Reviewer’s report

Title: The Beneficial Role of Vitamin D in Obesity: Possible Genetic and Cell Signaling Mechanisms

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Reviewer: Yvonne Foss

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Title: The Beneficial Role of Vitamin D in Obesity: Possible Genetic and Cell Signaling Mechanisms
Journal: Nutrition Journal
Type of article: Review
Authors: Khanh v.q. Luong and Lan T.H. Nguyen

Reviewer’s Report

- Major Compulsory Revisions
None

- Minor Essential Revisions not for publication

1 - “Background” first paragraph:
1.1 - Insert deficiency into “Vitamin D deficiency is an independent risk factor for obesity and abdominal obesity in women [4].”

1.2 - The following sentence is not clear on first reading: “The expression of vitamin D-metabolising enzymes has been demonstrated in human adipose tissue, as have –the effects of obesity and diet-induced weight loss.”
I suggest deleting “as have –the effects of obesity and diet-induced weight loss” since this sentence is followed by more detail about the findings.
Thus:
“The expression of vitamin D–metabolising enzymes has been demonstrated in human adipose tissue.”
Or perhaps add “and differ in relation to obesity.”

1.3 - I suggest deleting the same and and from “Vitamin D deficiency and obesity share many the same risk factors, including both indirect factors (i.e. environmental factors, including nutritional, racial, geographic, and seasonal, and exposure to air pollution) and direct factors (i.e. genetic risk factors, such as polycystic ovary syndrome, vitamin D receptor, cytochrome P450, locus 20q13, vitamin D-binding protein gene polymorphism and the aP2 gene).

2 - “Genetic factors that relate to vitamin D and obesity” fourth paragraph
2.1 - The following section does not make clear that it refers to two study groups, receiving and not receiving hormone replacement therapy during five years follow-up.

“The common ApoE polymorphism has a complex effect on bone metabolism in peri-menopausal Danish women. Namely, women with ApoE2 have a lower rate of bone mineral loss in the femoral neck and hip regions compared with other women, whereas those with ApoE4 gain more bone mineral than other women [81].”

I suggest the following amendments:

“The common ApoE polymorphism has a complex effect on bone metabolism in peri-menopausal Danish women during five years follow-up. Namely, among women not receiving HRT, those with ApoE2 have a lower rate of bone mineral loss in the femoral neck and hip regions than other women, whilst among women receiving HRT, those with ApoE4 gained more bone mineral than other women.”

2.2 - Fifth paragraph

Delete were and insert was in: “A positive correlation between the concentrations of circulating VEGF levels and BMI were demonstrated in healthy male subjects under highly controlled conditions [85].”

- Discretionary revisions

The authors make an important point about the need to investigate calcitriol as a therapy for obesity, rather than calciferol which is commonly used. However, I think they could make clearer the distinction between the vitamin D system in general, calciferol and calcitriol. Their review shows that there is widespread evidence from laboratory, animal and genetic studies that calcitriol is active in obesity. Calcitriol therapy in obesity has not been reported whilst the results of trials of cholecalciferol supplementation have so far been limited. An emphasis on the distinction between calciferol and calcitriol would support their concluding sentence that “further investigation of calcitriol in obese patients is needed”.

In the concluding sentence of the abstract, the phrase “the best form” is not justified since there is no supporting evidence for it as a therapy in obesity as yet and I recommend it is preceded by a qualifying phrase.

“The best form of vitamin D for use in the obese individuals is calcitriol because it is the active form of the vitamin D3 metabolite, its receptors are present in adipocytes, and modulates inflammatory cytokine expression.”

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.