



OBSERVATION OF CLIMATE CHANGE AND SKIN DISEASES ALONG WITH VITAMIN A DEFICIENCY AND SCLERAL MELANOCYTOSIS AMONG RURAL PRESCHOOL CHILDREN IN MAVAL TEHSIL, M/S, INDIA.

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ABSTRACT:

A health survey of preschool children was carried with the aim of climatic change and general health of preschool children in rural areas of Maval Tehsil. Clinical observation and examinations were carried out undertrained surveyors. During survey 629 preschool children were examined for various health issues in relation due to climate change. The survey revealed skin diseases (4.9%), Prevalence of Vitamin A deficiency (8.73%) with night blindness (1.33%), xerophthalmia (1.3%), Bitot's spots (3.8%) and conjunctival xerosis (2.3%). The other health issues observed were Scleral melanocytosis (2.7%).

Keywords: Climate change, Preschool children, Skin diseases, Vitamin-A deficiency, Bitot's spots, Scleral melanocytosis.

INTRODUCTION:

Climate change is the major issues in India. It frequently encounters skin diseases in preschool children in India. The children with age group of one to seven are suffering from skin diseases. The most common skin diseases were infections (Kabir Sardana et. al., 2019). The National Oral Health Survey indicates that about 60% of prevalence of dental issues was among children of 3 to 5 age in India [Patil Snehal et al., 2015] and about 28 to 30% of total patients having skin diseases were children of the pediatric age group [GM Sangameshwara et.al., 2015].

VAD is a major nutritional problem in lower income countries. Vitamin A deficiency is widely prevalent in Africa, about 2% of preschool age children were found to be suffering from night blindness. Deficiency of VAD causes xerophthalmia ranging from milder stages of night blindness and Bitot's spots to

severe corneal xerosis or sometimes complete blindness [Zekariyas Sahile et.al., 2020]. VAD is required in adequate amounts for normal vision and immunity and it also helps in cellular growth and development [Amare Tariku et.al. 2016]. In Urban Central India it was found that 6.5% of children were suffering from xerophthalmia [Dr. Sinha et al., 2011]. Appearance of patchy gray, bluish black discoloration in sclera of eye indicates the scleral melanocytosis (Bang P., 2015). So, it was an urgent need to carry out a health survey of children in rural areas in Maharashtra.

MATERIALS AND METHODS:

A village survey was conducted from January 2019 to February 2020. Survey was carried out in and around a 13 km hilly region (18°43'40"N 73°28'55"E) of Maval Tehsil, M/S, India. The aim of survey was to assess health survey of preschool children of age group 3 to 7 years due

to climate change. Clinical observation and sub-clinical examinations were carried out under the trained surveyors. During survey 629 preschool children were examined for various health issues due to climate change. Parameters examined during the survey were skin diseases, presence of vitamin A deficiency (xerophthalmia, night blindness, conjunctival xerosis, Bitot's spots etc.) and Scleral melanocytosis etc. Photographs were taken with Sony cyber-shot DSC-W230 12 MP Digital Camera with 4x Optical Zoom. WHO guidelines were followed during the study. Collected data was analyzed with Microsoft Excel 2007.

RESULT AND DISCUSSION:

Sub-clinical examination of 629 preschool children of age group 3 to 7 years was carried out. Parameters examined during the survey were skin diseases, Vitamin A deficiency (xerophthalmia, night blindness, conjunctival xerosis, Bitot's spots etc.) and Scleral melanocytosis. Following were the results obtained during the study:

Skin diseases (4.9%), 8.73% prevalence of vitamin-A deficiency with Night blindness (1.33%), xerophthalmia (1.3%), Bitot's spots (3.8%) and conjunctival xerosis (2.3%). The other health issue observed was Scleral melanocytosis (2.7%).

The aim of survey was effect of climate change on the general health of preschool children. In the study it was observed that about 4.9% of the preschool children were affected by skin diseases. Most of the skin diseases observed in study area were by fungal diseases, bacterial and viral diseases. The fungal diseases may be growth of fungus on walls of school and houses. The average humidity observed in the area was 83%. The

humidity in environment allows the microbial growth. These microbes may cause severe skin infections (Leung A.K.C, 2009). Variation in climate may having a great impact on water-borne diseases which can also affect human skin (Nicola Balato et. al., 2014). Vaccination is an excellent option for protection from these microbes (NNMB, 2003). The children below ten years of age were the prime target of the Hand, Foot and Mouth diseases (HFMD) (Giramkar, 2020).

In the present survey we also reported many nutritional deficiencies in the preschool children. The high prevalence of Vitamin-A deficiency with Bitot's spots (3.8%), conjunctival xerosis (2.3%), night blindness (1.33%) and xerophthalmia (1.3%) were observed. These symptoms are the sign of VAD (Giramkar, 2021). Vitamin A is required for epithelial development. Deficiency of vitamin A causes Bitot's spots which may be a replacement of conjunctival epithelium to keratin layer. If vitamin A deficiency is removed, tissues return to their normal pattern (Giramkar, 2021). Many nutritionists believed that VAD has declined considerably in India (GM Sangameshwara et.al., 2015) but significant deficiency of vitamin A was observed in present study.

Scleral melanocytosis was also reported in present study. These were a grey-blue to black pigmentation in the white portion of the eyes with normal vision. Scleral melanocytosis is a common pediatric condition characterized by development of gray-blue pigmentation in the scleral tissues of the eyes (Giramkar, 2020). Histologically, these are the dendritic melanocytes, related to benign condition found common in Asian ancestries (Leung AKC., 1999). The scleral melanocytosis

are nevus of Ota, which is a melanosis that involves the appearance of patchy gray-blue or black discoloration of sclera to hyperpigmentation of entire area between the outer and inner layer of cornea and sclera, retina and optic nerve (Bang P., 2015).

CONCLUSION:

The present study revealed the skin diseases in preschool children due to climate change as well as prevalence of vitamin A deficiency with night blindness, xerophthalmia, Bitot's spots and conjunctival xerosis. The other health issues observed were Scleral melanocytosis among the preschool children. We brought parents attention on these health issues and created awareness about climate change, skin diseases and importance of vitamin A in diet. There is urgent need of further investigation and treatment on these health issues.

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Plate-3: Green arrows in images indicate Bitot's spots.

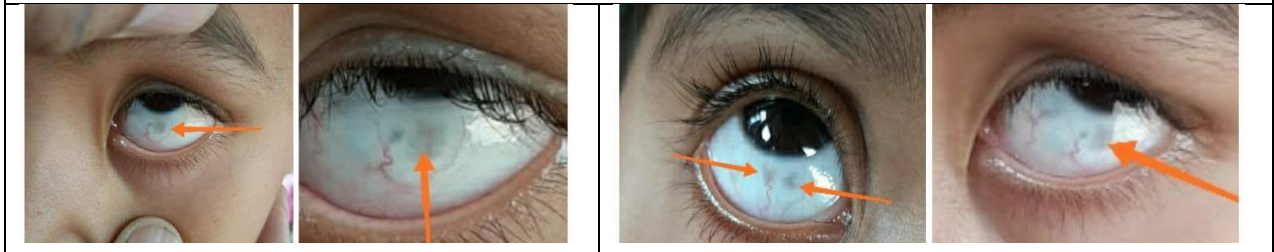


Plate-4: Orange arrows in above images indicate Scleral melanocytosis

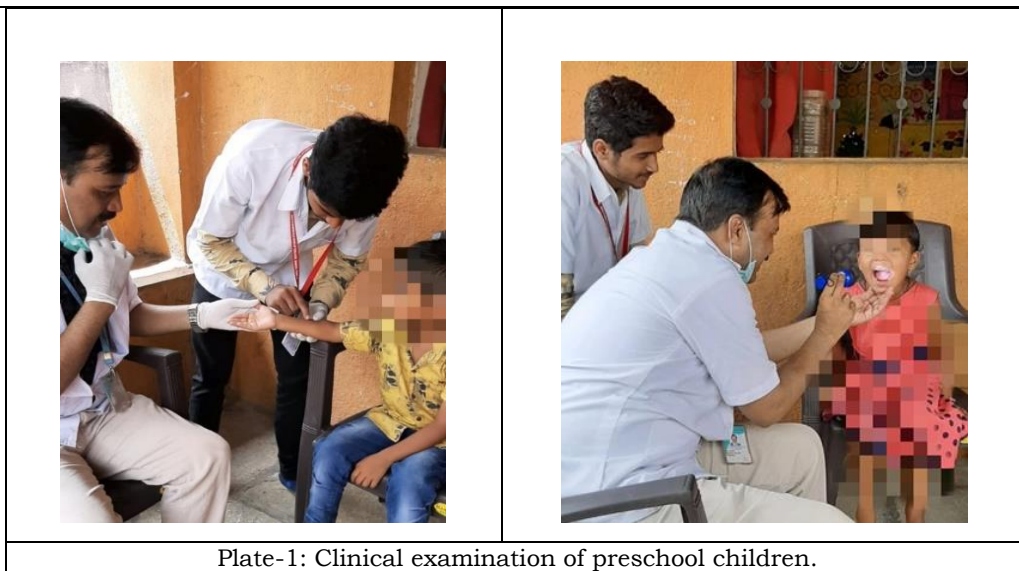


Plate-1: Clinical examination of preschool children.

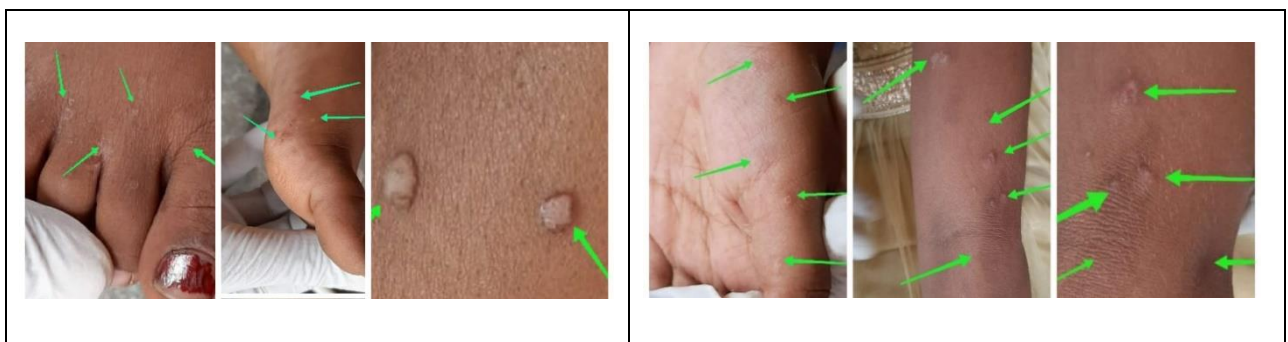


Plate-2: Green arrows in images indicates skin diseases in preschool children