Original Article:

Topical Steroid Abuse in Children: A Glimpse from Bangladesh

Towhida Noor[1], Silveeya Chowdhury[2], Sharmin Jahan[3], Farhana Wahab[4], Humaira Afreen[5], Masrun Mostafa Chowdhury[6], Amit Guha[7], Noor Nabi Sayem[8], Fahmida Haque[9]

1. Consultant Dermatologist, Matador Diagnostic and Wellness Center, Dhaka
2. Consultant Dermatologist, Bangabandhu Sheikh Mujib Medical Universitiy, Dhaka
3. Consultant Dermatologist, Dhaka Medical College Hospital, Dhaka
4. Junior Consultant Dermatologist, Government Employees Hospital, Dhaka
5. Assistant Professor, Sir Salimullah Medical College & Mitford Hospital, Dhaka
6. Consultant Dermatologist, Addin BRH Medical College Hospital, Jurain, Dhaka
7. Consultant Dermatologist, Shaheed Taj Uddin Ahmad Medical College Hospital, Dhaka
8. Data Analyst, Department of Epidemiology & Research, National Heart Foundation of Bangladesh, Dhaka
9. Assistant Professor, Department of dermatology & venereology, Gonoshasthaya Shomajvittik Medical College Hospital, Dhaka

Abstract

Introduction: Irrational use of topical steroids in the pediatric age group is common in Bangladesh. Before consulting with a dermatologist for skin disease, parents tend to use medicine from a previous prescription, consult a quack or take medicine from the pharmacy shopkeeper. As there is no regulation on dispensing steroids over the counter, it is really hard to control steroid abuse.

Aim: The study aimed to observe how steroid abuse occurred, which steroids were abused more and common side effects due to abuse.

Material and method: This was a cross-sectional study conducted at the outpatient department of different government and non-government hospitals in Dhaka, Bangladesh over 3 months. A total of 150 steroid-abused children were enrolled.

Results: The most affected age group was 2 to 6 years. About 96% of the abuse occurred due to recommendation by non-dermatologists, 58% of which was by Quacks and pharmacy salesman, 19% by general practitioners and 17% by paediatricians. The most common topical steroid used by patients was potent e.g. betamethasone dipropionate (46%). Out of 150 patients, 103 (68.6%) used pure steroid cream while 47 (31.4%) used steroid cream in combination with either antifungal or antibacterial or both. The most common side effect observed was tinea incognito, impetigo, and eczema herpeticum.

Conclusion: Topical steroid abuse in children is very common in our country. The problem is worsening due to the easy availability of these medications even without a proper prescription. Every physician should have a good knowledge of steroids before prescribing them. Education of the general public through different communication media should be taken to reduce this abuse.

Keywords: Topical Steroids, Abuse, Children, Bangladesh

Introduction:

Topical steroids was first introduced in dermatology by Sulzberger and Witten in 1952. They first described the effect of compound F in selected dermatoses.[1] This compound F was later renamed as hydrocortisone. With the advancement of time, topical steroids are now available in different potencies and also in the form of combination with antibiotics and antifungals. Effective prescription of topical steroids requires adequate knowledge of steroid potency, duration of application and where to apply in which formulation.

Comparing the anatomy of pediatric and adult skin,

Corresponding author
Dr. Towhida Noor, MBBS, MD, Consultant Dermatologist, Matador Diagnostic and Wellness Center, Dhaka. Bangladesh. Email: noortowhida@rocketmail.com

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epidermis is thinner and the rate of water absorption, desorption and trans-epidermal water loss is higher in pediatric skin.[2] So they require low-potency steroids. The inappropriate potency of steroids results in the appearance of side effects.

In 1963, the first publication on the side effects of steroids was published.[3] The first side effect in the pediatric age group was documented in a child with psoriasis where parents applied potent topical steroids so compulsively that the child developed atrophy of the skin and died of adrenal failure.[4]

Steroid abuse in children is not so rare in Bangladesh. Before being referred to a dermatologist for the skin problem, they are misled by quacks, pharmacy salesmen, general practitioners, as well as paediatricians. Without adequate knowledge of potency and efficacy, steroids should not be advised. This results in unwanted adverse effects and sometimes iatrogenic Cushing. This is mostly seen in infants where potent steroids are prescribed for diaper dermatitis. Satter H et al published a study on iatrogenic cushing in children using diapers and found out that using potent steroids as diaper rash cream was responsible. This is a major problem in developing countries as there are no guidelines on dispensing over-the-counter drugs.[5]

It was really sad to learn that, there is still no research article or any case report on topical steroid misuse in children of Bangladesh. This is unfortunate to publish this research work as the very first paper on topical steroid misuse in the country.

Materials and Methods

We conducted a cross-sectional study, over 3 months (from January 2023 to March 2023) at different dermatology outpatient departments and clinics in Dhaka. We used a pre-validated structured questionnaire. A total of 150 children of steroid abuse were enrolled. Steroid abuse was diagnosed by a dermatologist by history of steroid application as evidenced by either previous prescription, appearance of steroid-induced adverse effects or the medicine brought by the parents. The children were divided into neonates, infants, young and older children, and adolescents. The person who prescribed the medicine first was documented along with the potency of the steroid applied, duration of application and adverse effects of the steroid that were observed. Striae, atrophy, telangiectasia, acne, Rosacea, hypertrichosis, perioral or periocular dermatitis, tinea incognito, majocchi's granuloma, infantile gluteal granuloma, eczema herpeticum, molluscum contagiosum, warts, exacerbation of impetigo, folliculitis and none were taken into account. The potency of the steroids was classified as mild potent: hydrocortisone, fluocinolone acetonide; moderate potent: clobetasol butyrate, betamethasone valerate 0.025%, mometasone, potent: betamethasone valerate 0.1%, betamethasone dipropionate; very potent: clobetasol propionate, halobetasol.

After completion of data collection, analysis for descriptive statistics of the responses was done by IBM SPSS statistics (version 25.0).

Result

The most affected age group was young children and adolescents. Out of 150 patients, 96% of the patients recommended topical steroids by non-dermatologists, among them 58% by quacks and pharmacy shopkeepers (Fig1). Adverse effects were observed in 85 (56.6%) patients out of 150. The most common side effects were tinea incognito (20%), impetigo (14.6%) and eczema herpeticum (12.6%) (Table 3). The most common topical steroid used by patients was potent e.g. betamethasone dipropionate (46%) (Fig 2). Out of 150 patients, 103 (68.6%) used pure steroid cream while 47 (31.4%) used steroid cream in combination with either antifungal or antibacterial or both.

Table 1: Distribution of the patients according to age

Age group	Frequency	Percent
Neonates (birth up to 1 month)	3	2.0
Infants (1 month up to 2 years)	40	26.7
Young children (2 up to 6 years)	43	28.7
Older children (6 up to 12 years)	21	14.0
Adolescent (12 up to 18 years)	43	28.7
Total	150	100.0

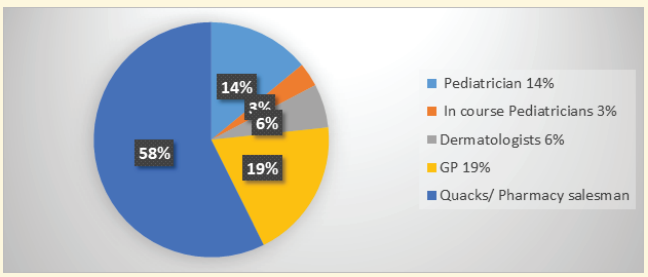

Fig: 1 Frequency of topical steroid prescription inappropriately

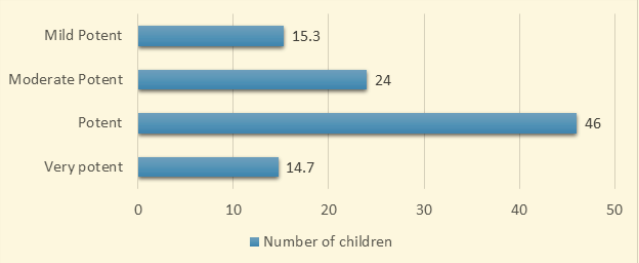

Fig: 2 Distribution of topical steroid abuse according to potency

Table 2: Distribution of patients according to adverse effects observed:

	Adverse effects	Frequency	Percent
1	Atrophy	6	4
2	Striae	4	2.6
3	Telangiectasia	7	4.6
4	Hypertrichosis	7	4.6
5	Acne	18	12
6	Roasacea	2	1.3
7	Perioral or periocular dermatitis	6	4
8	Tinea incognito, majocchi's granuloma, infantile guteal granuloma	30	20
9	Eczema herpeticum, molluscum contagiosum, warts	19	12.6
10	Exacerbation of impetigo, folliculitis	22	14.6
11	Hypopigmntation	12	8
12	None	17	11.3

Discussion

Topical steroids have mostly been used by dermatologists since their introduction in 1951. Their anti-inflammatory action works like magic in several dermatoses. However, they are also considered as double-edged sword as they require careful handling by the provider and the recipient also for safe and effective use.

Uncontrolled use (abuse) of steroid medications has led to many different adverse reactions from the very beginning. Rebound vasodilatation and proinflammatory cytokine release have been proposed as the mechanism for most adverse reactions.[6]

Misuse of steroids in children is common in Bangladesh though adverse effects and safety of topical steroids are clearly stated in the medical literature. The main problem is that patients can buy steroids as OTC drugs without any prescription. Patients also try to save money by consulting with quacks or pharmacy shopkeepers instead of doctors and end up spending more money to overcome the adverse effects. They also think that all skin diseases are the same and same medicine can do magic for every disease. This situation is not so different from our neighbouring country India.[7] If they were fortunate, they might get cured but most patients had to suffer the unwanted effects. Topical steroid is widely used as a whitening cream in adolescents. Continued use of topical steroids results in acneiform eruption, hypertrichosis, hypopigmentation and rosacea. The appearance of side effects depends on the potency of the steroid used, duration and site of application.[6]

A total of 150 children were included in this study. To define topical steroid abuse or unjustifiable use following criteria were taken into account: wrong indication, undiagnosed dermatoses, inappropriate potency, and using more than prescribed duration. The children were divided into neonates, infants, young and older children, and adolescents' age groups. The most common age groups were young children (28.7%) and adolescents (28.7%). This is probably because young children start to move around more, and begin their school, while adolescents begin to have their androgen effects and become conscious about their appearance. A similar study was done in Iraq and the common age was 10-19 years.[8-9] The most common indication was dermatophytosis, scabies, eczema, and acne. The use of steroids as skin-lightening cream was the most common reason for use in Iraq and India.[8-9] Adverse effects were observed in 85 (65.6%) patients. The most frequent side effect which was seen in our study was Tinea incognito (20%) followed by an exacerbation of impetigo (14.6%), acneiform eruption (12%) and eczema herpeticum (12.6%). Similar studies done by Saraswat et al and Al-Dhalimi et al had acne as the most common side effect as topical steroids were commonly used as a fairness cream.[8-9]

Betamethasone dipropionate was used in 46% of the children and Betamethasone valerate in 24% of the total cases. Hydrocortisone was the other common steroid used in combination with antifungals and antibiotics. Bet CL, Betameson and Betnovate were the popular brand names which were used by parents. In Iraq, clobetasol propionate (42.1%) was the most commonly used steroid while betamethasone valerate (26.4%) was the second most common.[9] Again the study done by Saraswat et al. found betamethasone valerate (50.1%) was the most commonly used topical steroid.[9] Another study in India by Mishra et al. showed that clobetasone

propionate was mostly abused followed by betamethasone velarate. Again Santwana Mahar et al conducted a study and found that betamethasone valerate (72.8%) followed by the use of a topical combination of clobetasol propionate, anti-biotics and antifungals (18.4%) were commonly abused.[10]

Most parents used topical steroids for a period of 1 to 2 months and then consulted Dermatologist due to either no improvement or aggravation of the primary disease. The principal portion of inappropriate topical steroids was prescribed by Quacks or a pharmacy salesman and is about 57.3% and the rest by a medical practitioner. Out of the rest, 14% of patients used topical steroids recommended by a paediatrician, 22.6% by a general practitioner, and 6% by a dermatologist. In India, Mishra et al revealed that 29% of patients using topical steroids were recommended by a friend or pharmacist and 71% by a medical practitioner. Out of these 71%, most of the prescriptions were by dermatologists (54%) followed by physicians (16%) and general practitioners (1%). A study done on topical steroid abuse on the face by Saraswat et al showed that 59.3% of the total patients had used topical steroids on recommendation without a valid medical prescription8 In the study of Mishra et al., it was observed that adverse effects were more often seen in patients of non-dermatologists. Similar findings were observed by Al Dhalimi et al. in Iraq where potent steroids were prescribed by both the groups.[9] Sheth et al also found out that most of the abuse was caused by general practitioners.[11] This is due to a lack of knowledge of the potency of topical steroids, where to apply and how long can be used. This leads to misuse of steroids.

There are very few studies on steroid abuse, especially in children. Because most of the developed countries have regulations and steroids cannot be sold without a prescription. The steroid abuse is more prevailing in Southeast Asian countries like India, Bangladesh, Nepal and some Middle east countries due to lack of government regulation on selling steroids. A large portion of people in Bangladesh take treatment primarily from quacks or pharmacy salesmen. Most of these quacks and salesman use to imitate dermatologist's prescription anyhow without knowing why steroid is given. On the other hand, there is a tendency not to refer patients to dermatologists for skin problems in paediatricians. Again one can buy a steroid preparation without having a prescription and this has allowed many of these brands to become household names. Parents are unaware of the side effects posed by these drugs and tend to use them for long periods before consulting a dermatologist.[12]

Conclusion

Topical steroid abuse in children is worsening due to the easy availability of these medications even without a proper prescription. Abuse is mostly done by quacks and pharmacy salesmen and also paediatricians and dermatologists to some extent. This study was to be aware of how steroids are being abused in the pediatric age group. Along with educating the general public through different communication media, regulations should be made to stop over-the-counter selling of steroids.

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Conflicts of interest

There are no conflicts of interest.

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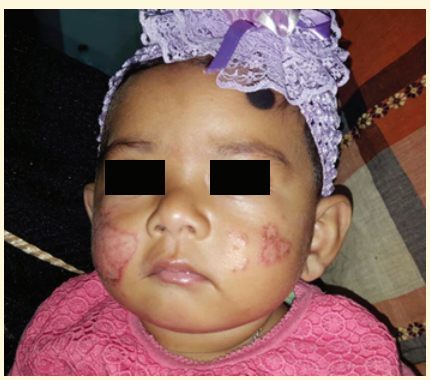

Fig 03(b): Tinea incognito

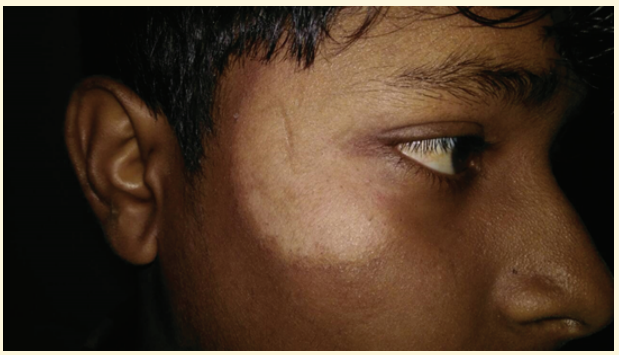

Fig 04. Steroid induced hypopigmentation

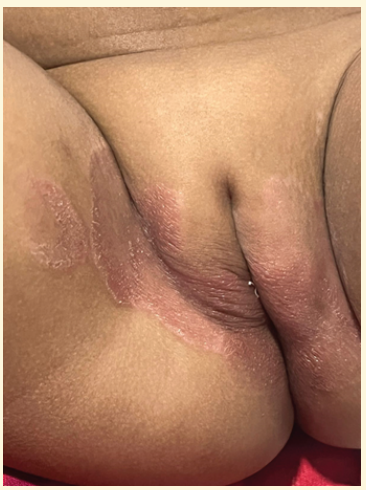

Fig. 05. Aggravation of tinea cruris following application of steroid for diaper dermatitis