Nutritional Influences on Periodontal Disease

Folic Acid
Folic acid nutrition has been shown to be directly related to gingival health. In one study, following 30 days during which patients with normal plasma folate levels ingested 2 mg folic acid twice daily or placebo under double-blind conditions, folate increased the resistance of the gingival to local irritants leading to a reduction in inflammation—even though plasma folate levels were unchanged. Folate mouthwash is also effective, and may be even more effective than dietary supplements.

Vitamins
Vitamin A
A deficiency of vitamin A is well known to predispose to periodontal disease. For example, a group of pregnant women was found to show maximal inflammatory changes of the periodontium in the 8th month when the mean physiologic level of vitamin A declined. Shortly after delivery, by contrast, vitamin A levels became markedly elevated and periodontal inflammation improved, raising the question of whether periodontitis of pregnancy is related to changes in the levels of the vitamin.

Vitamin C
Ascorbic acid protects the oral mucosal epithelium against the infiltration of antigenic materials such as bacterial endotoxins, so it is not surprising that serum vitamin C levels have a significant (although weak) inverse association with periodontitis. Dietary vitamin C intake shows a similar relationship, at least up to an intake of 180 mg daily. Also, 500 mg daily of the vitamin for 90 days has been shown to reduce both dental plaque and stain.

Vitamin E
When 800 mg of vitamin E in capsule form was bitten open and swished in the mouth before swallowing for 21 days, gingival inflammation was reduced. This is a good example of the vitamin's effects on the inflammatory process in general.

Minerals
Calcium
The evidence is that adequate calcium intake is as important for protecting teeth from loss due to periodontal disease as it is for protecting bone from osteoporosis. Calcium intake is inversely related to the risk of periodontal disease; in fact, since alveolar bone has the highest turnover of bone anywhere in the body, it is affected first by inadequate calcium nutrition. Moreover, calcium supplementation has been found effective, not only in reversing jawbone loss, but also in reducing pockets of inflammation.

Calcium nutrition can also be improved by reducing phosphorus intake, since excess dietary phosphorus impairs calcium absorption. (Phosphorus is high in meat, grains, potatoes and soft drinks.) Repletion of a vitamin D deficiency is also important, since adequate vitamin D is needed for normal calcium absorption.

Zinc
Animal work suggests that a zinc deficiency may increase the permeability of gingival tissues to foreign substances. Moreover, serum zinc levels are negatively correlated with marginal alveolar bone loss. A zinc mouthwash—but not supplemental zinc—was found effective in an open trial in inhibiting the growth of plaque at the alveolar margin.

Coenzyme Q10
A gingival deficiency of coenzyme Q10 appears to be a regular finding among periodontal patients. Only the diseased gingiva is deficient; normal levels are found in healthy tissue. Supplementation has been found effective in a number of studies. For example, in a double-blind study, 56 patients received either 60 mg of coenzyme Q10 or placebo without any local treatment. After 4 weeks, there was a significant difference in the mean depth of significant periodontal pockets between the CoQ10 group and the control group.

References

Doctor Werbach's voluminous Nutritional Influences on Illness CD-ROM, with 4,200 pages of text and covering over 100 different illnesses, makes it easy to search the nutritional literature. For information, contact Third Line Press Inc., 4751 Viviana Drive, Tarzana, California 91356. Phone 818-996-0076 • Fax 818-774-1575 • E-mail: tlp@third-line.com; Internet: http://www.third-line.com.

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