Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i18.3384

CLINICOEPIDEMIOLOGICAL PROFILE OF HYPOPIGMENTARY DISORDERS IN PEDIATRIC AGE GROUP

Dr. Garg Vikarn,[1] Dr. Manisha Nijhawan,[2] Dr. Manish Rijhwani,[3*] Dr. Sankalp Awasthi,[4] Dr. Shivi Nijhawan[5], Dr. Divya Yadav[6]

[1]Senior Resident, Department of Skin and VD Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India
[2]Professor and Head, Department of Skin and VD Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India
[3*]Associate Professor, Department of Skin and VD, Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India
[4]Professor, Department of Skin and VD, Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India
[5]Assistant Professor, Department of Skin and VD, Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India
[6]Junior Resident, Department of Skin and VD, Mahatma Gandhi Medical College and Hospital, Jaipur (Rajasthan) India

***Corresponding Author**
Dr. Manish Rijhwani (mrlr1998@hotmail.com)

Abstract

Introduction: Skin diseases are a major health problem in the pediatric age group. Skin diseases constitute 30% of all visits to a pediatrician and 30% of all visits to a dermatologist involve children. The prevalence of pediatric dermatoses in various parts of India has ranged from 8.7% to 35% in school-based surveys.

Methods: This was a hospital based observational study carried out at the outpatient department of Skin and VD at Mahatma Gandhi Medical College and Hospital, Jaipur. The period of study was for 1.5 years from January 2020 to June 2021. A total of 200 patients in the pediatric age group were included. Patients included in the study were all patients of both genders between 0-18 years presenting with hypopigmented disorders, while patients excluded were those presenting with depigmented disorders.

Results: In our study, majority of the children were boys (108, 54%) while 92 (46%) were girls. The most common hypopigmentary disorder seen was pityriasis alba in 56 (28%) children, followed by pityriasis versicolor in 55 (27.5%), postinflammatory hypopigmentation in 29 (14.5%), seborrheic dermatitis in 23 (11.5%), polymorphous light eruption in 21 (10.5%), and lichen striatus in 4 (2%). Nevus depigmentosus, Hansen's disease and previtiligo were seen in 3 (1.5%) each. Hypomelanosis of ito, guttate morphea, and lichen sclerosus were seen in 1 (0.5%) child each.

Conclusion: The study has highlighted that the most common hypopigmentary disorder in the pediatric age group is pityriasis alba (28%), out of which many were atopics, followed by pityriasis versicolor (27.5%).

INTRODUCTION

Skin diseases are a major health problem in the paediatric age group. Skin diseases constitute 30% of all outpatient visit to a paediatrician and 30% of all visits to a dermatologist involve children. The prevalence of paediatric dermatoses in various parts of India has ranged from 8.7% to 35% in school-based surveys. Dermatoses in children are more influenced by socio-economic status, climatic exposure, dietary habits and external environment as compared to adults[1]. Skin color is an important visible sociocultural characteristic of an individual and any deviation from the normal pattern of pigmentation results in significant concerns. Pigmentary disorders are believed to be the commonest group of dermatoses in paediatric age group. Pigmentary disorders in children are somewhat different from those in the adults in terms of etiology (pigmentary alterations due to genetic disorders are more commonly encountered in the children) and heightened parental concerns[2]. The most common disorders of hypopigmentation in children are pityriasis alba, vitiligo, nevus depigmentosus, and tinea versicolor[3].

AIMS AND OBJECTIVES

1) To find the incidence of various cutaneous hypopigmentary disorders in children
2) To study the clinical pattern of hypopigmentary disorders in children

MATERIALS AND METHODS

This was a hospital based observational study carried out at the outpatient department of Skin and VD at Mahatma Gandhi Medical College and Hospital, Jaipur. The period of study was for 18 months from January 2020 to June 2021. A total of 200 patients in the paediatric age group were included.
Patients included in the study were all patients of both genders between 0-18 years presenting with hypopigmented disorders and those giving consent for the study. Excluded from the study were those not giving consent for the study and patients presenting with depigmentary disorders. After receiving consent from the patient, demographic details including occupation and address were noted. A thorough history including onset, progress, and duration of lesions was taken. Cutaneous examination was performed which included morphology of lesions (site, size, shape, ill/well defined), and examination of other sites of involvement including scalp, genitals, and mucous membranes.
Systemic examination, which included respiratory, gastrointestinal, cardiovascular, and central nervous system, was done and noted. Associated disease, if any, was correlated.
In all patients, tests like complete blood count and urine examination were done. Special tests like potassium hydroxide mount, Wood's lamp, slit skin smear, and thyroid stimulated hormone were carried out wherever required.

RESULTS

In our study, majority of the children were boys (108, 54%) while 92 (46%) were girls, making the male : female ratio 1.17:1. The number of children belonging to urban population were 145, while those belonging to rural population were 55. Out of the 200 children, most were from the age group 13-18 years (108, 54%), 49 (24.5%) between 7-12, and 43 (21.5%) between 0-6 years.
The most common hypo-pigmentary disorder seen was pityriasis alba in 56 (28%) children, followed by pityriasis versicolor in 55 (27.5%), post-inflammatory hypopigmentation in 29 (14.5%), seborrheic dermatitis in 23 (11.5%), polymorphous light eruption in 21 (10.5%), and lichen striatus in 4(2%). Nevus depigmentosus, Hansen's disease and previtiligo were seen in 3 (1.5%) each. Hypomelanosis of ito, guttate morphea and lichen sclerosus were seen in 1(0.5%) child each.

In the patients with pityriasis alba, 32 (57.1%) were boys and 24 (42.9%) were girls. The most common site affected was the cheeks, seen in 48 (85.7%), followed by face in 4 (7.1%), trunk in 3 (5.4%), and extremities in 1 (1.8%). Pruritus was seen in 9 (16.1%) children. 13 (23.2%) patients had pityriasis alba due to atopic dermatitis as a primary disease. 5 (8.9%) children had white scaling over lesions. Aggravation due to sunlight was seen in 1 (1.8%) child.

In the patients with Pityriasis versicolor, 31 (56.4%) were boys and 24 (43.6%) were girls. The most common site affected was the neck in 17 (30.9%) children, chest in 13 (23.6%) children, back in 10 (18.2%), upper extremities in 8 (14.5%), face in 4 (7.3%), and trunk in 3 (5.5%), Branny scaling was seen in majority of children (38, 69.1%). 17 (30.9%) children showed aggravation due to humidity, out of which exclusive humidity was seen in 15, and along with heat and exercise in 1 each. Majority of children (36, 65.5%) were asymptomatic, while pruritus was seen in 19 (34.5%) children. Summer variation was seen in 15 (27.3%) children. Wood's lamp was done in 54 children, out of which 53 (98.1%) showed yellow white fluorescence. KOH examination was done in 16 (29.1%) children which showed characteristic banana and grapes appearance.

Out of the 29 patients with postinflammatory hypopigmentation, 18 (62.1%) were male, while 11 (37.9%) were female. The most common cause of postinflammatory hypopigmentation was atopic dermatitis in 20 (69%) children, followed by idiopathic in 5 (17.2%), and lichen planus in 2 (6.9%). Postinflammatory hypopigmentation due to herpes zoster and psoriasis was seen in 1 (3.4%) child each. Pruritus was seen in 13 (44.8%) children.

21 patients presented with PMLE, out of which 12 (57.1%) were boys and 9 (42.9%) were girls. 13 (61.9%) patients were in the age group 13-18, 7 (33.3%) children were between 7-12 years of age, and 1 (4.8%) between 0-6 years of age. The most common site involved was the extensor of forearms seen in 6 (28.57%), followed by dorsum of hands in 4 (19%), cheeks and trunk in 3(14.28%) each, and face in 2 (9.5%). Back, neck, and upper arm were involved in 1 (4.8%) each. Majority of children were asymptomatic (12, 57.1%) while 9 had pruritus (42.9%). 14 (66.7%) children had aggravation to sunlight.

Seborrheic dermatitis was seen in 23 (11.5%) patients, with insidious onset in all. 9 (39.1%) patients were males and 14 (60.9%) patients were females. The most common site was face in 9 (39.1) patients, followed by forehead (6, 26.1%), scalp (4, 17.4%), neck (3, 13.0%), and retroauricular area (1, 4.3%). 8 (34.8%) patients had lesions with greasy scales. No patients had any aggravating factors. 8 (34.8%) patients had symptoms of pruritus while 15 (65.2%) patients were asymptomatic.

Lichen striatus was found in 4(5%) children. Out of the 4, 3 (75%) were boys and 1 (25%) was a girl. All of them were from urban areas. Out of three boys, two had linear hypopigmented patches over both legs measuring 2x2 cm for 1 year duration, and one had a linear hypopigmented patch over the right leg measuring 3x2 cm. One girl had few macules and a linear patch measuring 1x1 cm over the left leg.

Nevus depigmentosus was found in 3 (1.5%) children . Two children were between 12-16 years, while one child was 1 year of age. 2 children were boys from urban areas while one was a girl belonging to rural area. The lesions were well defined, serrated hypopigmented patches size on left side of chin, leg and face each. Wood's lamp was done in one patient which showed the same color over the lesions as well as the surrounding area.

Hansen's disease was seen in 3 (1.5%) patients. 2 (66.7%) children were boys and 1 (33.3%) was a girl, with male to female ratio of 2:1 Both boys were 14 years of age, while one girl was 3 years of age. All three children were diagnosed with BT pole hansen's disease. One child had thickening of left ulnar nerve. Of the three, 2 children presented with hypoanesthetic annular plaques of variable sizes over the arms, out of which one child had enlargement of the left ulnar nerve. One child presented with a round patch of size 1 x 2 cm. None of the patients were in reaction or had any deformity.

Previtiligo was seen in 3 (1.5%) patients between 5-12 years of age. All 3 patients were female, and all were from urban areas. 2 children had asymptomatic hypopigmented patches over the face and arms, while 1 child had a hypopigmented patch over the extremites. Oval patches were seen in two children, while round patches were seen in one child. Both children aged 5 yrs had lesions for a duration of 1 year, while one child aged 12 years had lesions for 6 months. None of the patients were symptomatic or had any systemic manifestations.

Hypomelanosis of ito, guttate morphea, and LSCh was observed in one patient each.

Table 1 Frequency of hypopigmentary disorders

Disease	No.	%
Pityriasis alba	56	28
Pityriasis versicolor	55	27.5
Postinflammatory hypopigmentation	29	14.5
Seborrheic dermatitis	23	11.5
PMLE	21	10.5
Lichen striatus	4	2
Hansen's disease	3	1.5
Previtiligo	3	1.5
Nevus depigmentosus	3	1.5
Hypomelanosis of ito	1	0.5
Guttate morphea	1	0.5
Lichen sclerosus	1	0.5

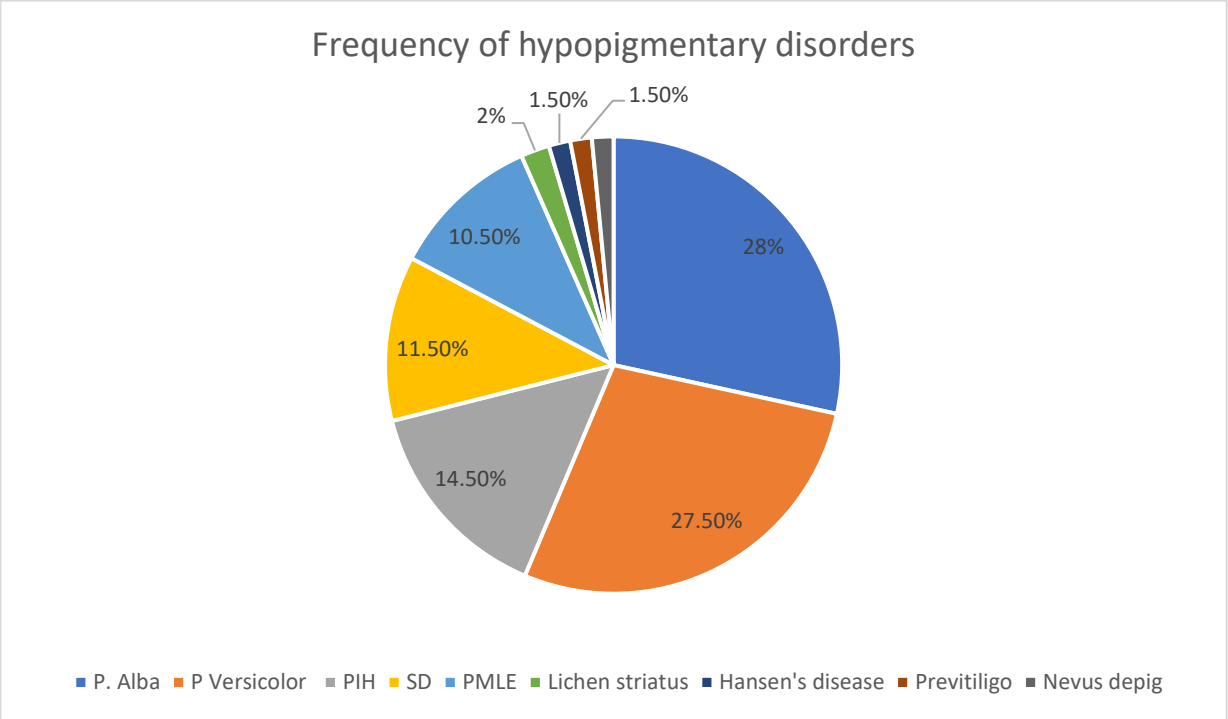


Table 2 Sex Wise Distribution

Sex	No.	%
Male	108	54
Female	92	46

Table 3 Age Wise Distribution

Age Group	No.	%
13-18 yrs	108	54
7-12 yrs	43	21.5
0-6	49	24.5

Table 4 Site Distribution of Pityriasis alba

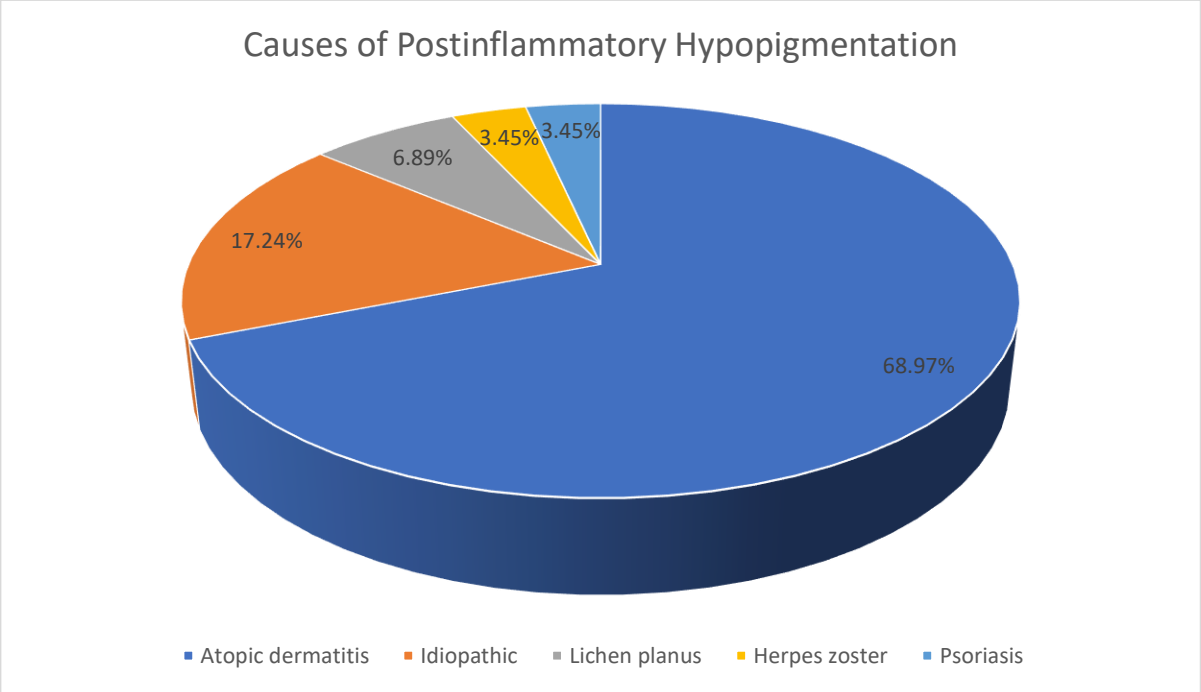
Site	No.	%
Cheeks	48	85.7
Face	4	7.1
Trunk	3	5.4
Extremities	1	1.8

Table 5 Site distribution of Pityriasis versicolor

Site	No.	%
Neck	17	30.9
Chest	13	23.6
Back	10	18.2
Extremities	8	14.5
Face	4	7.3
Trunk	3	5.5

Table 6 Causes of Postinflammatory hypopigmentation

Cause	No.	%
Atopic dermatitis	**20**	**69**
Idiopathic	**5**	**17.2**
Lichen planus	**2**	**6.9**
Herpes zoster	**1**	**3.45**
Psoriasis	**1**	**3.45**



Pityriasis alba

Lichen striatus

Hansen's disease

Previtiligo

Nevus depigmentosus

Hypomelanosis of Ito

DISCUSSION

The purpose of this study was to observe the various hypopigmentary disorders in children. In our study, majority of the children were boys (108, 54%) while 92 (46%) were girls. This male preponderance of hypopigmentary disorders was also seen in a study by Soni et al[4], with 154 (51.33%) male and 146 (48.66%) female patients. Contrary to this, a study by Deepadarshan et al[5] did not show any significant difference between the number of male and female patients in which there were 98 males (49%) and 102 females (51%).

Our study showed that the number of urban patients (145, 72.5%) was more compared to the number of rural patients (55, 27.5%) (**Table 2**). Most of the patients with hypopigmented lesions were between 13-18 years of age (108, 54%) followed by 0-6 years age group (49, 24.5%), and 7-12 years(43, 21.5%) (**Table 4**). Similar results were seen in a study by Deepadarshan et al[5].

In our study majority of the children were between 13-18 years of age (108, 54%). This was similar in a study by Mavoori[6], with majority of children between 12-18 yrs (421, 31.25%).

In our study, the most common cause of hypopigmentation was pityriasis alba (56, 28%) followed by pityriasis versicolor (55, 27.5%), postinflammatory hypopigmentation (29, 14.5%), polymorphous light eruption in 21 (10.5%), seborrheic dermatitis in 23 (11.5%), lichen striatus in 4 (2%), nevus depigmentosus, Hansen's disease and previtiligo in 3 (1.5%) each. Hypomelanosis of ito, guttate morphea, and lichen sclerosus were seen in 1 child each. This was similar to a study by Babu et al[7], in which pityriasis alba was seen in 35 (28.9%).

In the number of children with pityriasis alba, majority were boys (32, 57.1%). This was contrary to a study by Nijhawan et al[8] in which there were 35 (61.4%) girls. The most common site affected was the cheeks, seen in 48 (85.7%). Only few patients had pruritus (9,16.1%). This was more than the number of patients with pityriasis alba in a study by Sori et al[2].

In our study, majority of children with pityriasis versicolor were males, which was also seen in a study by Jena et al[9]. The most common site affected was the neck in 17 (30.9%) children. However this was contrary to a study by Kambhil[10], in which face was the most common site. Majority of

children were asymptomatic, which was contrary to a study by Kaushik et al[11]. In our study, Wood's lamp examination was done in all patients out of which 53 (98.1%) showed yellowish fluorescence. Our results exceeded the ones shown by Shah et al[12], in their study 88.48% were Wood's lamp positive.

Out of the 29 patients with postinflammatory hypopigmentation, 18 (62.1%) were male, while 11 (38.9%) were female. The most common cause of postinflammatory hypopigmentation was atopic dermatitis in 23 (79.3%) children. Male preponderance was also seen in a study by Sudheer et al[13]

In our study, out of the 23 patients with seborrheic dermatitis, there was a male preponderance. The most common site was the face.

In our study, 21 patients presented with PMLE, out of which majority were boys. This was contrary to a study by Manthale et al[14], where there was a female preponderance. The most common site involved was the extensor of upper limbs seen, which was contrary to a study by Verma et al[15].

Nevus depigmentosus was found in 3 children. Majority of children were male. This was less than the findings seen in a study by Hewedy et al[16]

Lichen striatus was found in 4 children. Male preponderance was seen with a ratio of 3:1. All children had involvement over the lower limbs, out of which two had bilateral involvement. This was contrary to a study by Das et al[17].

Hansen's disease was seen in 3 children. All were males with BT pole Hansen's. There was a similar finding in a study by Adil et al[18].

Previtiligo was seen in 3 children, who were all girls. 2 children had asymptomatic hypopigmented patches over the face. None of them were symptomatic. This was contrary to a study by Deepadarshan et al[5], where all the patients were boys.

Hypomelanosis of Ito was seen in one child aged 2 years, who showed a whorled hypopigmented patch over the left chest along the lines of Blaschko. There were no systemic manifestations. This was similar in a study by Keen[19]

Guttate morphea was seen in a girl aged 10 years, and presented with hypopigmented macules over the elbows, and was asymptomatic. This was a contrary to a study by Blaya et al[20], in which there were multiple lesions seen in a girl.

Lichen sclerosus was seen in a single child who had hypopigmented plaque over the genital area associated with pruritus. This was similar to a study by Novis et al[21]

CONCLUSION

The study has highlighted the most common hypopigmentary disorder in the pediatric age group is pityriasis alba (28%), out of which many were atopics, followed by pityriasis versicolor (27.5%) Other causes of hypopigmentary disorders in decreasing order are postinflammatory hypopigmentation, seborrheic dermatitis, polymorphic light eruption, lichen striatus, nevus depigmentosus, and Hansen's disease. Males are most commonly affected, but not markedly than females.

The most common cause of postinflammatory hypopigmentation is atopic dermatitis, the next being idiopathic, while the least common is herpes zoster and psoriasis.

The least common hypopigmentary disorders are lichen sclerosus, Hypomelanosis of ito, and guttate morphea.

Hypopigmentary disorders are usually benign and not a cause for concern. Patient education about various types of hypopigmentary disorders is very important in providing awareness, thus helping in prevention and control of these disorders. Important points include explanation of pathology and causes of hypopigmentation, natural course (onset, progress, duration), its presentation, and treatment modalities. Various methods of patient education include articles in newspapers, magazines and social media, documentaries, talk shows, one to one counselling, motivational talks, and medical camps. Individuals from urban population present more frequently with hypopigmentary disorders, as they are more concerned and worried about their appearance from a cosmetic point of view and they also gather information about these disorders from various literary sources. As a result, they seek help promptly.

REFERENCES

1. Jain N, Khandpur S. Pediatric dermatoses in India. Indian J Dermatol Venereol Leprol 2010;76:451-4.
2. Sori T, Nath AK, Thappa D.M, Jaisankar TJ. Hypopigmentary disorders in children in South India. Indian J Dermatol 2011;56:546-9
3. Pinto FJ, Bolognia JL. Disorders of hypopigmentation in children. Pediatr Clin North Am 1991;38:991-1017.
4. Soni B, Raghavendra KR, Yadav DK, Kumawat P, Singhal A. A clinico-epidemiological study of hypopigmented and depigmented lesions in children and adolescent age group in Hadoti region (South East Rajasthan). Indian J Paediatr Dermatol 2017;18:9-13.
5. Deepadarshan K, Gangadhar B, Mallikarjun M. Cutaneous hypopigmentary disorders - An observational study. Our Dermatol Online 2016;7(2):145-148.
6. Mavoori A, Sriram D, Pamar S, Bala S. An epidemiological study of pattern of dermatoses in paediatric age group at a tertiary care teaching hospital in South India. Int J Res Dermatol 2020;6:392-7.
7. Babu AR, Prasad AM. A clinical study of pediatric hypomelanotic dermatoses at tertiary care center. Indian J Child Health. 2019; 6(12):654-657.
8. Nijhawan M, Bagri M, Nijhawan S, Bishnoi S, Agarwal S, Nijhawan S. Pattern of common skin diseases among school going children in Semi-Urban Area of Jaipur: A cross-sectional study. Indian J Paediatr Dermatol 2020;21:275-8.
9. Jena DK, Sengupta S, Dwari BC, Ram MK. Pityriasis versicolor in the pediatric age group. Indian J Dermatol Venereol Leprol 2005;71:259-61.
10. Kambil SM. Pityriasis versicolor in children: A study of 110 cases. Int J Res Dermatol 2018;14(1):14-15.
11. Kaushik A, Pinto HP, Bhat RM, Sukumar D, Srinath MK. A study of the prevalence and precipitating factors of pruritus in pityriasis versicolor. Indian Dermatol Online J 2014;5(2):223-224
12. Shah A, Koticha A, Ubale M, Wanjare S, Mehta P, Khopkar U. Identification and speciation of Malassezia in patients clinically suspected of having pityriasis versicolor . Indian J Dermatol 2013;58:239
13. Neelam Sudheer, A. Raj Pratheepa, Sunki Karthik, Kolla Sri Harsha, & V.Praveena. (2021). Clinicoepidemiological study of hypopigmented lesions in paediatric age group attending a teritiary care center. *International Journal of Health and Clinical Research*, *4*(16), 116–122.
14. Nagendra Manthale, Dayanand Raikar, Shrinivas Raikar, Prashant Dass. "Clinico-epidemiological and histopathological correlation of polymorphic light eruption". Journal of Evolution of Medical and Dental Sciences 2013;29: 5349-5359.
15. Verma K, Rokde R, Singh U, A clinicoepidemiological and histo-Pathological study of polymorphic light eruptions in malwa region , Indian J Clin Exp Dermatol 2019;5(1):24-29.
16. Hewedy ESS, Hassan AM, Salah EF, Sallam FA, Dawood NM, Al-Bakary RH, Al-Sharnoby HA. Clinical and ultrastructural study of nevus depigmentosus. J Microsc Ultrastruc 2013;1:22-9.
17. Das S, Adhicari P. Lichen striatus in children: A clinical study of ten cases with review of literature. Indian J Paediatr Dermatol 2017; 18:89-93.
18. Adil M, Amin SS, Mohtashim M, Mushtaq S, Alam M, Priya A. Clinico-epidemiological study of leprosy from a North Indian tertiary care hospital. Int J Res Dermatol 2018;4:518-21.
19. Abid Keen M. Hypomelanosis of Ito: Report of two cases. Our Dermatol Online. 2015;6(4):433-435.
20. Blaya B, Gardeazabal J, de Lagrán ZM, and Díaz-Pérez J.L. Patient with generalized guttate morphea and lichen sclerosus et atrophicus. Actas Dermosifiliogr 2008;99:808-11.
21. Novis CFL, Haddad NCM, Lima LA, Lima RB, D'Acri AM, Nogueira OM. Disseminated lichen sclerosus in a child: a case report. an Bras Dermatol. 2015;90(2):283-4.