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DENTAL IMPLANTOLOGY



Are You a Viable Dental Implant Candidate?

HERE ARE A FEW THINGS TO KNOW ABOUT HEALTH CONDITIONS AND MEDICATIONS
THAT COULD AFFECT THE OUTCOME OF DENTAL IMPLANTS.

Dental implants have become the standard of care for rehabilitating missing teeth. Since the concept of osseointegration was introduced nearly 70 years ago, implant dentistry has gone from an experimental invention to a successful and predictable treatment modality for edentulism and partial edentulism. In contrast to other treatment modalities, dental implants preserve adjacent tooth structure and bone. Moreover, implant rehabilitation helps to enhance masticatory

function and quality of life for patients with missing teeth.

Three million people already have dental implants in the United States, according to the American Academy of Implant Dentistry. The increased number of dental implants being placed, and being asked for by patients as a viable solution to their dental issues, underscores the undeniable impact of dental implants. A patient's overall health is more important now than it was 70 years ago, as many

health conditions and medications affect the long-term success of dental implants.

Here are a few things that you as a dental consumer need to review with your dental care provider to ensure that you are a good and viable dental implant candidate.

Medical Issues That Influence the Success of Dental Implants

Advanced Age: Studies have shown that elderly patients are more prone to systemic

diseases and comorbidities. They also have potentially longer healing periods, more challenging bone conditions (quality and quantity), increased susceptibility to drug interactions, and increased dental implant morbidity. In addition, decreased renal function, decreased gastric motility, and isolated systemic hypertension are all potential medical issues. The implant clinician must understand the physical, metabolic, and endocrine changes, and the effects associated with the elderly patient, before initiating implant treatment. Age is most certainly a prognostic factor in implant failure and morbidity. However, advanced age is not an absolute contraindication to implant therapy.

Antidepressants: Many patients with anxiety/depression take selective serotonin reuptake inhibitors (SSRIs) such as Prozac, Paxil, Zoloft, Cipralex, Celexa, and Luvox. It's important to know that these medications affect bone metabolism and, therefore, affect the density of the bone surrounding the implant.

Proton pump inhibitors for GERD: Patients with gastroesophageal reflux disease may take PPIs such as Prilosec, Nexium, Prevacid, Protonex, Aciphex, and Dexilant. These medications are responsible for the breakdown and absorption of vitamins and nutrients such as vitamin B12, iron, calcium, and magnesium. Because of the decrease in the available nutrients and vitamins, bone metabolism is negatively affected and results in a decrease in bone density.

Methotrexate for rheumatoid arthritis: RA is an autoimmune disease that causes inflammation, synovial thickening, edema, joint pain, and eventual bone mineral dissolution. An estimated 1.5 million Americans have the disease, which affects women to men at a 3:1 ratio. RA patients also have been susceptible to developing osteopenia/osteoporosis in 25 to 60 percent of the cases with or without the use of steroids.

Diabetes mellitus: Diabetes occurs when the body's ability to produce or respond to the hormone insulin is impaired increasing the concentration of glucose in the blood. Elevated levels of glucose have been associated with micro- and macrovascular complications that may result in increased tooth loss, periodontitis, bone-graft failure, implant failure, and peri-implant disease. Therefore, it is imperative that the implant clinician determines the glycemic control of diabetic patients prior to treatment. Ideal HbA1c values for diabetics is 6 percent, with glycemic control in the range of 6 to 7 percent. An increased failure rate of dental implants has been associated with poor metabolic control.



Dr. Vito with staff members (left to right) Heather and Barbara

Thyroid disorders: The second-most common endocrine problem, thyroid disorders affect approximately 1 percent of the general population, principally women. Decreased levels of T4 (thyroxine) affect bone metabolism by decreasing recruitment and maturation of bone cells, and therefore reduces bone-growth factors such as insulin-like growth factor.

Hyperparathyroidism: This condition involves an excess of parathyroid hormone (PTH) in the bloodstream caused by overactivity of one or more of the parathyroid glands that maintain calcium balance. This results in altered trabecular bone patterns that result in mobility of the teeth and compromised bone density. Dental implants and bone grafting are contraindicated (absolute) in areas of active bony lesions resulting from hyperparathyroidism.

Osteoporosis: An age-related disorder characterized by a decrease in bone mass, increased micro-architectural deterioration, and susceptibility to fractures, osteoporosis is the most common disease of bone metabolism an implant clinician will encounter. A strong correlation has been shown between peri-implant disease and skeletal osteoporotic changes. A strict regimen of postoperative recall and soft- and hard-tissue evaluation should be followed. Intravenous bisphosphonates that treat osteoporosis can interfere with previously placed implants or upcoming implant surgeries.

Fibrous dysplasia: FD is a nonhereditary disorder characterized by normal bone being replaced by immature, haphazardly distributed bone and fibrous tissues. Healing after bone surgery in patients with FD will heal more slowly with an increased infection rate. These local infections may spread throughout the bone and result in more advanced complications.

Osteomalacia: This condition is caused by lack of vitamin D, resulting in less dense bone and directly related to calcium deficiencies. Vitamin D is synthesized by the body in several steps involving the skin,

liver, kidneys, and intestines. The kidneys, in conjunction with PTH, activates vitamin D. With this deficiency, the intestinal uptake and mobilization of calcium from the bone is altered, resulting in hypocalcemia. This will lead to higher PTH secretion, which increases the clearance of phosphorus, decreases the normal mineralization process, and regulates calcium levels.

Xerostomia: Also known as dry mouth, xerostomia may have direct or indirect effects on dental implants and bone grafting procedures. This results in increased

biofilm (plaque) formation, which stimulates bacterial growth and increases the likelihood of dental decay and periodontal disease.

Radiation therapy for head and neck cancer:

The survival rate of patients with head and neck cancer, one of the deadliest forms of cancer, has increased over the last 20 years. Aggressive treatment includes surgery, radiation, and chemotherapy, or a combination therapy that inevitably leaves the patient with compromised anatomy and physiologic functioning. This results in changes in the vascularity and cellularity of hard and soft tissue, damage to the salivary glands, and increased collagen synthesis that results in fibrosis. Because of these detrimental effects on the bone, wound repair and healing are significantly reduced after surgical procedures. When exposed to high levels of radiation, bone undergoes irreversible physiologic changes that include narrowing of the vascular channels (endarteritis) and diminished blood flow resulting in non-vital bone.

Autoimmune diseases: Patients who have the likes of Sjögren's syndrome, systemic lupus erythematosus, and scleroderma are often placed on immunosuppressants, steroids, and nonsteroidal anti-inflammatory medications that can influence bone health and implant stability.

Patients need to review all their medical issues with their dental implant provider as they may have an effect on your dental implant success. A thorough evaluation of a patient's for their dental health can help to identify any issues that must be amended prior to any implant surgery in order to have a successful outcome. ■

Dr. James Vito is a dental implant surgeon and implant restorative dentist who is board certified by both the International Congress of Oral Implantologists and the American Board of Oral Implantology. He is also trained as both a periodontist and periodontal prosthodontist from the University of Pennsylvania School of Dental Medicine. His office is located at 523 East Lancaster Avenue in Wayne PA 19087. He can be reached by phone at (610) 971-2590 or by visiting his website, www.jamesvito.com.