Original Article

Level of Vitamin D3 Deficiency in Children

Vitamin D3 Deficiency in Children

Mumtaz Ali Bharo[1], Kamran Ali[2], Sheeraz Ahmed[1], Bakhtiar Ahmed[1] and Ubed Ullah Bahalkani[1]

ABSTRACT

Objective: To study the Level of Vitamin D3 Deficiency in Children
Study Design: Observational study
Place and Duration of Study: This study was conducted at the department of pediatrics, GMMC Medical College, Sukkur and Per Mirs Medical College, Khairpur Mirs during January 2019 to December 2020.
Materials and Methods: We included the age six to twelve years patients, that attended the endocrinology department of pediatrics. We added sick children who attended clinic of our outpatient for detection of growth and age before puberty without any acute diseases on the day of visit. 230 samples were taken keeping in view exclusion criteria like seizers, low hormonal levels of thyroid gland. All those children whose weight lied in between 3 to 84 percentile were considered as normal, those with 85 to 94 percentile were considered as over weight .It was according to previous formulated standards in Korea. Among samples there were eighty girls (34.78%) and one hundred fifty boys (65.21%). Among the patients, one hundred fifty (62.21%) had a normal weight, fifty (21.73%) were overweight and obese thirty (13.04%). The written informed consent of the parents of the patients was taken before collecting the information. The Ethical Committee permission was taken before collecting the data and get publishing in Medical Journal.
Results: The incidence of was maximum 120 (52.17%) at age 1-6 year and was 110(47.82%) at age group 7-10 year. Male children were 150 (62.21%) and female 80 (34.78%). There were 150 (62.21%) normal children, overweight 50 (21.73%) and obese 30 (13.04%) children. There was 45 (19.56%) cases in spring, 65 (28.26%) in Autumn and 120 (52.17%) cases in winter. There were 130 (56.52%) cases of vitamin D Deficiency and 100 (43.47%) of Sufficiency vitamin D.
Conclusion: From current study it was resulted that feeble levels of serum Vitamin D were mainly encountered in children of school going age. It was also resulted that such feeble levels encountered in cold and blooming seasons. Therefore we suggest that it is necessary to supplement the vitamin D in diet according to our situation.
Key Words: Risk factors, Prevalence, Vitamin D deficiency, Child

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INTRODUCTION

Through multiple researches it has been concluded that for normal build up of bones the need of Vitamin D cannot be denied. Certain other minerals also depend upon it for performing their normal functions. Those minerals include calcium and phosphorus1). Non artificial foods lack it and a big cheapest source is sunlight 2).When its serum levels become less than standard levels it causes undergrowth of bones. The bones become brittle and can be fractured on very minor trauma 3). Its effecting cells are present in many vital organs like central vascular system, hormonal system and takes part in formation and development of different cells of body[4,5,6]. Many diseases of inhalation and itching have been found correlated with feeble levels of Vitamin D. Similarly meorrhagia can also be provoked with its deficiency[7,8,9]. The feeble levels cause dark colored patches on skin. Its low levels may be fatal in old age and over weight persons).[5,10]

[1.] Department of Pediatrics, Per Mirs Medical College, Khairpur Mirs.
[2.] Department of Pediatrics, GMMC Medical College, Sukkur.

Correspondence: Dr. Kamran Ali, Assistant Professor of Pediatrics, GMMC Medical College, Sukkur.
Contact No: 0301-3414686
Email: ga.shahani@gmail.com

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MATERIALS AND METHODS

We included the age six to twelve years patients, that attended the endocrinology department of pediatrics clinic. We added sick children who attended clinic of our outpatient for detection of growth and age before puberty without any acute diseases on the day of visit. 230 samples were taken keeping in view exclusion criteria like seizers, low hormonal levels of thyroid gland. All those children whose weight lied in between 3 to 84 percentile were considered as normal, those with 85 to 94 percentile were considered as overweight.

It was according to previous formulated standards in Korea. Among samples there were eighty girls (34.78%) and one hundred fifty boys (65.21%). Among the patients, one hundred fifty (62.21%) had a normal weight, fifty (21.73%) were overweight and obese thirty (13.04%). The written informed consent of the parents of the patients was taken before collecting the information. The Ethical Committee permission was taken before collecting the data and get publishing in Medical Journal.

RESULTS

Table No. 1: Demographic data

Sr. No.	Characteristics	No. of cases	%age
	Age (Years)		
1	1 – 6	120	52.17%
2	7-12	110	47.82%
	Sex		
1	Male	150	62.21%
2	Female	80	34.78%

The incidence of was maximum 120 (52.17%) at age 1-6 year and was 110(47.82%) at age group 7-10 year. Male children were 150 (62.21%) and female 80 (34.78%) as shown in table no 1.

Table No. 2: Body weight Distribution

Sr. No.	Characteristics	No. of cases	%age
1	Normal	150	62.21%
2	Overweight	50	21.73%
3	Obese	30	13.04%

There were 150 (62.21%) normal children, overweight 50 (21.73%) and obese 30 (13.04%) children as shown in table no 2.

Table No. 3: Season Distribution

Sr. No.	Season	No. of cases	Percentage%
1	Spring (Mar–May)	45	19.56%
2	Autumn (Sep–Nov)	65	28.26%
3	Winter (Dec–Feb)	120	52.17%

There was 45 (19.56%) cases in spring, 65 (28.26%) in Autumn and 120 (52.17%) cases in winter as shown in table no 3.

Table No: 4 Vitamin D (25[OH]D) Distribution

Sr. No.	Characteristics	No. of cases	%age
1	Deficiency (<20 ng/mL)	130	56.52%
2	Sufficiency (≥20 ng/mL)	100	43.47%
3	Total	230	100%

There were 130 (56.52%) cases of vitamin D Deficiency and 100 (43.47%) of Sufficiency vitamin D as shown in table no 4.

DISCUSSION

In the present study children age six to twelve year, we seen that deficiency of vitamin D was very common. In this study there were 123 samples with feeble levels of vitamin D , and their mean serum twenty five (OH) D level was fourteen point eighty six ± three point twenty ng / mL. The level of mean serum twenty five (OH)D level of all subjects was nineteen point eighty three ± seven point thirty nine ng/mL which was also feeble than the sufficient vitamin D concentration (≥20 ng/mL). Prevalence of vitamin D deficiency in spring and winter, compared with autumn the was found to increase.[11]

Noted the mean serum level of 25(OH) D in two thousand eight hundred eighty children and adolescents as 17.42 ± 8.95 ng/mL. In an other study carried out it was found that feeble levels of vitamin D were found in 1213 samples, aged between four and fifteen years, was 58.6%[12]. These results are concide with the findings of our work.[13,15,16]

Level of vitamin D in obese children are known to have a lower level of vitamin D, compared with children of a normal weight. Key enzymes in vitamin D deficiency, That act on adipose tissue such as lipoprotein lipase and fatty acid synthase are thought to be prevented, affecting fat accumulation. Vitamin D3 is stored in subcutaneous fat, and the vitamin D3 synthesized in the skin of obese children become more sequestered. Due to this decrease in the availability of vitamin D3, vitamin D deficiency appears more often in obese children[17,18]. The present study shows a significant difference between the vitamin D deficiency and sufficiency groups, in terms of weight SDS and Body Mass Index SDS.

CONCLUSION

From current study it was resulted that feeble levels of serum Vitamin D were mainly encountered in children of school going age. It was also resulted that such feeble levels encountered in cold and blooming seasons. Therefore we suggest that it is necessary to supplement the vitamin D in diet according to our situation.

Author's Contribution:

Concept & Design of Study:	Mumtaz Ali Bharo
Drafting:	Kamran Ali
Data Analysis:	Sheeraz Ahmed, Bakhtiar Ahmed, Ubed Ullah Bahalkani
Revisiting Critically:	Mumtaz Ali Bharo, Kamran Ali
Final Approval of version:	Mumtaz Ali Bharo

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Corrigendum-I

1. Duration of study in article ‘Onlay Mesh Repair for Abdominal Hernia; Do We need a Paradigm Shift?’ published in Med Forum Vol. 32, No.1 January, 2021 at pages 152-155, is one year from June 2017 to May 2018 instead of six months August 2016 to January2017.

Corrigendum-II

2. Duration of study in article ‘Early Complications of Open versus Closed Internal Anal Sphincterotomy in the Management of Chronic Anal Fissure’ published in Med Forum Vol. 32, No.1 January, 2021 at pages 156-158, is six months from August 2016 to January2017 instead of one year from June 2017 to May 2018.

Editor