High doses of vitamin D₃ improve affective-related state in menopausal women treated with hormonal replacement therapy

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Women's transition into reproductive senescence is marked by reductions in ovarian function and output, referred to as menopause (Santoro et al., 2015). This stage is characterized by a dramatic development of affective-related disorders and different psychoemotional pathologies (Maki et al., 2010). A strategy to alleviate the mood disorders associated with menopause is hormonal replacement therapy (HRT) (Soares, 2013). However, controversial results related to the effectiveness of such treatment have been frequently reported (Soares, 2013). Considering the wide use of complementary and alternative medications such as vitamin supplements in menopausal patients and our insufficient knowledge about the interaction between HRT and vitamin supplements, investigating the subject from a clinical studies seems very beneficial. This study evaluated the effect of vitamin D₃ supplementation in high doses (60000-100000 IU, per os) alone or in a combination with standard hormonal menopausal therapy (HRT) on depression scores and hormonal status for premenopausal women.

The women treated with Vitamin D₃ in 60000 IU and 80000IU doses alone or in a combination with HRT had greater reduction in depression scores than the control group. The vitamin D₃ groups of women had significantly higher 25-hydroxyvitamin D concentration and estradiol levels in comparison to the control group ($p < 0.01$).

The present trials showed that consuming 60000 and 80000 IU vitamin D₃ daily was effective in decreasing depression levels. Furthermore, this is the first clinical study to show a beneficial effect of chronic vitamin D₃ in high doses administration on depression score in menopausal women. It can be supposed that vitamin D₃ supplementation may be necessary in menopausal women. VD supplementation seems to be the most appropriate treatment option for the population of menopausal women and has been suggested as a safe and cost-effective procedure. However, the role of vitamin D₃ supplementation in the prevention and treatment of comorbidities associated with menopausal consequences has not been absolutely established and further studies are needed to be done. This work promotes more effective creating of the novel therapeutic targets and strategies for depression-related state treatment in menopausal women. We suggest further clinical trials in women who are at risk for menopausal depression.