

## Dental Issues Related to Kidney Diseases

By Larry Coffee, DDS

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*“Good dental care is important for everyone, but especially for people with kidney disease.”*

National Kidney Foundation

*“Poor dental health can compromise the ability of End Stage Renal Disease patients to achieve good medical outcomes...”*

Renal Physicians Association

### A two-way relationship

Kidneys are remarkable. In addition to filtering toxins and waste from blood, they assist in making red blood cells, regulating blood pressure, maintaining adequate calcium for the health of bones, and supporting the immune system. So, when disease compromises kidney health, those vital functions can be jeopardized in addition to increasing harmful systemic inflammation. *That underscores the importance of preventing avoidable issues that can make managing kidney problems more challenging --- including dental diseases.*

As reviewed below, there is a two-way relationship between kidney and dental diseases. One can adversely affect the other. Thankfully, dental problems are generally preventable with excellent oral hygiene and regular dental care (see Dental Disease Prevention section).

### Kidney disease can weaken immunity, increasing complications from infections.

Dental cavities and gum diseases are bacterial infections. Those infections can worsen faster, and the bacteria can travel more easily in the bloodstream to harm other parts of the body when the immune system is weakened by:

- Kidney disease and dysfunction.
- Diabetes --- a frequent cause of kidney disease as well as weakened immunity. Diabetes is also associated with development and progression of periodontal (gum) disease.
- Immunosuppressant medications. Kidney transplant recipients, and frequently individuals with kidney challenges caused by Lupus, use drugs that subdue the immune system.

Medicare generally does not cover routine or complex dental care. However, Medicare may pay for a dental or oral examination performed as part of a comprehensive workup prior to, and during the period when a beneficiary is receiving Medicare-covered dialysis services to treat end stage renal disease (ESRD), or a covered kidney transplant. In those situations, Medicare may also pay for medically necessary services to diagnose and eliminate an oral or dental infection. The dental care must be coordinated with their medical doctor and performed by a Medicare-enrolled dentist.

**The Center encourages Medicare beneficiaries to learn more about this coverage at:**

[www.cms.gov/medicare/coverage/dental](http://www.cms.gov/medicare/coverage/dental)

## Chronic inflammation: causes and consequences

Chronic kidney disease can contribute to systemic inflammation. And systemic inflammation can make chronic kidney disease worse --- a vicious cycle.

Like kidney disease, periodontal disease can contribute to systemic inflammation. Periodontal disease is a lingering bacterial infection. The gums become inflamed while, beneath them, damage occurs to the underlying bone. Teeth can begin to wobble as it progresses.

Chronic systemic inflammation can be serious. Inflammation (think “in flames”) is the body’s defensive response to a threat. The threat can be real - such as an infection, injury, or cancers – but it can also be perceived, as in the case of autoimmune diseases. An example is Lupus Nephritis, a condition that occurs when the immune system mistakenly attacks healthy cells and tissue in the kidneys by creating damaging inflammation.

Inflammation can be intense and beneficial, lasting a brief period because the threat is quickly resolved. But inflammation can become low-grade, continuous (chronic), and harmful when the real or imagined threats persist.

When inflammation develops in response to a threat, be it real or perceived, the body’s messaging system communicates to the immune system to send in reinforcements. That signaling can contribute to chronic and generalized (systemic) inflammation if the threats are not resolved. That’s dangerous. A body dealing with smoldering systemic inflammation is at risk of serious problems including heart disease, stroke, challenges with control of diabetes, and other complications.

## Osteoporosis

Bone-related disorders, including osteoporosis, can be associated with chronic kidney disease (CKD). Among the kidneys’ many amazing functions is to modify Vitamin D to make it usable by the body. That altered form of Vitamin D enables calcium in food to be absorbed internally and used to help maintain the health of bone. Chronic kidney disease (CKD) disrupts that process.

Osteoporosis can also develop from long-term use of prednisone or other steroids for management of inflammation associated with lupus nephritis (kidney inflammation and damage caused by lupus). Additionally, by suppressing the immune system, steroids can reduce the body’s ability to fight infections.

As noted, periodontal disease (also called gum disease) destroys bone that supports the teeth. Osteoporosis can accelerate the process. Thus, individuals with chronic kidney disease and also osteoporosis can be at greater risk for periodontal disease to quickly become more destructive.

Poor and prolonged healing from dental extractions or other oral surgery is a rare but potentially serious side effect of certain drugs used for osteoporosis, including Prolia® and a category of medications called bisphosphonates, such as Fosamax®. The jawbone can become infected and destroyed. Anyone with kidney disease who has *ever* used such drugs for osteoporosis or certain cancers should inform their dentists, and maintain excellent oral hygiene to minimize, and ideally prevent, the need for any oral surgery.

## Dry mouth

Individuals with kidney disease may be affected by one or more of the following which can reduce saliva.

- Diabetes
- Lupus, and an associated disease --- Sjogren's Syndrome
- Hypertension medication. High blood pressure is another frequent cause of kidney damage. Dry mouth is an unpleasant side effect of many drugs used to manage the condition including diuretics (water pills such as Lasix®), ACE Inhibitors such as Lisinopril (Zestril®), and Calcium Channel Blockers such as Procardia®.
- Dialysis, which can require individuals to limit their intake of fluids.

Since saliva protects against dental cavities and gum disease, a "dry mouth" can contribute the development and progression of dental problems.

Uniquely formulated over-the-counter saliva substitute products available as rinses, gels, and sprays can help alleviate the dryness and reduce the increased risk of dental problems. Sucking on candy or chewing gum sweetened with xylitol will stimulate production of saliva. (Xylitol is natural sweetener derived from plants. Unlike sugar, it cannot be utilized by bacteria to create cavities. Consequently, xylitol is a sugar substitute that can help prevent dental decay). Sipping water throughout the day helps; however, that may be impractical for individuals on dialysis who need to limit fluid intake. Sucking on ice chips may be a safe alternative.

The increased risk of cavities from a "dry mouth" can also be reduced by brushing with a fluoride toothpaste. Dentists may recommend additional supplements including prescription strength fluoride toothpaste, gels, and/or rinses.

## Dialysis

Except for tooth extractions and oral surgery, most dental procedures cause little to no bleeding. However, because hemodialysis requires use of drugs to prevent blood from clotting (anticoagulation therapy), individuals should inform their dentists if they are on dialysis and request consultation with their nephrologists about any precautionary measures that should be considered. In addition to other possible adjustments to prevent bleeding-related issues, dental appointments should ideally be scheduled on non-dialysis days.

Some individuals on dialysis may be considered for a kidney transplant. Treatment of dental infections is generally required for approval since transplant recipients are immunocompromised and at increased risk for infections to spread quickly (see below).

## Kidney Transplant

Individuals who receive a kidney transplant require drugs that "quiet" the immune system to prevent rejection of the transplant. That increases the risk for infections to develop and progress rapidly --- a particular concern immediately after the transplant and for several following months when high doses of immunosuppressants are used. Elective dental procedures are therefore not generally advised for about six months after a transplant. The amount of immunosuppressants is reduced over time and, with it, a lessening of infection risks. However, the risk will always remain since the drugs are not totally withdrawn. Routine dental care and impeccable oral hygiene to prevent dental infections are therefore important components of successful post-transplant management.

Enlargement of the gums can be a side effect of cyclosporine, one of the immunosuppression drugs. Surgery to remove the excess gum tissue may be needed when severe, although excellent oral hygiene may help contain the overgrowth. Reducing the dose of cyclosporine and/or use of an alternative drug may also be considered when the overgrowth of gums interferes with chewing or becomes unsightly.

## **Dental disease prevention**

A primary nemesis to dental health is plaque, an invisible film loaded with bacteria that coats the teeth. The bacteria are involved in the development of cavities. They also are responsible for gum disease by triggering the body's inflammatory response to infection. The gums become red and puffy while, below the surface, the bone supporting the teeth is damaged.

Fortunately, plaque can be removed with brushing and flossing. But the brushing and flossing must be meticulous, thorough, systematic, and daily. Daily, because the bacterial film begins to form on teeth almost as soon as it is removed. Systematic, because we can otherwise get into patterns that consistently miss certain areas, leaving plaque undisturbed to do its damage. Over time mineral deposits from saliva will adhere to the plaque, creating a hard sand-like build up (calculus, tartar) that irritates the adjacent gums. Calculus frequently develops between the bottom front teeth and on the cheek surface of the upper back teeth. Unlike plaque, which can be brushed and flossed away, calculus needs to be scraped off by a dentist or hygienist.

Done well, daily brushing and flossing can significantly reduce the risk of dental cavities and periodontal (gum) disease. But to be done well, guidance about technique and supplies should be requested of a dentist or hygienist. For example, unless the bristles of a toothbrush are angled properly, bacterial plaque in the shallow moat-like space surrounding each tooth may be consistently missed. Or, if floss is just moved into the space between two teeth but not tightly wrapped and scraped around the respective side surfaces, the plaque on the teeth will remain and the bacteria will continue their damaging attack.

A toothbrush and floss, effectively and routinely used, can help promote kidney as well as dental and overall health.

*The inherent dignity of every person is reflected through a healthy smile.*