

Dental management in CKD patients

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Criteria for Chronic kidney disease (CKD)

(Either of the following present for > 3 months)

- Decreased GFR

- Estimate GFR < 60mL/min/1.73 m²

- Markers of kidney damage (>=1)

- Albuminuria (>30 mg/day)

- Urine sediments (e.g., broad waxy cast, RBC cast) ○

- Electrolyte abnormalities due to renal tubular disorders ○

- Abnormal kidney imaging

- Abnormal kidney histology

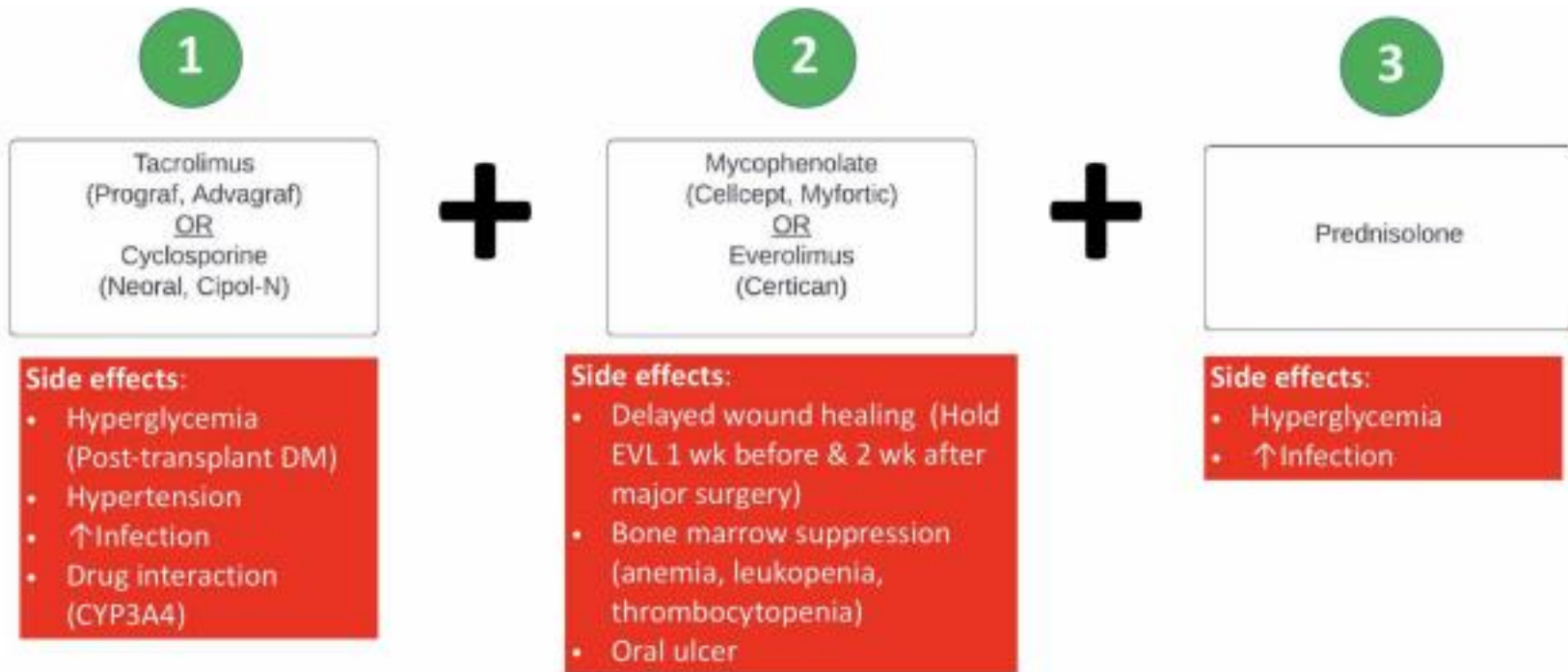
- History of kidney transplantation

Stages of chronic kidney disease (CKD)

Types of Kidney Replacement Therapy (KRT)

Lifelong Immunosuppressive Drugs for Kidney Transplant

Recipients



Oral Complications of Immunosuppressive Drugs in
KT Recipients

Cyclosporine-induced Gingival Overgrowth



Common causes: CSA, Amlodipine, Phenytoin

Everolimus-Induced Oral Ulcer



1. Ponnaiyan D, et al. *Dental Research Journal*. 2015;12:499; 2. Ji YD, et al. *BMJ Case Rep*. 2016. doi:10.1136/bcr-2016-217513

ATB Prophylaxis in Kidney Disease Patients Undergoing Dental Procedures

- Patient on HD
 - May reduce risk of vascular access (AVF, AVG) infection

- Patient on PD
 - May reduce risk of PD-related peritonitis
- KT recipients on intense immunosuppressive drugs (<1 yr after KT):
 - May reduce risk of sepsis

- ATB should be prescribed 30-60 min before procedure
- First-line oral ATB: amoxicillin 2 g
- Allergic to penicillin: azithromycin 500 mg or clindamycin 600 mg or doxycycline 100 mg
- For single dose, no dose reduction required
- Clarithromycin, erythromycin: ↑ levels of cyclosporine, tacrolimus, everolimus (*contraindicated*)

ATB Dosage Adjustments in CKD
(Odontogenic Infection)

Drugs	GFR >30	GFR 10-30	GFR <10	Hemodialysis	Peritoneal Dialysis
Amoxicillin	500 mg q 8 h	500 mg q 12 h	500 mg q 12 h	500 mg q 12 h	500 mg q 12 h
Azithromycin	500 mg q 24 h				
Clarithromycin	500 mg q 12 h	500 mg q 24 h	500 mg q 24 h	500 mg q 24 h	500 mg q 24 h
Erythromycin	If GFR <15 (Max. 2 g/day)				
Clindamycin	300 mg q 6 h				
Metronidazole	500 mg q 8 h				

- ATB Dosing for kidney transplant patients depend on post-transplant GFR •
- Avoid prescribing clarithromycin or erythromycin to patients receiving cyclosporine or tacrolimus

NSAIDs: Are They Safe for Kidneys?

- Estimate GFR < 5-10 mL/min/1.73 m²
- Life-threatening CKD complications:

- Uremic bleeding (platelet dysfunction)
- Uremic symptoms (encephalopathy, pericarditis)
- Diuretic-resistant volume overload
- Severe electrolyte disturbances (metabolic acidosis, hyperkalemia, hyperphosphatemia)

NSAIDs: Are They Safe for Kidneys?

- **Side effects of NSAIDs:**

- AKI, hyperkalemia, hypertension, volume overload

- **Risk factors of NSAIDs-induced AKI:**

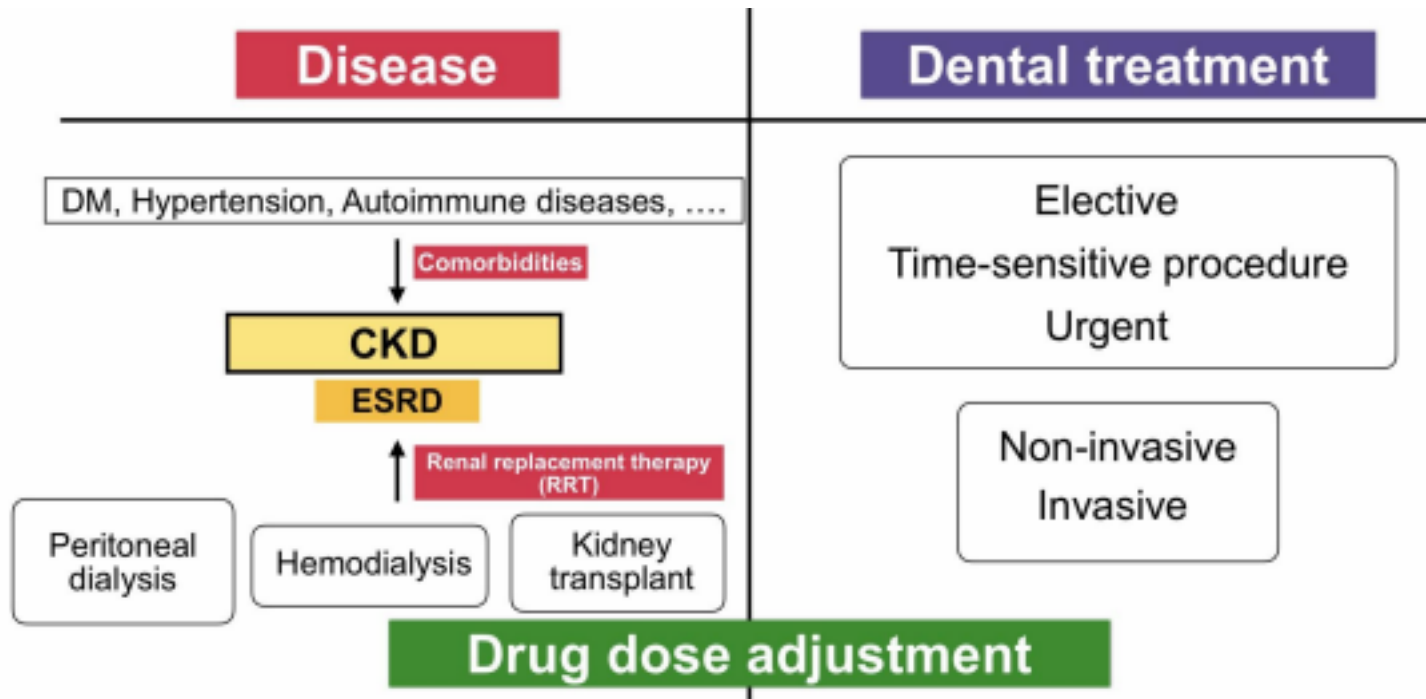
- Elderly, hypovolemia, concurrent therapy with certain drugs (ACEI, ARB,

diuretics, cyclosporine, tacrolimus), IV contrast media for CT scan ●

Suggestions for NSAIDs use:

- AKI → **Avoid**
- CKD stage 3 (GFR 30-60 mL/min) → probably low-dose ibuprofen <5 days
(may check BUN, Cr within 2-3 wk of use)
- CKD stages 4-5 (GFR <30 mL/min) → **Avoid**
- Kidney transplant → Depend on GFR (probably avoid)

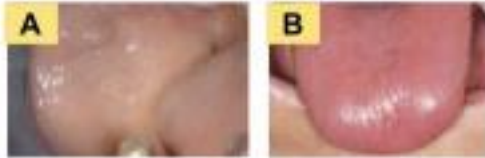
Dental considerations for patient with CKD



Dental considerations for patient with CKD

Oral manifestations

Periodontitis
Gum bleeding
A Pale mucosa
Petechial hemorrhage



Aphthous ulcer
Abnormal lip pigmentation

Abnormal taste
B Depapillated tongue

Halitosis
Xerostomia
Candidiasis

Oyetola et al. Oral findings in chronic kidney disease: implications for management in developing countries. BMC Oral Health (2015) 15:24

Dental considerations for patient with CKD

Renal osteodystrophy



*Lower density of
the cortical bone*



*Loss of
lamina dura*



*“Ground glass”
appearance*

The ADA Practical Guide to Patients with Medical Conditions, 2nd edition, 20

Dental considerations for patient with CKD

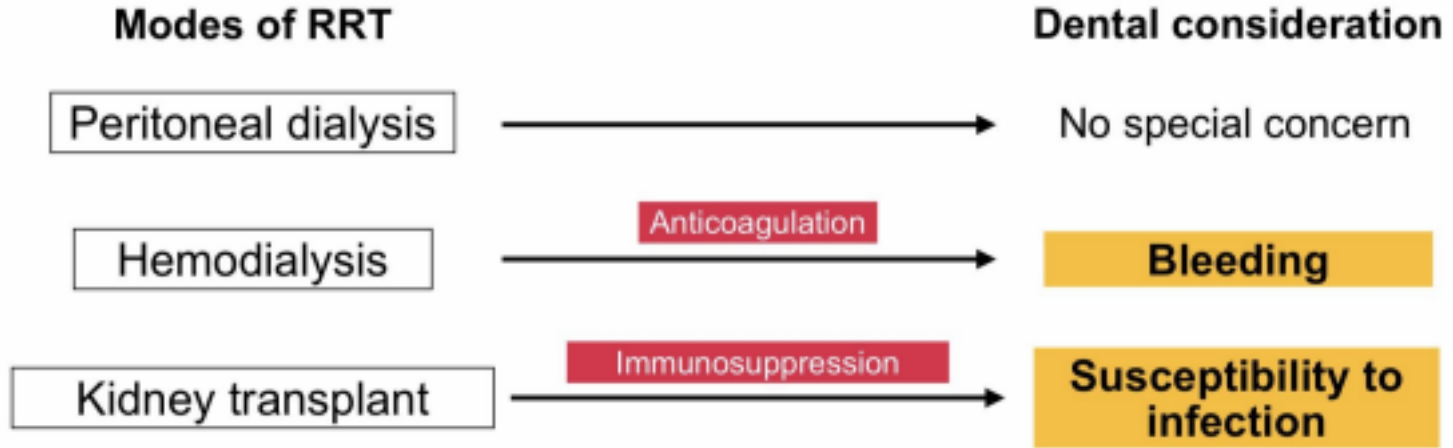
Renal osteodystrophy



Brown tumor

Dental considerations for patient with CKD

CKD → ESRD



The ADA Practical Guide to Patients with Medical Conditions, 2nd edition, 2015.

Dental considerations for patient with CKD

CKD → ESRD → Hemodialysis



Avoid compression on the arm with the vascular access

Perform dental treatment the day not receiving dialysis

The day after hemodialysis

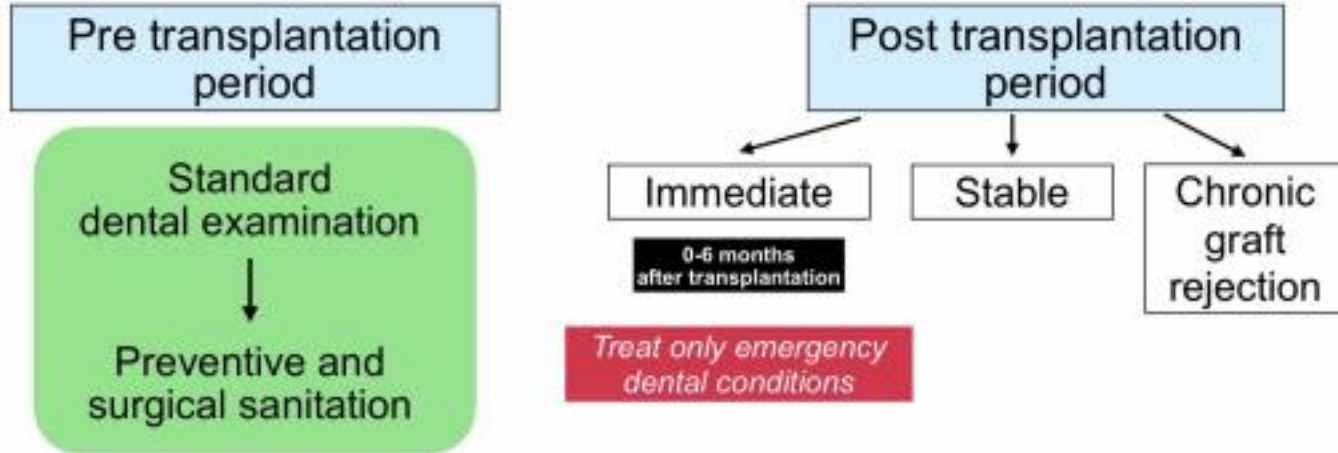
Blood pressure monitoring

Drug prescription : Avoid or dose adjustment

The ADA Practical Guide to Patients with Medical Conditions, 2nd edition, 2015.

Dental considerations for patient with CKD

CKD → ESRD → Kidney transplant



Dental considerations for patient with CKD

CKD → ESRD → **Kidney transplant**

Transplantation Immunosuppressant Medications

Prednisolone → Cushing appearance

Cyclosporine

Tacrolimus (**Prograf**)

→ **Gingival overgrowth**



Azathioprine (**Imuran**) → Bone marrow suppression

Mycophenolate mofetil
(**CellCept**) → Neutropenia, mild anemia

Dose adjustment according to creatinine clearance

Drugs	Normal dose	Dose with creatinine clearance 10-50 ml/min.	Dose with creatinine clearance <10 ml/min.
		CKD stage 3 ขึ้นไป	
Antibiotics			
Amoxicillin	500-1000 mg/8 h	Every 8-12 h	Every 12-24 h
Amoxicillin/clavulanate	500-875 mg/8 h	Every 8 h	Every 12-24 h
Clindamycin	300 mg/8 h	No need for dose adjustment	
Metronidazole	250-500 mg/8h	Every 8-12 h	Every 12-24 h
Analgesics			
Paracetamol	500-1000 mg/4-6 h	No need for dose adjustment	
Ibuprofen	200-600 mg/ 6-8 h	<i>Should be avoided</i>	
Naproxen	500-1000 mg/ 8-12 h		
Mefenamic acid	250-500 mg/ 6-8 h		

Thank you