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PATHOPHYSIOLOGICAL CONSEQUENCES AND EFFECTS OF 25-HYDROXYVITAMIN D DEFICIENCY

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Aims: To synthesize many effects in different areas of significant 25-hydroxyvitamin D [25(OH)D] deficiency by reviewing different articles. Knowledge about vitamin D has greatly improved. Its role in the prevention of some osteoporotic fractures in the elderly with calcium nutrition is now well recognized and many studies argue for a role in the prevention of several diseases or anomalies (cancer, auto-immunes diseases, cardiovascular events, sarcopenia, etc.). While in some areas, a consensus seems to emerge, other issues still require a complementary research in order to have an impact on practice. Recent studies ask many questions concerning the reference values of serum 25(OH)D level. It seems that the best representative reference value below witch vitamin D insufficiency can be present, is between 30–44 ng/ml, with a clear tendency to target values above 30 ng/ml (75 pmol/l).

Methods: The analysis of data reported by several studies may be expressed by these preliminary acquisitions. Most pre and postmenopausal women had low vitamin D status with increased risk of musculoskeletal effects(1). A low level of 25(OH)D is an independent risk factor for cardiovascular events and for sudden cardiac death(2). Despite this epidemiological evidence, whether vitamin D screening and supplementation reduce cardiovascular risk is still matter of debate(3). It has been suggested that in patients without coronary artery disease, the coronary flow reserve was strictly and directly related to the circulating levels of the active form of vitamin D.

Results: Several recent studies have established that a significant 25(OH)D deficiency is often associated to the diagnosis of breast and prostate cancer. A recent Saudi study where the breast cancer has a higher incidence by comparison to several European countries, linked to the absence of sun exposition in many women, had clearly confirm the presence of most aggressive breast cancer, by comparison to women not concerned by vitamin D deficiency, as in other countries. But as in many other situations, the effect of preventive action is not yet clearly demonstrated. Vitamin D deficiency has been associated or implicated with the pathophysiology of the gastrointestinal conditions inflammatory bowel disease and colorectal cancer as well as with depression and irritable bowel syndrome(4).

References:

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OSTEOPOROSIS IN PRE- AND POSTMENOPAUSAL RHEUMATOID ARTHRITIS PATIENTS

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Objective: To compare BMD and bone turnover markers in pre- and postmenopausal rheumatoid arthritis patients.

Material and methods: The study was performed on 106 women with RA (ACR criteria 1987), mean age was 43.6 ± 1.7 years and mean disease duration was 8.2 ± 0.8 years. 91.6 % have moderate/high disease activities by DAS 28. 63.3 % received GC more than 3 month. 43 (40.2 %) patients were in menopause.Osteoporosis was assessed measuring BMD in 3 part of the skeleton: hip, lumbar spine, distal part of forearm. Serum 25 (OH) vitamin D, PTH, osteoprotegerin (OPG), RANKL was analysed.

Results: Patients were divided in two groups by menopause (premenopausal, mean age 57.1 ± 0.9 and postmenopausal, mean age 36.7 ± 1.5). Osteoporosis was present in 22 (51.2 %) of postmenopausal (PsM) RA patients, osteopenia in 15 (23.8 %) and normal in 5 (11.6 %). In premenopausal (PrM) group in 6 (9.5 %), 15 (23.8 %), 42 (66.7 %) patients respectively. Vitamin D deficiency was observed only in patient with osteoporosis in both group ($p < 0.001$). The mean level of PTH was normal in all subgroups. In PsM group serum OPG level was significantly higher in osteoporosis (5.9 vs. 3.6, $p < 0.001$). In PrM group all patients have high level of OPG (5.2). It was found negative correlation between BMD in distal part of forearm and PTH level ($r = -0.3$, $p = 0.005$), and OPG level ($r = -0.61$, $p < 0.01$); and also between BMD in lumbar spine and RANKL ($r = -0.35$, $p < 0.01$) and OPG($r = -0.32$, $p < 0.01$). There are no differences was found in BMD in PsM group according to glucocorticoids intake. In PrM group BMD in the hip was found to be significantly lower in patients with glucocorticoid intake (−0.87 vs. 0.2), 3 of them have low energy hip fracture.

Conclusion: Osteoporosis is much more frequently in postmenopausal vs. premenopausal RA woman. Vitamin D deficiency has strong predictive value for the osteoporosis risk in both groups. GC intake has predictive value only in premenopausal patients in the hip. Osteoporosis risk was strong