

Dental management of Chronic Kidney Disease patients

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Abstract:

Renal disease has become important in dentistry because of the growing number of patients who as a result of improved medical care, renal dialysis or transplantation survives renal failure. Patients with chronic kidney disease (CKD) attending dental offices need special care and management for safe dental surgery and prevent complications. Special emphasis is important during prescribing drugs because most of the drugs are excreted through kidney. Patients on dialysis are heparinised and organ transplant patients receive immune suppressive drugs. These facts should be addressed during dental treatment. Chronic kidney disease may be a sequelae of diabetes and hypertension. So this should also come in consideration during dental surgery.

Key Words: CKD, Dialysis, Kidney transplant, dental management.

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Introduction:

The most common causes of renal failure are glomerulonephritis, pyelonephritis, polycystic kidney disease, renovascular disease, drug induced nephropathy, obstructive uropathy, hypertension and diabetes mellitus.¹ Renal failure may result in severe electrolyte imbalance, cardiac arrhythmia, pulmonary congestion, congestive heart failure and prolonged bleeding². Because the dental management of patient with renal disease may need to be altered, consultation with patient's physician is necessary to determine the stage of renal disease, regimen for medical management and alteration of dental treatment.

Discussion:

The patient in chronic renal failure has a progressive disease that ultimately requires renal transplant or dialysis. The following modifications should be followed:

1. To consult with the patient's physician.
2. To monitor blood pressure (Patients in end stage renal disease are usually hypertensive).
3. Monitor hematological and Biochemical parameters: Serum Creatinine, blood Urea-nitrogen, Hemoglobin, platelet count, bleeding time etc.

4. To eliminate oral infection to prevent systemic infection:
 - Good oral hygiene should be established.
 - Periodontal health should be maintained.
 - Teeth with questionable prognosis should be extracted if medical parameters permit.
 - Frequent recall appointments should be scheduled.
5. Drugs that are nephrotoxic or excreted by kidney (phenacetin, tetracycline, aminoglycosides) should be avoided.
6. Acetaminophen is the drug of choice for analgesia and diazepam may be used for sedation.
7. Local anesthetic such as lidocaine is generally safe³.

The patients who are receiving renal dialysis require treatment planning modifications⁴. The three modes of dialysis are intermittent peritoneal dialysis (IPD), chronic ambulatory peritoneal dialysis (CAPD) and hemodialysis. Only hemodialysis patients need special precautions. These patients have a high incidence of developing viral hepatitis, anemia and prolonged hemorrhage. The risk of hemorrhage in renal dialysis patients is due to anticoagulation by heparin, heparin induced thrombocytopenia and uremia induced platelet dysfunction⁵. Hemodialysis patients have either an internal arteriovenous fistula or external arteriovenous shunt. The shunt is often located in the arm and must be protected from trauma. Thus in addition to guidelines for chronic renal disease following recommendations are made for those on hemodialysis:

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1. Screen for hepatitis B and Hepatitis C before treatment.
2. Provide antibiotic prophylaxis to prevent end arteritis of the arteriovenous fistula or shunt. IPD and CAPD patients generally do not need antibiotic prophylaxis.
3. Patients receive heparin on the day of dialysis, therefore surgery to be planned on the day after dialysis when the effect of heparinization ceases.
4. To be careful to protect the arteriovenous shunt while the patient is seated in the dental chair. Blood pressure to be measured in the opposite arm. The limb containing the shunt should be avoided for administering intravenous or intramuscular injections. Patients having shunt located in leg should avoid sitting in the chair with legs dependant for more than one hour. Patient should be allowed to walk around for a few minutes and then resume dental treatment.
5. Refer the patient to the physician if uremic problems develop (such as uremic stomatitis, encephalopathy etc).

The greatest foe of renal transplant patients is infection. The patients with renal transplant take immunosuppressive drugs that greatly reduce their resistance to fight infection. Excessive bleeding may occur due to drug induced thrombocytopenia, anticoagulation or both. Many organ transplant centers now-a-days include dental examination

in their standard pre-transplant protocol. Teeth with severe periodontitis, furcation involvement and periodontal abscess should be extracted. In addition to the recommendations for the patients with chronic renal failure the following should be considered for the renal transplant patients:

- Hepatitis B and C screening.
- Prophylactic antibiotics where appropriate.

Conclusions:

Patients suffering from Chronic Kidney Disease (CKD), on dialysis or with renal transplant can be safely managed in dental offices with special care as discussed.

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