



Should we screen for vitamin D deficiency in Turkish women?

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Vitamin D

- Vitamin D deficiency is a global health problem
- Over a billion people worldwide are vitamin D deficient or insufficient
- Vitamin D deficiency is called a silent epidemic



Vitamin D

- Vitamin D is an essential fat-soluble vitamin for calcium maintenance homeostasis, for bone health and for preventing falls and fractures (classical actions)
- Nonclassical actions: Immunomodulation, Anti-Inflammatory and Anti-tumor effects, insulin secretion and sensitivity, renin-angiotensin system
 - Hypertension, diabetes, metabolic syndrome, cancer, autoimmune and infectious diseases
 - High-quality embryos and successful embryo implantation
 - Pre-eclampsia, Low birthweight, Skeletal development and growth, Fetal lung development...



- **The aim of the study was to evaluate the association of plasma levels of 25-hydroxyvitamin D (25(OH)D) in our population**



Methods

- 44,592 women who were outpatients aged 18-65 years who visited Memorial Hospital from January 2011 to December 2017
- Cases with hyperparathyroidism or hypoparathyroidism were excluded
- Serum 25-hydroxy vitamin D [25(OH)D] levels were measured by ECLIA (electro chemi luminescent immunoassay)
- The levels of 25-OH-D
 - **< 20 ng/mL, Vitamin D deficiency**
 - **20 - 29 ng/mL Vitamin D insufficiency**
 - **≥ 30 ng/mL, normal 25-OH-D concentrations**



Data analysis was performed by using Statistical Package for Social Sciences (SPSS) version 11.5 software (SPSS Inc., Chicago, IL, United States)



Results

- 44.592 women
- The mean age was $39,5 \pm 11,3$
- The mean level of serum 25(OH)D was $20,1 \pm 13,7$ ng/ml
- The prevalence of vitamin D deficiency was 57,7%
- Severe vitamin D deficiency (<10 ng/ml) was 25,3 %
- The prevalence of vitamin D insufficiency was 22,4%

Results

The distribution of the status of 25(OH)D levels according to age groups

		[25(OH)D] levels			
		≥30 ng/ml	20-29,9 ng/ml	<20 ng/ml	
Age	51-65	N	1927	1672	5226
		%	21,8%	18,9%	59,2%
	36-50	N	3637	3906	9067
		%	21,9%	23,5%	54,6%
	18-35	N	3304	4395	11458
		%	17,2%	22,9%	59,8%
Total	N	8868	9973	25751	
	%	19,9%	22,4%	57,7%	

Results

		[25(OH)D] levels			
		≥30 ng/ml	20-29,9 ng/ml	<20 ng/ml	
Years	2011	N	107	191	424
		%	14,8%	26,5%	58,7%
	2012	N	459	700	1521
		%	17,1%	26,1%	56,8%
	2013	N	891	1310	3942
		%	14,5%	21,3%	64,2%
	2014	N	1029	1373	4685
		%	14,5%	19,4%	66,1%
	2015	N	1454	1624	4911
		%	18,2%	20,3%	61,5%
	2016	N	2134	2113	4946
		%	23,2%	23,0%	53,8%
	2017	N	2794	2662	5322
		%	25,9%	24,7%	49,4%
Total	N	8868	9973	25751	
	%	19,9%	22,4%	57,7%	

The distribution of the status of 25(OH)D levels according to years

Results

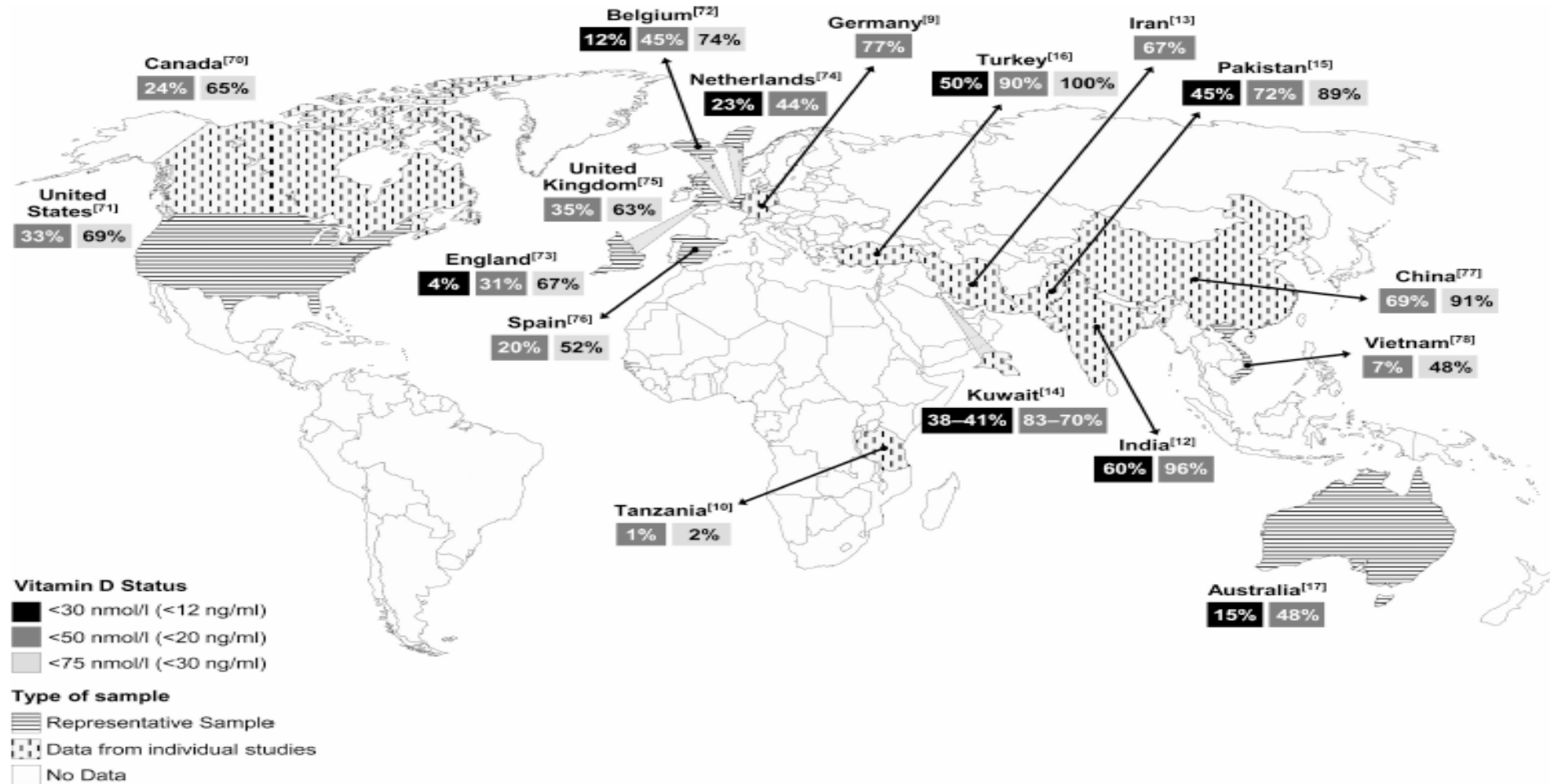
The distribution of the status of 25(OH)D levels according to different cities

		[25(OH)D] levels			Total
		≥30 ng/ml	20-29,9 ng/ml	<20 ng/ml	
Istanbul	N	5995	6563	12799	25357
	%	23,6%	25,9%	50,5%	100,0%
Ankara	N	533	590	1415	2538
	%	21,0%	23,2%	55,8%	100,0%
Antalya	N	1721	2112	7328	11161
	%	15,4%	18,9%	65,7%	100,0%
Kayseri	N	367	411	2176	2954
	%	12,4%	13,9%	73,7%	100,0%
Diyarbakır	N	252	297	2033	2582
	%	9,8%	11,5%	78,7%	100,0%
Total	N	8868	9973	25751	44592
	%	19,9%	22,4%	57,7%	100,0%

Is vitamin D deficiency a major global public health problem?

Palacios and Gonzalez

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Vitamin D < 50 nmol/L (<20ng/ml)

- USA 33%, Canada 24%
- Avusturalia 48%
- Belgium 45%
- UK 35%
- Netherlands 44%
- İspanya 20%
- Almanya 77%

Vitamin D < 30 nmol/L (<12ng/ml)

- Avusturalia 15%
- Belgium 12%
- UK 4%
- Netherlands 23%

Vitamin D < 50 nmol/L

- Africa 1 % (Tanzania)
- Turkey 90%
- Iran 67%
- Pakistan 72%
- Kuweit 70-83%
- Indian 96%
- Chine 69%

Vitamin D < 30 nmol/L

- Türkiye 50%
- Pakistan 45%
- Kuweit 38-41%
- Indian 60%

Evaluation, Treatment, and Prevention of Vitamin D Deficiency: an Endocrine Society Clinical Practice Guideline

TABLE 2. Indications for 25(OH)D measurement (candidates for screening)

- Rickets
- Osteomalacia
- Osteoporosis
- Chronic kidney disease
- Hepatic failure
- Malabsorption syndromes
 - Cystic fibrosis
 - Inflammatory bowel disease
 - Crohn's disease
 - Bariatric surgery
 - Radiation enteritis
- Hyperparathyroidism
- Medications
 - Antiseizure medications
 - Glucocorticoids
 - AIDS medications
 - Antifungals, e.g. ketoconazole
 - Cholestyramine
- African-American and Hispanic children and adults
- Pregnant and lactating women
- Older adults with history of falls
- Older adults with history of nontraumatic fractures
- Obese children and adults (BMI > 30 kg/m²)
- Granuloma-forming disorders
 - Sarcoidosis
 - Tuberculosis
 - Histoplasmosis
 - Coccidiomycosis
 - Berylliosis
- Some lymphomas



Conclusions

- The prevalence of vitamin D deficiency in Turkey is very high
 - Vitamin D deficiency : 57,7%
 - Severe vitamin D deficiency: 25,3 %
- All of these groups should be screened and treated as appropriate



Are You Deficient in Vitamin D?

Thanks for your contributions