Renal insufficiency and magnesium deficiency correlate with a decreased formation of biologically active cholecalciferol: a retrospective observational study.

ID 4651300
Author(s) Rothen, Jean-Pierre; Rutishauser, Jonas; Arnet, Isabelle; Allemann, Samuel S
Author(s) at UniBasel Allemann, Samuel ; Rothen, Jean-Pierre ; Arnet, Isabelle ; Rutishauser, Jonas ;
Year 2022
Title Renal insufficiency and magnesium deficiency correlate with a decreased formation of biologically active cholecalciferol: a retrospective observational study.
Journal International journal of clinical pharmacy
Pages / **Article-Number** 10.1007/s11096-022-01485-6
Keywords Cholecalciferol; Magnesium deficiency; Renal insufficiency; Vitamin D

Vitamin D is synthesized in the skin or supplied. Cholecalciferol is hydroxylated in the liver to 25(OH) vitamin D [25D]. 25D is further hydroxylated in the kidney to 1,25(OH) vitamin D [1,25D]. Catabolism occurs by further hydroxylation. Magnesium is a cofactor of all involved hydroxylases.; To investigate the association between renal function and serum magnesium levels, and the biologically active hormone 1,25D.; Anonymised serum values of 25D, 1,25D, magnesium and creatinine measured in an outpatient cohort over 2ăyears were analysed.; Renal function and magnesium level did not influence 25D values (r = -ă0.144 and 0.030, respectively). Mean serum 1,25D values decreased from 106.5 ś 44.3ăpmol/l in individuals with normal renal function to 51.7 ś 18.9ăpmol/l in those with severe renal insufficiency ($p < 0.01$). A weak positive correlation was observed between 1,25D and eGFR ($r = 0.317$), and between 1,25D and serum magnesium ($r = 0.217$).; Impaired renal function and low magnesium serum levels are slightly associated with low 1,25D concentrations. Measuring 25D, but not 1,25D, may overestimate the patient's vitamin D status. In patients with renal insufficiency adequate magnesium supply should be ensured.

ISSN/ISBN 2210-7711
Full Text on edoc ;
Digital Object Identifier DOI 10.1007/s11096-022-01485-6
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/36334229