

# SERUM VITAMIN A LEVELS IN CHILDREN UNDER FIVE YEARS OLD

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**Background:** Vitamin A deficiency is considered to be a wide spread public health problem among preschool children in the developing countries. A pilot study for the nutritional problems in Pakistan showed that majority of the children in the study group was suffering from vitamin A deficiency. **Methods:** This study was carried out to assess the vitamin A status of children under five belonging to different socioeconomic groups. They were divided into two groups. Their weight for age criterion fell within the reference range set by Pakistan Pediatric Association in accordance with National Center for Health Statistics. The vitamin A levels were determined spectrophotometrically by using trifluoroacetic acid. **Results and Conclusion:** The results suggested a significant difference in the levels of Vitamin A in children belonging to high and low socioeconomic groups, suggesting the role of socioeconomic factors in determining the vitamin A status of the body.

## INTRODUCTION

Vitamin A is a fat-soluble vitamin. It is present in the food sources of plants and animals<sup>1</sup>. It is related to growth and differentiation of the tissues<sup>2</sup>. Vitamin A has strong effect on the immunity of the body<sup>3</sup>. It is essential for vision and has a role in the maintenance of the epithelial tissues in the body. Vitamin A deficiency is considered a wide spread public health problem among preschool children in the developing countries<sup>4,5</sup>. A pilot study for the nutritional problems in Pakistan showed that majority of the children in the study group was suffering from vitamin A deficiency<sup>6-8</sup>. The present study was therefore planned to estimate the levels of vitamin A in children up to five years of age belonging to different socioeconomic groups living in Lahore.

## MATERIALS AND METHODS

A total of one hundred and thirty subjects under five years of age were taken. They were divided into two groups. Group 1 and group 2. Each comprising sixty-five subjects. Group 1 subjects belonged to low socioeconomic and group 2 to high socioeconomic populations. The nutritional and growth status with respect to weight for age for both the groups fell within the reference range set by Pakistan Pediatrics' Association in accordance with National Centre for Health Statistics (NCHS) reference scale.

Five milliliters of blood were collected from peripheral vein using disposable syringes. The sera were obtained from the samples, kept stored in cleaned stoppered tubes at -20 °C in the deep freezer until analyzed spectrophotometrically for Vitamin 'A' by using trifluoroacetic acid<sup>9</sup>.

## RESULTS

Sera of both the groups were analyzed for vitamin A. The respective levels are represented in the tables 1 and 2.

The age wise comparative study between the two groups showed statistically significant difference in serum vitamin A values with  $P < 0.001$ .

## DISCUSSION

Vitamin A deficiency is widely prevalent in most parts of the world especially in the underdeveloped countries like Pakistan. This has been pointed out by nutritional survey of Pakistan 1970 and 1976. The serum levels of vitamin A indirectly reflect its status in the body<sup>10</sup>. In well-nourished children on balanced diet appreciable amount of vitamin A is ingested, as it is present in plant and animal food. The result of the study showed that subjects belonging to higher socioeconomic group had significantly higher levels of vitamin A compared to the poor socioeconomic group.

During first year of life breast milk contains sufficient quantity of vitamin A to fulfill the dietary needs of baby<sup>11</sup>. This was reflected in the study as no appreciable difference in the levels among this age group was found. Weaning is necessary with increase in age and socioeconomic factors are very important in weaning. Therefore the results showed widening gaps in vitamin A levels among both the groups with increase in age. It was concluded from the study that children of high socioeconomic group had higher levels of vitamin 'A' compared with the children of low socioeconomic group.

Table-1: Age distribution and Vitamin A levels in Group 1

S.No.	Age (months)	Total Nos.	Normal Range(mg/dl)	Mean of the observed values	S.D.	S.E.
1	0-12	11	20-49	22.28**	2.55	0.76
2	13-24	14	20-49	22.85 *	3.58	0.95
3	25-36	15	20-49	23.80	3.47	0.89
4	37-48	11	20-49	26.44*	4.57	1.37
5	49-60	14	20-49	26.45**	3.72	0.99

\*P<0.05 compared with 1 and 4 subgroups children, 2 and 4 subgroups children, 2 and 5 subgroups children.

\*\* P<0.001 compared with 1 and 5 subgroups children.

Table-2: Age distribution and Vitamin A levels in Group 2

S. No.	Age (months)	Total No.	Normal Range mg/dl	Mean of the observed values	S.D.	S.E.
1	0-12	11	20-49	20.25	2.31	0.69
2	13-24	16	20-49	18.50	2.89	0.76
3	25-36	7	20-49	19.60	2.85	0.73
4	37-48	12	20-49	22.14	3.82	1.14
5	49-60	19	20-49	20.25	3.49	0.75

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