland function. The defective exocrine gland function leads to microobstruction of the pancreas, which results in cystic degeneration of the pancreas and, ultimately, a digestive enzyme deficiency producing malabsorption of nutrients.

The defective gene products cause abnormal water and electrolyte transport across epithelial cells, which results in a chronic disease of the respiratory and gastrointestinal system, elevated levels of electrolytes in sweat, and impaired reproductive function. In the lungs, retention of mucus occurs, which causes obstructive lung disease and increased frequency of infections.

Children with cystic fibrosis have a high incidence of tooth discoloration when systemic tetracyclines are taken during tooth formation. With the advent of alternative antibiotics, the incidence of tooth discoloration is decreasing.

The incidence of dental caries in children with cystic fibrosis is low secondary to long-term antibiotic therapy, buffering capacity of excess calcium in the saliva, and pancreatic enzyme replacement therapy.

There is a high incidence of mouth breathing and open-bite malocclusion associated with chronic nasal and sinus obstruction.

Patients with cystic fibrosis may prefer to be treated in a more upright position to allow them to clear secretions more easily.

The use of sedative agents that interfere with pulmonary function should be avoided, and the patient's physician should be contacted before nitrous oxide–oxygen sedation is used in a patient exhibiting evidence of severe emphysema.

## **Dental management of cystic fibrosis**

- Those children suffer from delayed dental development, more commonly have enamel opacities and are more prone to calculus
- They need to have higher caloric intake and may have frequent refined carbohydrate snacks –
- May also have cirrhosis of liver -> clotting defects -> haemorrhaging following surgical procedures
- May be prescribed tetracycline to prevent chest infections -> intrinsic dental staining
- General anaesthesia should be avoided

**Renal disease**

In renal disorders there is increased susceptibility to:

Infection and immunosuppression, bleeding tendency, decreased ability to excrete drugs, existence of A-V shunt, cross infection.

**Dental management of renal disorders:**

- Prevent dental diseases- OHI and education
- Strict cross-infection control
- Consult patient's physician before performing dental treatment
- Monitor BP pre-op and post-op
- Treat all infections aggressively and consider prophylaxis
- Use additional hemostatic measures
- Be careful with prescribing drugs
- Never subject those patients to out-patient general anaesthesia
- Remember veins are precious
- Poor bone density -> frequent denture adjustments
- Try to perform dental treatment just after dialysis if possible

**Oral Manifestations of Renal Disease and Dialysis:**

Enlarged (asymptomatic) salivary glands i.e. Parotitis

Decreased salivary flow, Xerostomia

Dry mouth

Odor of urea on breathe, ammonia like taste and smell

Metallic taste

Increased calculus formation

Low caries rate

Enamel hypoplasia

Extrinsic (secondary to liquid ferrous sulfate therapy), dark brown stains on crowns

Intrinsic (secondary to tetracycline staining)

**Note:** Chronic renal failure is the irreversible deterioration in renal function which results from a diminished mass of the excretory, metabolic and endocrine functions of the kidney which leads to the development of the clinical syndrome of uremia, so:

**UNDER CONSERVATIVE CARE**

- Consultation with patient's physician

- Check lab values, blood urea nitrogen (do not treat if less than 60 mg/100ml) and serum creatinine (do not treat if less than 1.5 mg/100ml).
- Avoid dental treatment if the disease is unstable.
- Monitor blood pressure closely
- Pay meticulous attention to good surgical technique
- Avoid nephrotoxic drugs
- Adjust doses of drugs metabolized by the kidney
- If medical parameters permit:
  - Try to eliminate all foci of infection
  - Keep only the easily maintainable teeth
  - Insist on keeping a good oral hygiene
- If patient is in advance stages, dental care may best be provided after physician's consultation and in a hospital like setting
- Because of the potential bleeding problems:
  1. Pretreatment screening for bleeding time and platelet count PTT, PT, platelet count.
  2. A hematocrit level and hemoglobin count should be obtained to assess the status of anemia.
    - If an orofacial infection exists, aggressive management is necessary using culture and sensitive tests and appropriate antibiotics. Consider corticosteroid supplementation as indicated.

#### NEPHROTOXIC DRUGS:

Tetracyclines  
Streptomycin  
Vancomycin  
Gentamycin  
Acyclovir  
Acetaminophen  
Phenacetine  
NSAIDs  
Asprin  
Antihistamines,  
Phenobarbitones

#### So you should give:

Cloxacillin, erythromycin, minocycline, codeine, diazepam, lidocaine.

**PATIENT RECEIVING DIALYSIS**

Those patients at high incidence of serum hepatitis, high incidence of anemia, significant incidence of secondary hyperparathyroidism, uremic stomatitis may exist, may undergo heparinization during hemodialysis, and may have arteriovenous shunt or fistula. So keep in mind:

- The work will be the same as conservative care conditions
- Beware of concerns of arteriovenous shunt
- Consult with the physician about risk for infective endocarditis
- Avoid blood pressure cuff and IV medications in arm with shunt
- Avoid dental care on day of treatment; best to treat on day after
- Consider antimicrobial prophylaxis
- Consider corticosteroid supplementation as indicated
- Assess status of liver function and presence of opportunistic infection in those patients because of increased risk for carrier state of hepatitis B and C viruses and human immunodeficiency virus.

**Dental management**

- 1-Screen for HBsAg and HBsAb
- 2-Antibiotic prophylaxis to prevent endarteritis of arteriovenous fistula
- 3-Prevent hypoxia
- 4-Provide treatment on the day after hemodialysis
- 5-Be careful to protect the fistula or shunt when patient on dental chair
- 6-Refer the patient to physician if uremic stomatitis is noted to develop

**Renal transplant patient**

Infection in such patients is life –threatening. Before transplantation only maintained teeth should be determined by dental team approach, however, teeth with furcation involvement, periodontal abscesses, or extensive surgical requirements should be extracted.

**Dental management**

- 1- Emergency treatment only for 1st 6 months
- 2- HBs Ag screening
- 3-Prophylactic antibiotics according to AHA recommendations
- 4- Erythromycin is contraindicated in patients on cyclosporins
- 5- Immunosuppressed patients requires supplemental corticosteroids.