

Vitamin D - Relevance for Incidence, Prognosis and Side Effects of Conventional Therapy in Breast Cancer

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Introduction:

The publication data on vitamin D3 in nearly all acute and chronic inflammatory diseases, metabolic syndrome and cancer [1, 2] must lead to a consistent, year-round increase in the vitamin D levels to > 75 nmol/l (preventive) to 100-200 nmol/l (adjuvant-palliative). The vitamin D levels (25-OH) in the serum of the elderly and cancer patients often are dramatically low [3].

In primary and secondary prevention, there is a clear risk reduction with a lower incidence of breast cancer of 50-69% [4, 5, 6] or relapses with a reduction in mortality of up to 60% in a recent meta-analysis [7] in comparison of low to high Vit. D levels.

In addition, it obviously also has supportive significance: vitamin D3 levels can be reduced under chemotherapy, e.g. fall with anthracyclines, cyclophosphamide and taxanes, as these are pregnane X receptor ligands and so trigger an enzyme induction of 24-hydroxylase the increased degradation of 25 (OH) D and 1,25 (OH) D! Other substances used in oncology, such as dexamethasone, tamoxifen and aromatase inhibitors have the same negative effect for vitamin D levels [8].

According to small-scale studies, the active administration of vitamin D has a lowering effect on side effects such as stomatitis and taste disorders related to chemotherapy [9] or fatigue and arthralgia on aromatase inhibitors [10, 11] or jaw necrosis related to bisphosphonates [12].

In palliative pain therapy, an existing vitamin D deficiency leads to higher opioid dosages for pain control [13].

In practical consequence, every (breast) cancer patient should, depending on season, body weight u. a. factors, receive vitamin D3 between 1000 and 5000 IU daily to reach the target levels of 100-200 nmol/l.

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