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Original Research Paper

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PREVALENCE AND MASS MANAGEMENT OF SCABIES IN AN ORPHANAGE OF URBAN COMMUNITY OF PUNE, MAHARASHTRA

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ABSTRACT

BACKGROUND : Scabies is found among people of all ethnic groups, in both sexes, at all ages and at all socioeconomic levels. Hence it is an important health problem causing considerable discomfort and can result in severe secondary complications. It is usually associated with conditions of overcrowding, low socio economic levels, poor hygienic living conditions, inadequate nutrition and low level of awareness viz. orphanages, prisons, group homes etc.

AIMS AND OBJECTIVES: This study was carried out to study the prevalence of scabies in an orphanage of urban setting and to provide mass management to the infected children.

MATERIAL AND METHODS: The present study was undertaken in an orphanage located in a urban set up of Pune district of Maharashtra. The orphanage was housing 44 children of both genders. Case definition was considered before concluding final diagnosis of scabies clinically. A mass treatment strategy was planned using cheapest and readily available 25% benzyl benzoate lotion. Reapplication and follow up of all children was carried out. Health education regarding transmission and prevention of scabies was also provided to them.

RESULTS: Out of total 44 children, 33 (73%) were found to be infested with scabies.

CONCLUSIONS : Infestation of scabies can be well managed in mass by using a appropriate medication and improving the environmental components.

KEYWORDS : Mites, overcrowding, itching

INTRODUCTION

Scabies, also known as the seven-year itch, is a contagious, ubiquitous and debilitating parasitic dermatoses caused by the infection with female mite Sarcoptes scabiei.[1] The word scabies has been derived from a Latin word ' Scabere' means 'to scratch'. The mite burrows into the outer layer of skin ie. stratum corneum to live and deposit eggs. It forms a shallow burrow that looks like a pencil mark and the eggs hatch in to larvae in three to ten days.[2] The digestive secretions and feces of mites induce an immune reaction from the body resulting in itching and other symptoms of scabies.[3] In most people, the trails of the burrowing mites are linear or 'S'shaped often accompanied by rows of small pimples like mosquito or insect bites. Often only between ten and fifteen mites are involved in an infection.[4]

It occur more commonly in the developing world and in a tropical climate. Approx 300 million cases of scabies occur yearly throughout the world[5] and in India, its incidence ranges from 13% to 59% in rural and urban area[6]. It is one of the three most common skin disorders in children along with ringworm and bacterial infections.[7] and is equally common in both sexes. The young and the old are more commonly affected.[8]

Scabies is most often spread during a relatively long period of direct skin contact with infected person viz. sexual contacts. Spread of disease may occur even if the person has not developed symptoms yet. Less often it can be spread by sharing bedding or clothes and sometimes whole family is affected.[9] Pets and animals cannot spread human scabies.[1]

Scabies is seen mainly in person staying in a overcrowded place with very poor hygiene and sanitation state, not having adequate nutrition due to their low socio economic condition. Crowded living conditions such as that found in group homes, prisons, orphanages, child care centers etc increases the risk of spread.[10]

Because the host develops the symptoms as a reaction to the mites presence overtime, there is typically a delay of four to six weeks between the onset of infestation and the outset of itching[11] These symptoms can be present across most of the body or in just certain areas such as the wrist, between fingers , along the waistline, umbilicus, skin folds, groin and genital areas. Head is usually affected in young children and not in older children or adults. In younger children, the infection may be on the head, neck, shoulders, palms and soles of feet while in older children and adults, the infection may be on the hands wrists, genitals and abdomen.[12]

Crusted scabies is a more severe form of the disease and only occurs in those with a poor immune system and people may have millions of mites, making them much more contagious.[8] Scabies can result in severe secondary complications such as cellulites, bacteraemia, pyoderma, impetigo, glomerulonephritis.[13]

In the classic scenario, itching is usually experienced as being worse at night and is also made worse by warmth.[12] The symptoms are caused by an allergic reaction of the host's body to mite proteins. The allergic reaction is both of the delayed type (cell mediated) and immediate type (anti body mediated) and involves Ig E.[2]

The present study was undertaken in an orphanage located inside the city of Pune, Maharashtra state, in view of prevailing all predisposing conditions favoring development of scabies. It has been seen that scabies in orphanages are not uncommon and are slightly difficult to treat for the obvious reasons like delayed diagnosis, discontinuation of treatment, inadequate nutrition and associated infections. Considering these aspects, the examination of all the children of the orphanage was decided to be carried out along with appropriate treatment and follow up.

Keeping in view of above, this study was undertaken to assess the prevalence of scabies in an orphanage in a urban set up along with the mass treatment of scabies with a cheap and readily available drug and successive follow ups. Besides this, health education to all occupants and training to the working staff was also included in the study, in view of further management for new cases of scabies if develops in future.

MATERIAL AND METHODS

First of all, the orphanages located in urban areas of district Pune, Maharashtra state were identified and were visited personally by a team of three medical professionals having one community medicine specialist and all of them were educated by an entomologist of AFMC, Pune. Finally, an orphanage was selected for study having 44 children. It was selected on the basis of its adequate strength of children nearly of all age groups and finding of few suspected cases of scabies clinically on screening. After proper

explaining and convincing about the purpose of this study and benefits to the orphanage children, a written consent was obtained from the in-charge of that orphanage before initiating the study.

All the children having the orphanage and staff working there were examined thoroughly for any sign and symptoms of scabies. Contributing factors viz. overcrowding, poor hygiene and sanitation, nutritional status were also taken into account before finally diagnosing the case of scabies clinically. Other conditions were also considered for differential diagnosis purpose viz. drug eruptions, dermatitis, varicella, eczema, impetigo, insect bites, erythema multiforme etc.

For this study, the case definition for scabies was formulated as all cases presenting with following symptoms.

- Itching become worse most commonly at night.
- Pimple like rashes or burrows most commonly in between fingers or on other areas like wrist, elbow, waist, abdomen, buttocks, groin and genital region.
- Sores on the skin from scratching and digging.

A health strategy for mass treatment was planned for all the children along with the working staff of the orphanage. Considering the availability of all to be treated and chances of washing their hands, it was decided to carry out the mass treatment on a Sunday and after their dinner before they go for sleep. They were instructed to have a hair cut, nails trimming, shaving of axillary and pubic hairs in the morning of or one day prior to the scheduled date. The simultaneous treatment of all close contacts was recommended, even if they were not showing any symptoms of scabies in order to reduce the rate of recurrence. [7] Bedding, clothing and towels used during previous three days were asked to be washed in hot water and dried in a hot dryer. more washing is not needed as the mites does not live for more than three days away from human skin. [14]

All children and the working staff were treated in different rooms, separately one by one in a isolated space considering their sex and age and for the sake of their privacy too. Girl children and female working staff were treated by a lady medical officer and a lady health worker.

They were asked to remove their all personal clothing including undergarments and then after 25% benzyl benzoate lotion was applied. Proper care was taken to coat the entire skin surface not just only on symptomatic areas. It was applied from the neck and brushing it in downward direction in such a way that not a single patch of skin was left untreated. Special care was given while painting the skin folds, web spaces, umbilicus, waist region, buttocks and genital area. The lotion was allowed to dry up under the fan for about half an hour and then they were asked to wear the washed and hot air dried clothes. The lotion was left on for about twelve hours and then washed off in the next morning

Health education and training: Regarding transmission and prevention of scabies, necessary health education was carried out. Few older children were selected and along with all working staff they were trained properly by a member of medical team. After ly one day, they were again educated and trained when reapplication was carried out and again when the lotion was reapplied after one week interval for three weeks (three times).[15]

The children complaining of itching or burning sensation after application of benzyl benzoate lotion were treated with anti histamines. Besides the health education and training, following methods were also carried out for environmental hygiene purpose.

- All personal items of use were exposed to direct sun light for 5-6 hours.
- Cleaning of bathrooms and toilets with disinfectants.
- Scrubbing of walls and floors with bleaching powder solution.

RESULTS

Out of total 44 children, 31 (70%) children were male and 13 (30%) were female (table-1). Total children infested were 32 (73%) and out of which 23 (72%) were males and 09 (28%) were females. In the age wise distribution, 2 (6%) children were infected in the age group of less than 05 years, 8(25%) children in the age group of 5 to less than 10 years and 22 (69%) children in the age group of 10 to less than 15 years. In sex wise distribution, 02 males but no girl was infected in the age group of less than 5 years. O5 (22%) male and 03 (33%) female children were infected in the age group of 5 years to less than 10 years.16 (69%) male and 06 (67%) female children were infected in the age group of 10years to 15 years (Table-2). It was also noted that most of the children (16 ie.50%) were having generalized distribution scabies followed by infection in between inter phalangeal space (07 ie.22%) and then in the groin region (06 ie.19%) (Table-3).

All the children were followed up for another two weeks and final evaluation was undertaken at the end of six weeks. Reduction in symptoms was noted in 27 (84%) children within a week. None of the children had any sign and symptoms of scabies after second week of treatment and there was no relapse seen after six weeks.

DISCUSSION

In the study undertaken, it was seen that about 73% of the inmates of the orphanage were suffering from scabies and it was more prevalent in preschool and school age group children. Similar finding has been reported by Desai and Nair, who found a prevalence of 65% in age group of less than 15 years.[16] In this study prevalence was found more in male than female children but considering their number and percentage of infestation among their groups, difference was not very high (74% and 69% respectively). It commensurate well with the study of Vas.T, in which he found that scabies is equally distributed in both genders. [17] Overcrowding and unhygienic conditions as found in orphanages, prisons etc are major contributing factors in causation and spread of scabies. In a study conducted in a prison by Gupta et al, it was found that scabies accounted for 57.6% among prisoners. [18] In a study carried out by Obasanjo et al, it was noticed that a single case of scabies in a overcrowded population can cause an epidemic [19].

Various other options for the treatment of scabies are available viz local application of 5% permethrin cream, 1% lindane cream/ lotion, 10% crotamiton oint, 2-10% sulfur in petroleum base and oral ivermectin. [8,12,15] Oral ivermectin though comparatively expensive is highly effective in eradicating Scabies, often in a single dose. [7] but disadvantage is that it is not recommended for children under six year of age. [12].lindane is effective but concerns over its potential neurotoxicity[12]. Permethrin is the most effective treatment for scabies and remain the treatment of choice.[7] but sometimes BB lotion, sulphur preparation and crotamiton are recommended for children instead of permethrin due to concerns over its dermal absorption.[7] Ointment/ lotion used topically have certain limitations resulting sometimes in treatment failure like poor compliance, improper application of lotion/cream, faulty technique etc.

Though, there are number of medication effective in treating scabies, 25% benzyl benzoate lotion (commonly known as BB lotion) was used which is cheapest, readily available and not having any major side effects. It cured the scabies and also improved the patient symptomatically by reducing their itching and providing sound sleep in the nights. Beside this intervention, other method was health education. Community participation also helped a lot in mass treatment strategy adopted in this study. It is cost effective medication modality for mass treatment of scabies in the setups having high number of contributing factors for scabies viz overcrowding, poor hygiene practice. Where high incidents of scabies have been reported.

The finding of this study commensurate well with a study carried out in Nagpur, Maharashtra by Bachewar et al [20] in which

comparative study of three drugs 5% permethrin, tab ivermectin and 25%. benzyl benzoate lotion was carried out and benzyl benzoate was proved as best first line intervention in term of cost effectiveness.

Treatment of scabies in children not only improve quality of life but also reduce their school absenteeism. Therefore active participation of all persons at each level and community awareness and cooperation is needed in this regard.

CONCLUSION

Scabies is an important health problem due to its high prevalence in high risk population and its constant transmission throughout the year. The disease is associated with overcrowding, unhygienic living condition and a very low level of awareness. This study has clearly demonstrated that if mass treatment and follow up is carried out properly and environment components are improved along with health education and raising awareness among susceptible population, the incidence of scabies can be drastically reduced.

Table-1 Distribution of Orphanage children as their age and sex

Age group (in years)	Number and percentage	Males No %	Females No %
0 to < 5 yrs	05 (11)	05 (16)	00 (0)
5 to <10	14 (32)	09 (29)	05 (38)
10 to <15	24 (55)	16 (52)	08 (62)
15 to 20	01 (o2)	01 (03)	00 (0)
Total	44 (100)	31 (100)	13 (100)

Table- 2 Distribution of children infected by scabies

Age group (in years)	Infected children No %	Infected males No %	Infected females No %
0 to < 5 yrs	02 (06)	02 (09)	00 (0)
5 to <10	08 (25)	05 (22)	03 (33)
10 to <15	22 (69)	16 (69)	06 (67)
15 to 20	00 (0)	00 (0)	00 (0)
Total	32 (100)	23 (100)	09 (100)

Table- 3 Distribution of scabies as per site of infestation

Site of infestation	No %
Generalized	16 (50)
Web space	07 (22)
Wrist	02 (06)
Umbilicus	01 (03)
Groin region	06 (19)
Antecubital fossa	00 (0)
Antipopliteal fossa	00 (0)
Total	32 (100)

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