Nutritional assessment of adolescent children in slums with reference to certain vitamins

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Abstract
Adolescence is the most important phase in human development. As per the UNISEF (United Nations International Children’s Emergency Fund) Report 2019, Oct 31, more than 80% of adolescents in India suffer from “hidden hunger” (a form of undernutrition). Whereas, this is the period where the developing body is in need of increased nutrition. Adolescents are deficient in nutrients such as iron, folic acid, zinc, vitamins etc. 50 healthy and 50 underprivileged adolescence from the slum area were distributed as group I and 2 respectively within the age of 14-18 years. The study parameters i.e. Vitamin A, E, C levels were evaluated and the results indicated significant differences in the test study group.

Keywords: Adolescence, teen, teenage, vitamins, slum, under-nutrition

Introduction
Childhood/teenage undernourishment is a major health problem in India, especially in slums. It is one of the most common causes of morbidity and mortality among children and adolescent throughout the world [1]. Adolescence is a period where increased nutrition is a crucial requirement. On 31st October 2019, UNISEF (United Nations International Children’s Emergency Fund) released a report on “Adolescents, Diets & Nutrition: Growing well in a changing World 2019”. It declared that 80% of adolescents in India suffer from “Hidden Hunger”. Hidden hunger is a form of under-nutrition where the intake and absorption are inversely proportional. Factors that contribute to such conditions is consumption of low intake of nutrition / poor diet leading to infections and poor survival. Vitamins are essential nutrients required in small quantities and play a major role in growth and development, repair and healing wounds, maintaining healthy bone and tissues, for the proper functioning of an immune system and other biological functions [2, 3]. These slum adolescents are deficient in nutrients such as iron, folic acid, vitamins A, E and C. Therefore, the present study was undertaken to gauge the levels of these certain nutrients.

Material & Methods
The following study was carried out at Govandi, a healthcare centre run by BYL Nair Charitable Hospital. 100 subjects were enrolled which were distributed in two groups of 50 each. 50 healthy controls and 50 adolescents as test group in the age of 14-18 years, age and sex-matched. The test group belonged to lower socio-economic strata as they belong to slum.

Inclusion & exclusion criteria
50 healthy adolescents in age 14 to 18 years belonging to non-slum areas basically belonging from good economic strata were assessed for nutritional status. 50 undernourished adolescents in the same age group belonging to underprivileged areas/slum belonging to lower socio-economic income group were included. The adolescents having systemic disease like HIV, cancer, infectious diseases etc were excluded from the study. The study was approved by the institutional Ethics Committee. Written Consents were obtained from the subjects’ parents as the study group included minors.
Sample collection

The subjects were given prior information about blood collection. The blood was withdrawn by vein puncture using sterile disposable needles and syringes. After collection, the blood was allowed to clot at room temperature for 1-2 hrs. The serum was separated and used for testing vitamins. Vitamin A and E were estimated by HPLC kit method [6, 5] and vitamin C by DNPH method [3]. The data of all groups were compared with controls using appropriate statistical tests, standard deviation, students ‘t’ test and p-value.

Results & Discussion

The present study was carried out to gauge the levels of certain vitamins in the adolescent population in the Mumbai slums.

All the estimated vitamins were found to be significantly decreased in the adolescence as compared to the control group (Table 1)

This study clearly exhibit that all the micronutrients are decreased in the adolescent population leaving in the study slum area. This strongly suggests the fact that the demand for micronutrients increases in the adolescence due to the growth process.

Conclusion

While there are no second thoughts on how malnutrition affects human body. In conclusion, our study emphasises on how the most common problem -malnutrition i.e deficiency of micronutrients affects the quality of life. Adolescence is a vulnerable point of life where nutritional requirement is a must. A healthy diet, clean drinking water which is a basic necessity is most important to provide optimal support and cognitive development in the adolescence. The study is indicative that the adolescence living in slums are deprived of this basic necessity and this is to be provided and taken into consideration on priority.

Limitations

Unfortunately, due to time and budget constraint, we could not extend this study by providing proper dietary recommendations and/or nutritional supplements to the study group. Pre and post-studies could have added the advantage to current study data.

Reference


