



JOURNAL OF PHARMACEUTICAL SCIENCE AND BIOSCIENTIFIC RESEARCH (JPSBR)

(An International Peer Reviewed Pharmaceutical Journal that Encourages Innovation and Creativities)

A Questionnaire Based Survey to Evaluate Practice and Attitude of Vitamin D Supplement by Private Practitioners in Western Region of Indian Population

Patel J, Date SK

Dept. of Pharmacology, SBKS Medical Institute and Research Centre, Piparia, Vadodara, Gujarat, India

ABSTRACT:

The objective of present study was to assess the practices and attitude of Vitamin D among health practitioners. A cross-sectional study was carried out at public and private hospitals and clinics from Ahmedabad, Vadodara and Mumbai city. Forty private practitioners were included in the study. A well-structured, pre-tested questionnaire was designed to gather data. Each interview was completed by an investigator. Questions included the practices related to of vitamin D, prescriptions and its need in the population. Questionnaires were completed by 40 doctors. The results indicate that doctors are aware of the sources and metabolism of vitamin D but lack information about the duration and factors regarding sunlight exposure. The physicians generally have good information about the signs and symptoms of vitamin D deficiency and the factors causing it, but do not have sound information about deficiency management. The results support the fact that doctors need more knowledge and training about vitamin D deficiency.

KEYWORDS: Vitamin D, health Practitioner, Cholecalciferol, Hypocalcaemia, Questionnaire based survey

Article history:

Received 26 July 2014

Revised 11 Sept 2014

Accepted 15 Sept 2014

Available online 01 January 2015

Citation: Patel J, Date SK. A Questionnaire Based Survey to Evaluate Practice and Attitude of Vitamin D Supplement by Private Practitioners in Western Region of Indian Population. *J Pharm Sci Bioscientific Res.* 2015 ;5(1):110-114.

For Correspondence:

Dr. Jatin Patel

Resident, Dept. of Pharmacology, SBKS
Medical Institute and Research Centre,
Piparia, Vadodara, Gujarat, India

Email: drjatinpatel1985@gmail.com

(www.jpsbr.org)

INTRODUCTION:

Vitamin D is a group of fat-soluble prohormones which were identified after the discovery of the anti-rachitic effect of cod liver oil in the early part of the 20th century. The vitamin found in cod liver oil was designated "D" following Vitamin A, B and C, which had been discovered earlier¹. The two major biologically inert precursors of vitamin D are vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol)^{2, 3}. Vitamin D plays an important role in maintaining an adequate level of serum calcium and phosphorus. Without vitamin D, only 10 to 15% of dietary calcium and about 60% of phosphorus is absorbed⁴⁻⁶. Vitamin D sufficiency is required for optimal health. Vitamin D Plays protective role in several bone diseases, muscle weakness, more than a dozen types of internal cancers, multiple sclerosis, and type 1 diabetes mellitus.

Vitamin D deficiency leads to hypocalcaemia, severe hyperparathyroidism and increased bone turnover. This may be associated with osteoporosis and fractures. In prolonged and severe cases, osteomalacia and rickets may occur, resulting in bone pains, myopathy and waddling gait⁷. There is a worldwide problem of vitamin D inadequacy and deficiency that is largely being unheeded and under-treated⁸. This problem is not isolated, but affects developed as well as developing countries, subtropical and temperate regions, and populations of all ages. Vitamin D inadequacy and deficiency may pose a bigger threat. Complications of vitamin D deficiency include Rickets, Osteoporosis, Depression and Fatigue,

Hyperparathyroidism, Obesity, Osteomalacia, Chronic Backache, Hypertension, cancers, chronic pain, diabetes, multiple sclerosis or heart disease⁹.

In Asian countries especially in India, assessment of vitamin D status and vitamin D education are ignored. It has been assumed that vitamin D insufficiency is never occur in regions with plentiful sunshine¹⁰. There are reports that physicians generally have little training in nutrition and a poor knowledge of the subject. Few studies have been carried out to assess the practices and attitude and need about micronutrients particularly vitamin D and they have indicated the lack of knowledge of doctors about the general and clinical aspects of vitamin D¹¹.

Present study was carried out to assess the Practices and attitude regarding Vitamin D supplementation among private practitioners.

MATERIALS AND METHODS

Study setting, study type: This cross sectional study was carried out in the Ahmedabad, Vadodara and Mumbai city which are populous cities in India having lot of private doctors.

Study participants & study period: Private practitioners including general practitioners, physicians, gynaecologists, orthopaedic surgeons and paediatricians were included in the study. Those doctors who were non-cooperative were excluded from the study.

Sample size and sampling: A list of private doctors was prepared from each city. Conveniently data were collected from forty doctors and analysed.

Data collection: Selected 40 practitioners including general practitioners, physicians, gynaecologists, orthopedic surgeons and paediatricians were visited by investigators and gave a brief idea about study. They were requested to fill the feedback questionnaire with their views on vitamin D. We also visited some chemists' shops attached with private clinics of Neurophysicians and Endocrinologists. During our survey we also visited some pathology laboratories to collect possible information.

STATISTICAL ANALYSIS: The data were entered in Microsoft excel 2007 and analyzed with the help of Epi info 7. Categorical data were expressed as percentage and continuous data were expressed as Mean ± SD.

RESULTS AND DISCUSSION

A total of 40 feedback questionnaires were filled by practitioners including general practitioners (n=12), physicians (n=13), gynaecologists (n=5), orthopedic surgeons (n=5) and paediatricians (n=5) regarding their view on vitamin D supplementation. Mean age of study participates was 39.2 ± 8.7.

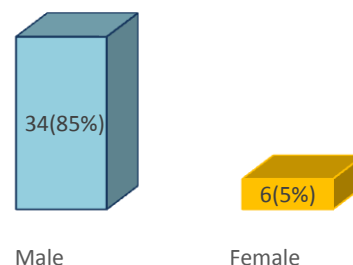


Figure 1 Bar diagram showing gender distribution of study participants (n=40)

Among the 40 respondents, we found that all of them were prescribing vitamin D or its analogues in their practice. While doing survey we also visited chemists' shop attached with some neurophysicians and endocrinologists and we found that they also receive prescriptions containing vitamin D from these practitioners.

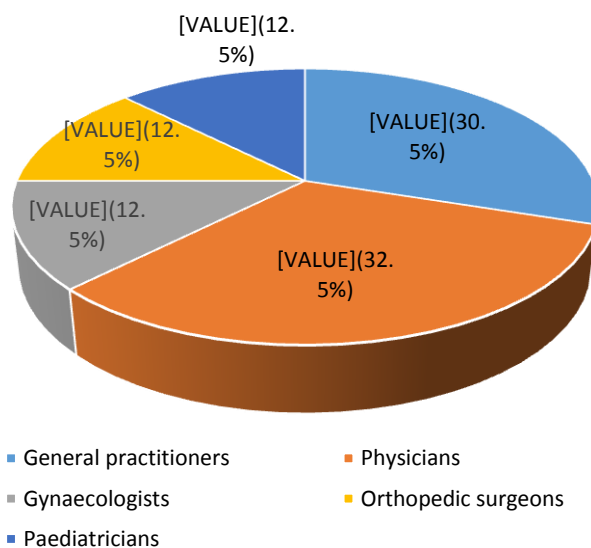


Figure 2 Pie chart showing Speciality of health practitioners

We found that 19% of prescriptions written by physicians, 17% by general practitioners, 30% by gynecologists, 18% by pediatricians and 35% by orthopedic surgeons were containing Vitamin D or its analogues. We also came to know that the common age group was >40 years which was prescribed vitamin D by general practitioners, physicians and orthopedic surgeons; while common pediatric age group was 1-3 years followed by <1year (infant) which was prescribed vitamin D by pediatricians. Gynecologists were found prescribing vitamin D commonly for post-menopausal women, followed by pregnant and lactating women.

Table 1: Vitamin D related practices and attitude among study participants (n=40)

	Questions	n (%)
Q.1	How much Prescriptions containing vitamin D per week you write?	
	General practitioners	7(17%)
	Physicians	8(19%)
	Gynecologists	12(30%)
	Orthopedic surgeons	28(69%)
	Pediatricians	7 (18%)
Q.2	Among which gender you prescribe vitamin D most?	
	Male	14(35%)
	Female	26(65%)
Q.3	Among which age group vitamin D deficiency is most?	
	<1year	10(25%)
	1-18 years	09(22.5%)
	18-40 years	04(10%)
	>40 years	17(42.5%)
Q.4	For which Clinical conditions you prescribe vitamin D?	
	Rickets/osteomalacia	40(100%)
	Post menopause	36(90%)
	Osteoporosis	37(92.5%)
	Muscle weakness	32(80%)
	Multiple sclerosis	29(72.5%)
	Diabetes	24(60%)

	Questions	n (%)
Q.5	Which Vitamin D analogues you generally prescribe?	
	Cholecalciferol	40(100%)
	Calcitriol	28(70%)
	Alfacalcidol	14(35%)
Q.6	For which purpose you prescribe Vitamin D?	
	Treatment only	1(2.5%)
	Prevention only	2(5%)
	Both	37 (92.5%)
Q.7	Are Fortified foods sufficient for vitamin D supplementation?	
	Yes	36(90%)
	No	4(10%)
Q.8	How you prescribe vitamin D?	
	Alone	23(%)
	Combined with other vitamins&/or calcium	17(%)
Q.9	What is the current need of Vitamin D as compared to past?	
	Increased	27(67.5%)
	Decreased	7(17.5%)
	No change	6(15%)
Q.10	Do you think that demand of Vitamin D supplement will increase in future?	
	Yes	31(77.5%)
	No	03(7.5%)
	Not a clue	06(15%)
Q.11	What are the possible reasons of vitamin D deficiency	
	Unawareness of vitamin D deficiency	36(90%)
	Lack of sunshine exposure	36(90%)
	Poor diet/food habits	32(80%)
	Poor nutritional care in pregnancy and old age	25(62.5%)
	Low socio economic status	19(47.5%)

We found that 37(92.5%) respondents were prescribing vitamin D for treatment as well as for prevention for various conditions, however prescriptions for the purpose of prevention was higher among gynecologists and purpose for the treatment purpose was higher among physicians. Among the various vitamin D and its analogues, commonly prescribed were: cholecalciferol (100%), calcitriol (70%) followed by alfacalcidol (15%). We also came to know that majority of the practitioners prescribe vitamin D in combination with calcium and other vitamins. Commonest indication for prescribing vitamin D by general practitioners, physicians and pediatricians was vitamin D deficiency while other indications were osteoporosis, post menopause, low birth weight, malnutrition, muscle weakness and chronic kidney disease. Among gynecologists most common indication for vitamin D prescriptions was post menopause followed by pregnancy while in case of orthopedic surgeons, common indications found to be fractures in old age and osteoporosis. Among general practitioners, physicians, gynecologists and orthopedic surgeons, Vitamin D is commonly prescribed in a form of sachets of granules followed by tablets, gelatin capsules and injections. Among pediatricians, syrup and drops of vitamin D are commonly prescribed.

Among 40 practitioners, 36 (90%) agreed that market food products fortified with vitamin D (fortified dairy products, fortified nutritional formulations for children and women etc.) are sufficient enough to take care of daily requirement of Vitamin D. According to most of the respondents prescription of vitamin D has increased in last one year in their routine practice and probably it would sustain the rise in future also. They believe that the probable reasons could be the modernization leading to less time spent in sunlight, changes in food habits among people, availability of newer formulations with lower cost and emergence of new indications.

CONCLUSION

Vitamin D deficiency is a global problem. In the past, vitamin D intake was associated with the prevention of rickets in children whereas its effect in other areas has received little attention. In recent years, vitamin D deficiency has also been linked with the pathogenesis and progression of several disorders, including cancer, hypertension, multiple sclerosis, diabetes; although the evidence for the associations of vitamin D with these conditions is generally weaker than it is for bone-related disease. Our study shows that vitamin D supplementation is higher among post-menopausal women, patients with age>40 years, toddlers (1-3 years) and infants. In our study, majority of doctors agreed that prescriptions of

vitamin D have been increased in last one year and probably would be increased in future also. Modernization with less time spent in sunlight, changes in food habits and emergence of new indications are the key reasons for the current and future needs of vitamin D supplement. Despite the close link of vitamin D with human health, vitamin D inadequacy is not widely recognized as a problem by physicians and patients. Greater awareness of this problem is required among researchers, clinicians and patients.

REFERENCES

1. Wolpowitz D, Gilchrist BA: The vitamin D questions: how much do you need and how should you get it? *J Am Acad Dermatol* 2006, 54:301-317.
2. Holick MF: The use and interpretation of assays for vitamin D and its metabolites. *J Nutr* 1990, 120(Suppl):1464-1469.
3. Vieth R: Why "vitamin D" is not a hormone, and not a synonym for 1,25 dihydroxy-vitamin D, its analogs or deltanoids. *J Steroid Biochem Mol Biol*
4. Holick MF, Garabedian M: Vitamin D: photobiology, metabolism, mechanism of action, and clinical applications. In *Primer on the metabolic bone diseases and disorders of mineral metabolism*. 6 edition. Edited by: Favus MJ. Washington, DC: American Society for Bone and Mineral Research; 2006:129-137.
5. Bouillon R: Vitamin D: from photosynthesis, metabolism, and action to clinical applications. In *Endocrinology*. Edited by: DeGroot LJ, Jameson JL. Philadelphia: W.B. Saunders; 2001:1009-1028.
6. DeLuca HF: Overview of general physiologic features and functions of vitamin D. *Am J Clin Nutr* 2004, 80:1689S-1696S. 2004, 89-90:571-573.
7. Leboff MS, Kohlmeier L, Hurwitz S. Occult vitamin D deficiency in postmenopausal US women with acute hip fractures. *JAMA*. 1999;281:1505-1511.
8. Gaugris S, Heaney RP, Boonen S, Kurth H, Bentkover JD, Sen SS. Vitamin D inadequacy among post-menopausal women: A systematic review. *QJM*. 2005;98:667-676.
9. Al-Mogbel E Solaiman. Vitamin D status among Adult Saudi Females visiting Primary Health Care Clinics. *International Journal of Health science* 2012; 6(2):99-107
10. El-Hajj Fuleihan G, Nabulsi M, Choucair M, Salamoun M, Hajj Shahine C, Kizirian A, et al. Hypovitaminosis D in healthy schoolchildren. *Pediatrics*. 2001;107:E53.

11. Dawson-Hughes B. Racial/ethnic considerations in making recommendations for vitamin D for adult and elderly men and women. *Am J Clin Nutr.* 2004;80(Suppl 6):1763S- 1766S.

