International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 05 Issue: 06 | June-2018 www.irjet.net p-ISSN: 2395-0072

The Comparative Study of Patients in Paras Hospital, Gurgaon and People of Sector-15, Gurgaon and to Assess the Knowledge on Vitamin D and Vitamin E Content in Food Products

Manisha gupta[1], Swayam Siddha[2]

[1]Student, Department of Nutrition and Dietetics, Manav Rachna International Institute of Research and Studies
[2]Assistant Professor, Department of Nutrition and Dietetics, Manav Rachna International Institute of Research and Studies, Faridabad.

Abstract - *The present study was conducted to find out the "Comparative study of patients in Paras Hospital, Gurgaon and people of sector-15, Gurgaon and to assess the knowledge on vitamin D and vitamin E content in food products." Total thirty subjects were selected to assess the knowledge of people regarding vitamin D and vitamin E content in food products. A detailed questionnaire was developed for data collection from the subjects which includes knowledge based questions. General profiles of patients were also noted in the questionnaire. Thirty subjects are divided into two groups, fifteen each in a group. This study was done under nutrient profiling tests in which nutrient content of vitamin D and vitamin E was taken of various food products. It was a comparative study between hospital patients and residence people to see the comparison between their knowledge. The result of the study revealed that the mean value of hospital patients knowing about vitamin D and vitamin E products was 0.73 while of residence people was 0.66.*

The major mean value of hospital patients regarding daily requirement of vitamin D was 1.44 while for residence people mean value was 2.8. The major mean value of hospital patients regarding daily requirement of vitamin E was 1.68 while for residence people mean value was 1.68. Therefore, the present study shows that hospital patients and residence people have almost equal amount of knowledge regarding vitamin D and vitamin E content in food products.

***Key Words*: vitamin D and Vitamin E content, nutrient profiling**

1. INTRODUCTION

Nutrient profiling is the science of classifying or ranking foods according to their nutritional composition for reasons related to preventing disease and promoting health. Nutrient profiling can be used for various applications, including marketing of foods to children, health and nutrition claims, product labelling logos or symbols, information and education, provision of food to public institutions, and the use of economic tools to orient food consumption.

For instance, nutrient profiling can be used to generate criteria for descriptions of foods falling into two main types:

- descriptions that refer to the nutrient levels in foods e.g. 'high fat', 'low fat', 'reduced fat', 'source of fibre', 'high in fat, sugar or salt', 'energy dense, nutrient poor'; or
- Descriptions that refer directly to the effects of consuming the food on a person's health e.g. 'healthy', 'healthier option', 'less healthy', 'good for you'. Thus, the concept of nutrient profiling is not new, but most of the nutrient profiling models have not been developed.

Though nutrient profiling does not address all aspects of nutrition, diet and health it is a helpful tool to use in conjunction with interventions aimed at improving diets in a region or country.

WHO is working with international experts and partners to provide guidance in developing or adapting nutrient profile model. The aim of the work is to harmonize nutrient profile model development to produce consistent and coherent public health nutrition messages for the consumer and ultimately improve nutrition and public health.

The first system for categorization of foods was developed in 1973 and later called the "Nutritional Quality Index" (NQI) published in a book in 1979. Hansen's NQI used 18 nutrients in 2,000 calories of food as the basis, relative to the RDAs for those nutrients. It was a "nutrient-by-nutrient profiling system" and made use of individual scores rather than aggregating scores across nutrients to create a composite score for a given food. Based on the combination of key nutrients relative to calories, the profiles find a number of applications. It could be a valuable tool for the nutrition professionals as it can help them in identifying nutrient dense foods for dietary guidance and nutrition education. [(1)]

Vitamin D is a group of fat-soluble secosteroids responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and multiple other biological effects. In humans, the most important compounds in this group are vitamin D_3 (also known as cholecalciferol) and vitamin D_2 (ergocalciferol). Cholecalciferol and ergocalciferol can be ingested from the diet and from supplements.

Only a few foods contain vitamin D. The major natural source of the vitamin is synthesis of cholecalciferol in the skin

from cholesterol through a chemical reaction that is dependent on sun exposure.

Vitamin D from the diet or skin synthesis is biologically inactive; enzymatic conversion (hydroxylation) in the liver and kidney is required for activation. As vitamin D can be synthesized in adequate amounts by most mammals exposed to sufficient sunlight, it is not an essential dietary factor, and so not technically a vitamin.

Instead it could be considered as a hormone, with activation of the vitamin D pro-hormone resulting in the active form, calcitriol, which then produces effects via a nuclear receptor in multiple different locations. Different institutions propose different recommendations concerning daily amounts of the vitamin.

The recommended daily intake of vitamin D *may* not be sufficient if sunlight exposure is limited. Conversion: 1 µg = 40 IU.

Although vitamin D is not present naturally in most foods, it is commonly added as a fortification in manufactured foods, including some fruit juices and fruit juice drinks, meal replacement energy bars, soy protein-based beverages, certain cheese and cheese products, flour products, infant formulas, many breakfast cereals, and milk. [2]

Vitamin E refers to a group of compounds that include both tocopherols and tocotrienol. Of the many different forms of vitamin E, γ-tocopherol is the most common form. γ-Tocopherol can be found in corn oil, soybean oil, margarine, and dressings. α-tocopherol, the most biologically active form of vitamin E, is the second-most common form of vitamin E in the diet.

This variant can be found most abundantly in wheat germ oil, sunflower, and safflower oils. As a fat-soluble antioxidant, it interrupts the propagation of reactive oxygen species that spread through biological membranes or through a fat when its lipid content undergoes oxidation by reacting with more-reactive lipid radicals to form more stable products. Vitamin E was discovered in 1922, isolated in 1935 and first synthesized in 1938. Vitamin E is sold as a dietary supplement, either by itself or incorporated into a multi-vitamin product.

The current Estimated Average Requirements (EAR) for vitamin E for women and men ages 14 and up is 12 mg/day. The RDA is 15 mg/day. RDAs are higher than EARs so as to identify amounts that will cover people with higher than average requirements. For infants up to 12 months the Adequate Intake (AI) is 4–5 mg/day.

In addition to the naturally occurring sources like walnuts, almonds, vegetable oils, papaya, etc. and certain ready-to-eat cereals, infant formulas, liquid nutrition products and other foods are fortified with alpha-tocopherol. Vitamin E is fat soluble, so dietary supplement products are usually in the form of the vitamin dissolved in vegetable oil in a soft gel capsule. For alpha-tocopherol, amounts range from 100 to 1000 IU per serving. Smaller amounts are incorporated into multi-vitamin/mineral tablets. Gamma-tocopherol and tocotrienol supplements are available from a few dietary supplement companies.

The World Health Organization does not have any recommendations for food fortification with vitamin E. The Food Fortification Initiative does not list any countries that have mandatory or voluntary programs for vitamin E. Infant formulas have alpha-tocopherol as an ingredient.

In some countries, certain brands of ready-to-eat cereals, liquid nutrition products and other foods have alpha-tocopherol as an added ingredient. [3]

2. METHODOLOGY

The present study was done to compare the knowledge of patients of Paras Hospitals, Gurgaon and residence people of sector 15, Gurgaon regarding vitamin D and vitamin E content in food products. Purposive sampling was done to collect a sample size of 30 subjects, 15 people from hospital and 15 people from sector 15, Gurgaon. Questionnaire was formulated to collect qualitative data that include general profile and subject's knowledge regarding vitamin. D and vitamin E food products. Anthropometric measurements were done like height, weight and BMI.

3. RESULT AND DISCUSSION

For achieving the aim, present study enrolled total 30 subjects. Out of 30 subjects, 50% were people from hospital (n=15) and 50% were from sector 15, Gurgaon (n=15).

Table 1 – Gender

Gender		
Parameters	No. of study subjects (n=30)	Percentage (%)
Female (of hospital patients)	9	60
Male (of hospital patients)	6	40
Female (for residence people)	7	46.67
Male (for residence people)	8	53.33

Table 1 shows that 60% of subjects from hospital were female while 40% male. Also, 46.67% of subjects from residence were female while 53.33% male.

Table 2– Distribution of subject on the basis of knowledge regarding reading of nutritional information before purchasing of food product

Reading of nutritional information				
Parameters	No. of subjects (n=30)		Percentage (%)	
	Residence people	Hospital patients	Residence people	Hospital patients
Yes	10	11	66.67	73.33
No	5	4	33.33	26.67

Table 2 shows the 66.67% of residence people read the nutritional information while 33.33% of people do not and 73.33% of hospital patients read the nutritional information while buying any food product while 26.67% of people do not. The mean and standard deviation of residence people who read the nutritional information is 0.66±2.41 while who do not read is 0.33±1.20.

The mean and standard deviation of hospital patients who read the nutritional information is 0.73±2.65 while who do not read is 0.26±0.96.

Table 3- Distribution of subject on the basis of knowledge regarding vitamin D and vitamin E rich foods or food products

Knowledge regarding vitamin D and vitamin E rich foods or food products				
Parameters	No. of subjects (n=30)		Percentage (%)	
	Residence people	Hospital patients	Residence people	Hospital patients
Yes	12	11	80	73.33
No	3	4	20	26.67

Table 3 shows the 80% of residence people knows about vitamin D and vitamin E rich foods while 20% do not and 73.33% of hospital patients know about vitamin D and vitamin E rich foods while 26.67% do not know the sources.

The mean and standard deviation of residence people who know about any vitamin D and vitamin E rich foods is 0.8±11.2 while who do not know is 0.2±2.8.

The mean and standard deviation of hospital patients who know about any vitamin D and vitamin E rich foods is 0.73±2.65 while who do not know is 0.26±0.96.

Table 4 – Distribution of subject on the basis of knowledge regarding daily requirement of vitamin D in body

Knowledge regarding daily requirement of vitamin D				
Parameters	No. of subjects (n=30)		Percentage (%)	
	Residence people	Hospital patients	Residence people	Hospital patients
500 IU	5	4	33.33%	26.67%
600 IU	3	4	20%	26.67%
450 IU	3	6	20%	40%
550 IU	4	1	26.67%	6.67%

Table 4 shows that 33.33% of residence people says 500 IU is the daily requirement of vitamin D for their body, 20% 600 IU, 20% 450 IU and 26.67% 550 IU. Also, 26.67% of hospital patients says 500 IU is the daily requirement of vitamin D for their body, 26.67% 600 IU, 40% 450 IU and 6.67% 550 IU.The mean and standard deviation of residence people who says 500 IU is the daily requirement of vitamin D for their body is 0.33±1.20, 600 IUis the daily requirement of vitamin D for their body is 0.2±2.8, 450 IU is the daily requirement of vitamin D for their body is 0.2±2.8 while 550 IU is the daily requirement of vitamin D for their body is 0.26±0.96.

The mean and standard deviation of hospital patients who says 500 IU is the daily requirement of vitamin D for their body is 0.26±0.96, 600 IU is the daily requirement of vitamin D for their body is 0.26±0.96, 450 IU is the daily requirement of vitamin D for their body is 0.4±1.44 while 550 IU is the daily requirement of vitamin D for their body is 0.06±0.22.

Table 5- Distribution of subject on the basis of knowledge regarding the recommended dietary allowance of vitamin E in body

Recommended Dietary Allowance of vitamin E				
Parameters	No. of subjects (n=30)		Percentages (%)	
	Residence people	Hospital patients	Residence people	Hospital patients
13 mg	0	1	0%	6.67%
15 mg	7	7	46.67%	46.67%
17 mg	6	6	40%	40%
20 mg	2	1	13.33%	6.67%

Table 5 shows that no people says that 13 mg is the recommended dietary allowance of vitamin E for their body, 46.67% 15 mg, 40% 17 mg and 13.33% 20 mg. Also, 6.67%

of hospital patients say that 13 mg is the recommended dietary allowance of vitamin E for their body, 46.67% 15 mg, 40% 17 mg and 6.67% 20 mg. The mean and standard deviation of residence people who says that 13 mg is the RDA of vitamin E is nil, 15 mg is the RDA of vitamin E is 0.46±1.68; 17 mg is the RDA of vitamin E is 0.4±1.44 while 20 mg is the RDA of vitamin E is 0.13±0.47. The mean and standard deviation of hospital patients who says that 13 mg is the RDA of vitamin E is 0.06±0.22, 15 mg is the RDA of vitamin E is 0.46±1.68, 17 mg is the RDA of vitamin E is 0.4±1.44 while 20 mg is the RDA of vitamin E is 0.06±0.22.

4. CONCLUSION

The present study shows that knowledge of hospital and residential people regarding Vitamin D and Vitamin E. total 30 subjects were taken which were equally divided. After data collection and statistical analysis, it can be interpreted that hospital patients and residence people have almost equal amount of knowledge regarding vitamin D and vitamin E content in food products. Much awareness is needed to be created among the people regarding vitamin D and vitamin E content in food products.

REFERENCES

1. http://www.who.int/nutrition/topics/profiling/en / assessed on 18/02/2018
2. https://en.wikipedia.org/wiki/Vitamin_D assessed on 18/02/2018
3. https://en.wikipedia.org/wiki/Vitamin_E assessed on 18/02/2018
4. Nidhi Gupta (2009) Journal of the American College of Nutrition, Vol. 29, No. 2, 81–91
5. Kowsalya T. and *Parimalavalli R. (2014) A Journal of Science and Technology Volume: 4 No.: 2, ISSN: 2349 – 5456
6. Shreya Arora, Pulkitmathur (2014) International Journal Of Health Sciences & Research (Www.Ijhsr.Org) 227 Vol.4; Issue: 7
7. D. Sarma*, P. Dhar Das, P. Das, H.C.S. Bisht1, M.S. Akhtar And A. Ciji (2014) INDIAN JOURNAL OF ANIMAL RESEARCH, Volume 49 Issue No. 2
8. Shridhar K_[1], Dhillon PK, Et Al (2014) The Journal Of Basic And Applied Zoology 77, 41-48
9. JESMI DEBBARMA1, B. MADHUSUDANA RAO1, L. NARASIMHA MURTHY2, SUSEELA MATHEW3, G. VENKATESHWARLU4 AND C. N. RAVISHANKAR3 (2016) Indian J. Fish., 63(3): 81-87
10. Dilip Kumar Singh And Amit Ranjan (2016) Nutri Food Sciint J 1(4): NFSIJ.MS.ID.555569
11. A. K. BALANGE, K. A. MARTIN XAVIER, SANATH KUMAR, B. B. NAYAK, G.VENKATESHWARLU AND S. S. SHITOLE (2017) Indian J. Fish., 64 (Special Issue): 264-267