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REVIEW ARTICLE

ROLE OF URBAN LIFE STYLE IN THE MANIFESTATION OF VICHARCHIKA (ECZEMA) – AN OBSERVATIONAL REVIEW

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Abstract

Urbanization in India is growing exponentially as a consequence of Globalization and economic development. The contributing factors of urbanization are availability of better opportunities for job, education, health services, housing and transportation. Despite these beneficial factors urbanization also poses many health hazards to humans. Vicharchika is one of them. This study is carried out with aim to determine the role of urbanization in the manifestation of vicharchika (eczema) and to found out solution to prevent the same. Habitat wise distribution of 268 patients of vicharchika (eczema) registered for various theses of IPGT & RA were analyzed statistically and found that out of 268 patients of vicharchika (eczema) registered for study in various theses, 179 patients were from urban habitat. The possible cause of this higher incidence of vicharchika in urban area is reviewed critically by going through various literature and information on internet. The causes of this high incidence are found to be due to the unhygienic availability, access and utilization of food articles in the cities. Inclination of urbanized people towards outside food is also a major cause of dietary incompatibility (Viruddha Ahara) which is a major cause of vicharchika (eczema). High level of stressors like violence, financial crisis, rising inflation rate, lack of social support etc also leads to abnormality of psychoneuroimmunological system leading to triggering and exacerbation of skin hypersensitivity like vicharchika (eczema). Future research potential in the field of urbanization and genesis of vicharchika (eczema) are also suggested.

Keywords: Urbanization, Vicharchika, Eczema

Introduction:

Globalization and economic development in India has brought about many social as well as geographical reforms like urbanization. Urbanization is an index of transformation from rural economics to modern industrial one. Availability of better opportunities for job, education, health services, housing and transportation are the factors contributing for rapid urbanization. In India number of urban town has grown from 1887 in 1901 to 5161 in 2001. Number of population residing in urban area has increased from 2.58 crores in 1901 to 28.53 crores in 2001¹.

Despite offering many opportunities, including potential access to better health care, today's urban environment has posed potential health risks and introduced new hazards^{2, 3}. Among various health risks allergic skin disorders like eczema is a major problem encountered by the urban people.

Vicharchika (eczema) is one of the type of the disease Kushtha (Skin disorder), which represent group of disorders under the umbrella of dermatological disorders. Eczema can be a distressing condition which is characterized by inflamed, itchy skin that sometimes develops into open bleeding sores. The main symptom is itching, and symptoms

can come and go. Although eczema is not contagious, it is very common. People with eczema often have a personal or family history of allergies⁴. It can appear at any age and affects approximately two to seven percent of the population. Estimates are that more than 15 million people in the United States have eczema⁵.

Lack of open spaces, pollution, hectic and stressful life, lack of access to hygienic and fresh food etc in urban life has made urban people vulnerable to eczema. The present study is carried out to access the incidence of vicharchika (eczema) in the urban people. Various theses conducted on the disease vicharchika (eczema) at I.P.G.T. AND R.A. have studied to obtain the percentage of patients suffered from this disease in urban and rural area. It is observed that out of 268 patients 200 patients were belonged to urban area. This data suggest that the environmental factors of urban area exert a great influence on the manifestation of vicharchika (eczema).

Aims and Objectives:

- To access the role of urban lifestyle in the manifestation of vicharchika (eczema).
- To identify the factors contributing the pathogenesis of vicharchika (eczema) in urban life

Materials and Method

Hand search and internet search. The thesis of all the study carried out on vicharchika (eczema) were accessed from ayurvedic research database compiled by Dr. Girish K.J. and published by I.P.G.T. & R.A., Gujarat Ayurveda University, Jamnagar and were reviewed critically. The number of patients belonging to rural and urban areas suffered from the disease vicharchika (eczema) were obtained and tabulated accordingly and statistical analysis was done to obtain the significance of percentage. Total 268 patients of vicharchika (eczema) were found to be registered in the various reviewed theses. These patients were tabulated according to the area of their residence classified as rural and urban areas. According

to null hypothesis, incidence of vicharchika (eczema) and area of residence are independent so the expected frequency (incidence) in each area should be the same. The variation in expected incidence and observed incidence is tested for significance by applying χ^2 test⁶. The pathogenesis of the disease vicharchika (eczema) is reviewed critically by studying the ancient classical text as well as modern literature and search on internet. The possible contribution factors of urban environment in the manifestation of vicharchika (eczema) were collected from search on internet and various literatures and possible preventive measures were suggested.

Literary review:

Urbanization

Urbanization is physical growth of urban areas as a result of global change⁷. Urbanization is closely linked to modernization, industrialization and the sociological process of rationalization.

More than half of the world's population is now urbanized but India is still largely a rural country. 65 to 70 % of the population still lives in villages⁸. However, as economic development shifts increasing numbers away from subsistence agriculture, the country is about to embark on a period of rapid urbanization. When the benefits of living an urban versus rural life are compared the things come to mind are better education, job opportunities, infrastructure medical facilities i.e. the factors that contribute to a better standard of living. But just like the saying that there are two sides to a coin, urban life has its own share of problems too, be it the lack of open spaces, pollution, increased cost of living, hectic and stressful lives that urban people lead⁹. These make the urban people vulnerable to many medical problems like obesity, infertility, depression, skin disorders like vicharchika (eczema) etc¹⁰.

Vicharchika

Vicharchika (eczema) is one of the variety of Kushtha. Kushtha represents the group of disorders categorizes under skin diseases. Vicharchika (eczema) is one among the minor

skin disorders (Kshudra Kushtha). It is characterized by blacking skin eruption, excessive itching along with exudation.^{11, 12}

The pathogenesis involved in the manifestation of Kusth Roga in general and Vicharchika in particular is vitiation of Tridosha (three morbid factors of the body) predominantly of Kapha Dosha. These Tridosha causes vitiation of Twak (the skin), Rakta (blood), Maamsa (muscle tissue) and Ambu (body fluids) to manifest Vicharchika (eczema)^{13, 14}

Eczema

The disease Vicharchika (eczema) closely correlates with the disease eczema. Eczema, or dermatitis, is a reaction pattern that presents with variable clinical and histological findings like erythema, edema, vesiculation, oozing, crusting and later lichenification¹⁵. It is the final common expression for a number of disorders, including atopic dermatitis, allergic contact and irritant contact dermatitis, dyshidrotic eczema, nummular eczema, lichen simplex chronicus, asteatotic eczema, and seborrheic dermatitis¹⁶. Eczema is a complex trait, that is, multiple interactions of genetic factors, environmental factors¹⁷, skin barrier disorders or immunological reactions contribute to its pathogenesis. There is considerable heterogeneity within the clinical phenotype of “eczema” and the disease is also likely to encompass significant etiological heterogeneity^{18, 19}.

A number of critical systemic and skin immune abnormalities, including increased serum IgE and sensitization to allergens, elevated Th2-type cytokine expression in acute lesions²⁰, increased numbers of T cells expressing cutaneous lymphocyte-associated antigen (CLA) (the homing receptor for the skin), increased expression of FcεRI (The high-affinity IgE receptor also known as Fc epsilon RI, is the high-affinity receptor for the Fc region of immunoglobulin E), an antibody isotype involved in the allergy disorder and parasites immunity)

on both Langerhans cells and inflammatory dendritic epidermal cells, as well as decreased expression of antimicrobial peptides are found to be associated with manifestation of eczema.

Epidermal barrier dysfunction²¹ is another major abnormality found to be associated with manifestation of eczema. The structural protein filaggrin (or, filament-aggregating protein) plays a key role in forming this protective barrier. Any disruption in the expression of this protein is likely to influence the effectiveness of our body's first line of defense. There is mutations in the FLG (filaggrin) gene that encodes for profilaggrin, a precursor of filaggrin, lead to epidermal barrier dysfunction. This forms the genetic basis of the disease eczema²².

Environmental factors²³ also play a major role in triggering immune deregulation and manifestation of eczema. It may be triggered and worsened by environmental factors such as: Skin irritants, including wool or synthetic clothing, soaps or detergents, cosmetics or perfumes, dust/sand, chemical solvents like chlorine, extremes in temperate or climate (cold or hot temperatures or dry air or extremely humid air), lack of moisturizing after bathing

Observations:

Total 11 theses were found on the disease vicharchika (eczema). 4 are from Panchakarma department, 2 are from ravyaguna department, 4 are from Kayachikitsa department and one thesis is from Rasa Shastra & Bhaisajya Kalpana department. Out of 11 theses, in two theses incidence of vicharchika (eczema) according to the habitat is not available.²⁴ In one thesis habitat is categorized as rural, urban, town and city. For the present review work the town and city are included in urban habited. In three theses habitat is categorized as Rural, Urban and Sub-urban. For the present review work sub-urban is included in rural habited. The habited wise distribution of patients of vicharchika (eczema) is given below-

Table – 1: Habitat wise distribution of Patients of vicharchika (eczema) in various theses.

		Rural	Urban	Town	City	Sub Urban	Total	
Ankur K Vadi ²⁵	DG-2007	10	5	5	15		35	
Kapil A. Pandya ²⁶	PK-2007	7	18			2	27	
Rajesh Sachdevani ²⁷	KC-2006	15	38				53	
Atul Satasiya ²⁸	KC-2004	10	13				23	
Sudha Nakum ²⁹	KC-2003	2	28			6	36	
Navneet Sharma ³⁰	DG-2002	9	11				20	
Meeta Mashru ³¹	RSBK-2001	10	16				26	
Seema Parekh ³²	KC-2001	2	18				20	
Bhimani Ketan ³³	PK-2005	5	12			11	28	
Chirag	PK-2009	Not Available						
Rajlakshmi Mg	PK-2005	Not Available						

Table – 2: Revised habitat wise distribution of patients of vicharchika (eczema)

		Rural	Urban	Total
Ankur K Vadi	DG-2007	10	25	35
Kapil A Pandya	PK-2007	9	18	27
Rajesh Sachdevani	KC-2006	15	38	53
Atul Satasiya	KC-2004	10	13	23
Sudha Nakum	KC-2003	8	28	36
Navneet Sharma	DG-2002	9	11	20
Meeta Mashru	RSBK-2001	10	16	26
Seema Parekh	KC-2001	2	18	20
Bhimani Ketan	PK-2005	16	12	28
Chirag	PK-2009	Not Available		
Rajlakshmi Mg	PK-2005	Not Available		
Total		89	179	268

Table 3: Habitat wise distribution of 268 Patients of vicharchika (eczema) as per the observed and expected frequency.

	Rural	Urban	Total
Observed Frequency	89	179	268
Expected Frequency	134	134	268
$\chi^2 = (89-134)^2/134 + (179-134)^2/134 = 4050/134 = 30.22$			

Out of 268 patients of vicharchika (eczema) registered for study in various theses 179 patients were from urban habitat. The calculated value of χ^2 at 1 degree of freedom is 30.22 which is much higher than table value of χ^2 at 0.001 probability level. Hence the difference observed regarding habitat for the incidence of vicharchika (eczema) is highly significant.

Discussion

Food security poses a great challenge in urban life style. The three fundamental components of food security availability, access and utilization is unhealthy leading to many health problems including allergy and eczema. A major part of the food available for urban people is not produced within city boundaries and is imported from distant places. Imported foods contain many preservatives and chemicals to prevent spoiling of food products³⁴. These chemicals may stimulate immune system to react abnormally to produce skin hypersensitivity and vicharchika (eczema).

Access to food in urban areas is dependent of case exchange. Purchased foods are great source of adulteration and sometimes they are spoiled. Ingestion of this type of food causes abnormal digestion and assimilation and production of Ama (partially digested harmful material for body). Reliance on purchased food is a leading factor in household food insecurity of poor urban population, who lack fixed income. This makes them mentally stressed and victim of many disorders of aberrant immunity like vicharchika (eczema).

Dietary habits and traditional meal patterns also differ in urban environments. To cater to busy urban lifestyles, cities offer access to a wide variety of food prepared outside the home; including street food and food served in restaurants and kiosks. Street food and food of restaurants are a major source of food incompatibility (Viruddha Ahara). Although a wider variety of food is available, the food consumed in urban areas is not necessarily of superior nutritional quality

and food safety is a growing concern in many urban environments.

Demographic transition of urbanization has brought about profound changes in social organization and in the pattern of family life. Urbanization affects mental health through the influence of increased stressors and factors such as overcrowded and polluted environment, high levels of violence, and reduced social support. Movement of rural people to urban area needs more facilities to be made available and infrastructure to grow. This does not happen in alignment with the increase of population hence, lack of adequate infrastructure increases the risk of poverty and exposure to environmental adversities. Further this also decreases social support as the nuclear families increase in number. Poor people experience environmental and psychological adversity that increases their vulnerability to mental stress. These stressors make the urban individuals more prone to psychosomatic diseases and abnormal functioning of psychoneuroimmunohumoral system leading to manifestation of skin disorders like vicharchika (eczema).

The essential services such as water supply, sanitation, drainage of storm water, treatment and disposal of waste water, management of solid and hazardous wastes, supply of safe food, water and housing are all unable to keep pace with rapid urban growth. All these in turn lead to an increase in the pollution levels. Also the unplanned location of industries in urban and sub-urban areas followed by traffic congestion, poor housing, poor drainage and garbage accumulation causes serious pollution problems. However, all these factors together not only lead to deteriorating environmental conditions but also have adverse effects on the health of people particularly various allergic disorders like vicharchika (eczema). The spread of green revolution has been accompanied by over exploitation of land and water resources and use of fertilizers and pesticides and fertilizers

have increased many folds. Leaching from extensive use of pesticides and fertilizers is an important source of contamination of water bodies. Intensive agriculture and irrigation contribute to land degradation particularly salination, alkalization and water logging. Contact with these chemicals has become a major cause of dermatitis and manifestation of eczema.

There has been a rapid expansion of cities at a rate much faster than that with which municipal environmental services are able to cope. Many cities lack an adequate sewage network. Solid waste disposal of the cities and accumulated waste and trash provide food and harborage for rodents³⁵. Breeding places exist for insect vectors of disease, particularly mosquitoes, and an abundance of solid organic waste provides food for rodents. The poor level of housing offers easy access to rodents. Contact with rodents and their excreta play a major role in skin hypersensitivity and manifestation of vicharchika (eczema).

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Conclusion: Although urbanization is an integral part of socio-economic growth, urbanization has also a major global health impact like higher incidence of allergic disorders like vicharchika. Urbanization contributes to the manifestation of eczema due to the unhygienic availability, access and utilization of food articles in the cities. Inclination of urbanized people towards outside food is also a major cause of dietary incompatibility (Viruddha Ahara) which is a major cause of eczema. High level of stressors like violence, financial crisis, rising inflation rate, lack of social support etc also leads to abnormality of psychoneuroimmunological system leading to triggering and exacerbation of skin hypersensitivity like eczema.

Extensive multicentre research should be carried out with large samples to confirm the role of urbanization to the incidence of vicharchika (eczema). Research design should be made to study the change in molecular level of skin immunity induced by urbanized lifestyles leading to manifestation of eczema.

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