 

Letter to editor

# Nutritional status, Vitamin D and glucose metabolism: relatives or colleagues?

*Maurizio Mennini, Francesco Pallotti*
"Sapienza" University of Rome, Italy

Dear Editor,
the general recommendation that breastfed infants require vitamin D (VitD) supplementations is widely accepted and many studies stress the need to start supplementation of 400 UI/d from birth (1), in order to maintain bone health in children as well in adults.
However, VitD deficiency is also called into question in many pathological inflammatory conditions and a possible influence on the nutritional status and on glucose metabolism seems also relevant. Esteghamati A et al. demonstrated that Serum 25-hydroxy vitamin D levels are lower in metabolically unhealthy obesity (MUO) compared to metabolically healthy obesity (MHO), and that reduced vitamin D concentrations are more strongly associated with cardio-metabolic and inflammatory markers in MUO than in MHO subjects (2).
We believe it is useful to recall the inverse relationship between parathyroid hormone (PTH) and VitD in children obesity: serum 25(OH)D levels are lower in obese, likely due to sequestration of VitD in the adipose tissue, in association with a PTH increase, thus eliciting risk of fracture (3).
Furthermore, VitD deficiency may be linked to the development of obesity-associated metabolic complications such as type 2 diabetes and metabolic syndrome, possibly by altering insulin secretion and reducing insulin sensitivity. It may be worthy to remember that effects on lipid profile and cardiovascular diseases are also noticeable. Many observational studies show increase in serum HDL cholesterol and reduction in total cholesterol, LDL and triglycerides in groups with higher serum 25(OH)D, which may be due to reduction of intestinal absorpion and of lipolysis.
Kelishadi R et al. demonstrated such positive association in a pediatric age population in a recent metanalysis (4).
Kestenbaum B et al. (5) showed an increased incidence of myocardial infarction and cardiovascular mortality in adult patients with 25(OH)D deficiency (about 30% increased risk of mortality with VitD levels < 15ng/ml). In light of these findings, we want to promote in the field of pediatric endocrinology the need to recognize, assess and treat VitD deficiency since childhood, in order to reduce the risk of metabolic disorders as well as the risk of their related comorbidities.

## References

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Correspondence:
Maurizio Mennini, M.D.
"Sapienza" University of Rome – Italy
Viale Regina Elena, 324
00161 Rome Italy
E-mail: maurizio.mennini@gmail.com