

Manuscript ID ZUMJ-2010-1971 (R1)

DOI 10.21608/zumj.2020.45962.1971

**ORIGINAL ARTICLE****Prevalence of Hypopigmentary Disorders in Primary School Children in Zagazig City Pilot Study**Mohamed Khater <sup>(1)</sup>, Ola Abdallah Elshobaky <sup>(1)</sup>, Reem Abbas <sup>(2)</sup>, Shrook Khashaba<sup>(1)</sup><sup>(1)</sup> Dermatology, Venereology and Andrology Department, Faculty of Medicine – Zagazig University, Egypt.<sup>(2)</sup> Occupational and Environmental Medicine Department, Faculty of Medicine – Zagazig University, Egypt.**Corresponding Author:**Ola Abdallah Abdelsalam Elshobaky.  
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Submit Date 2020-10-14

Revise Date 2020-12-11

Accept Date 2020-12-24

**ABSTRACT****Background:** Hypopigmentary disorders are common group of dermatoses in pediatric age group. Some are transitory and require only one or few visits to the dermatologist, while others are chronic and recurrent. Thus require more follow-up.**Aim:** To determine the commonest causes of hypopigmented diseases and their prevalence among primary school children in Zagazig City.**Methods:** A pilot study was carried out on 40 patients of both sexes chosen by random sample. Aged from 6-11 years from one primary school children in zagazig city. The data were collected by An interview questionnaire, complete history was taken, Clinical examination.**Results:** The overall prevalence of hypopigmented diseases among the studied primary school children was 62.5%. The most prevalent hypopigmented diseases were pityriasis alba 56%, followed by pityriasis versicolor 24%, post-inflammatory hypopigmentation 20%.**Conclusions:** Common hypopigmentary diseases constitute a significant health problem among primary school children in Zagazig city. The most prevalent hypopigmented diseases were pityriasis alba 56%, followed by pityriasis versicolor 24%, post-inflammatory hypopigmentation 20%.**Key Words:** Hypopigmentary disorders, pityriasis alba, pityriasis versicolor, post inflammatory hypopigmentation.**INTRODUCTION**

Numerous skin conditions cause alteration in the normal pigmentation resulting in significant psychological morbidity due to cosmetic disfigurement. Pigmentary disturbances may be congenital or acquired, localized or generalized[1]. Hypopigmentary disorders are common group of dermatoses in pediatric age group[2]. The prevalence of hypopigmentary disorders varies from country to country, ranging between 3.6% and 9.9%. This variation is due to many factors as genetic background, geographic area, climate, season, socioeconomic status, living conditions and medical resources[3]. The epidemiologic studies of hypopigmented diseases provide us with information about prevalence, age, and sex differences in affected groups [4]. Studies of pediatric population, which constitutes the corner stone of the community, can play an important role in determining the policies of protective medicine and public health[5]. The aim of this study was to detect the most common

causes of hypopigmentation and their prevalence in children in Zagazig City.

**METHODS**

A pilot study was conducted at one randomly selected Primary school in Zagazig City. Approval obtained from Institutional Review Board (IRB) of the faculty of Medicine, Zagazig University. Formal approval from the school's manager was obtained while interviewing the students. The study was performed in compliance with the World Medical Association Code of Ethics (Declaration of Helsinki) for research involving humans.

The study was conducted on 40 students of both sexes chosen by random sample. Aged from (6-11) years. For every student, the data were collected by different tools: An interview questionnaire: complete history was taken as personal history (name, age, sex), history of hypopigmented diseases (onset, course, duration, site). Clinical examination: included skin, hair, nails and mucous membrane. Wood's light lamp examination was done for all hypopigmented lesions.

**STATISTICAL ANALYSIS**

Data were analyzed using IBM SPSS 23.0 for windows (SPSS Inc., Chicago, IL, USA) and NCSS 11for windows (NCSS LCC., Kaysville, UT, USA). Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. The following tests were done: **Independent-samples t-test:** was used when comparing between two means. **Chi-square (X<sup>2</sup>) test:** was used in order to compare proportions between two qualitative parameters. **Kruskal-Wallis (KW) test:** was used when comparing more than two means in not normally distributed data.

(P-value): P-value ≤0.05 was considered significant.

**RESULTS**

This pilot study included 40 students, their age ranged from (6 – 11) years with mean of 8.3 ± 1.57, 17 female and 23 male (table 1).

The prevalence of hypopigmentation among studied population was 62.5%, the commonest cause was pityriasis alba (P.alba) 56% followed by pityriasis versicolor (PVC) 24% and post-inflammatory hypopigmentaion 20% (table 2).

The present history of hypopigmented cases as regard onset, course, site and duration shows acquired onset in all diseases. All cases of PVC are with progressive course, post inflammatory hypopigmentation cases showed stable course, and 92.9% of P.alba cases showed progressive course. As regard site of lesions, 100% of P.alba cases showed face lesions, 33.3% of P.V.C in face and neck, while post inflammatory hypopigmentation is shown in multiple body parts.

There was a high statistically significant difference among different causes of hypopigmentation regarding present history (P<0.001) (Table 3).

Nail and mucous membrane examination are normal in most cases, leukonykia is the most common change. The findings with wood`s light examination show high statistically significant difference as color of lesion give yellowish florescent color in P.V.C cases and no change in color in P. alba and post inflammatory cases (P< 0.001) (Table 4). There were no statistical significant difference among cases with hypopigmentation and those without as regard sex but significant in mean age of the studied students (Table 5).

**Table 1:** Personal data of the studied population:

Characteristics (n=40)		
<b>Age years:</b>		
<b>Mean ± SD</b>	8.3 ± 1.57	
<b>Range</b>	6 – 11	
<b>Sex:</b>		
	<b>NO</b>	<b>%</b>
<b>Female</b>	17	(42.5%)
<b>Male</b>	23	(57.5%)

**Table 2:** Prevalence of hypopigmentation among studied population and its causes.

(n=40)		
	No	%
<b>Hypopigmentation</b>		
<b>Yes</b>	25	62.5
<b>No</b>	15	37.5
<b>Causes of hypo-pigmentation (n=25)</b>		
<b>Pityriasis alba</b>	14	56
<b>Pityriasisversicolor</b>	6	24
<b>Postinflammatory hypopigmentation</b>	5	20

**Table 3:** Difference in present history among different causes of hypopigmentation groups.

Variables	Pityriasisalba N =14	Pityriasisversicolor N =6	Post-inflammatory N =5	Test	P
<b>Diseaseduration:</b>					
<b>Mean ± SD</b>	20.5 ± 8.72	18 ± 6.57	21.6 ± 10.1	kw	0.801
<b>Range</b>	12 - 36	3 – 24	12 - 72	0.44	(NS)

Variables	Pityriasis alba N =14		Pityriasis versicolor N =6		Post-inflammatory N =5		X <sup>2</sup>	P
	N	%	N	%	N	%		
<b>Onset:</b>							----	-----
Acquired	14	100	6	100	5	100		
Congenital	0	0	0	0	0	0		
<b>Course:</b>							19.9	<0.001* (HS)
Progressive	13	92.9	6	100	0	0		
Stable	1	7.1	0	0	5	100		
<b>Site:</b>							38.2	0.001* (HS)
Face	14	100	1	16.7	1	20		
Neck	0	0	3	50	0	0		
Neck and chest	0	0	2	33.3	0	0		
Hand and arm	0	0	0	0	1	20		
Multiple parts	0	0	0	0	3	60		
Back	0	0	0	0	0	0		

(HS): P -value < 0.001 is high significant.

**Table 4:** Differences in associated clinical data among different causes of hypopigmentation groups.

Variables	Pityriasis alba N =14		Pityriasis versicolor N =6		Post-inflammatory N =5		X <sup>2</sup>	P
	N	%	N	%	N	%		
	<b>Nail changes:</b>							
Normal	8	57.1	5	83.3	1	20		
Leukonychia	6	42.9	1	16.7	3	60		
Longitudinal ridges	0	0	0	0	1	20		
<b>Mucous membrane:</b>							0.82	0.66 (NS)
Normal	13	92.9	6	100	5	100		
Oral ulcer	1	7.1	0	0	0	0		
<b>Wood`s light lamp:</b>							168.2	0.001* (HS)
No change in color	14	100	0	0	5	100		
Accentuated white	0	0	0	0	0	0		
Yellowish florescent	0	0	6	100	0	0		

(HS): P -value < 0.001 is high significant.

**Table 5:** Differences in personal data of studied population with and without hypopigmentation.

Variables	Cases with hypopigmentation (n=25)		Cases without hypopigmentation (n=15)		t-test	P
	N	%	N	%		
<b>Age</b>						
Mean ± SD	8.6 ± 1.61		7.7 ± 1.35		2.06	0.047 S
	N	%	N	%	X <sup>2</sup>	P
<b>Sex:</b>	14	56	9	60	0.06	0.41 NS
Male (N=23)	11	44	6	40		
Female (N=17)						

### DISCUSSION

There were multiple studies conducted to detect prevalence and causes of hypopigmented diseases in children in different countries and this type of epidemiological studies were conducted on children at this age group as they are exposed more to predisposing factors of hypopigmented

diseases. [6] As regard to sex difference in hypopigmentation prevalence, males (56%) showed slightly higher incidence than females (44%). This is probably due to the higher number of male children in the total sample than female and males are more involved in outdoor playing, hyperactivity, dry skin, lack of cleaning and

malnutrition than female. **Soni et al.**[7]. showed the same result in their study as (51.33%) males and (48.66%) females showed hypopigmentation disorders. In our study the total prevalence of hypopigmented diseases were (62.5%) representing (25 cases) out of 40 students examined. The most common hypopigmented disorders detected in children were pityriasis alba (56%) followed by pityriasis versicolor (24%) and post inflammatory hypopigmentation (20%).

**Faye et al.**,[8]revealed that the most common causes of hypopigmented disorders were tinea versicolor (39.4%), followed by pityriasis alba (31%), naevus achromicus (24%) and vitiligo in 5.6%. The differences in the prevalence of hypopigmented disorders in the various countries may be attributable to environmental, socioeconomic factors and accessibility of appropriate medical care[9]. Pityriasis alba, it was the most common type of hypopigmented diseases in children in the present study representing (56%). The higher incidence may be because of irregular and inadequate food habits, worm infestation and in some cases socio-economic factors. Pityriasis versicolor, it was found in (24 %) of students. This age group is more prone to predisposing factors of PV namely hyperhidrosis because of their habit of playing thus more exposed to pathogens that can cause skin diseases mainly caused by bacteria and fungus[10].

These findings are in agreement with **Devendrappa and Javed**[11]who reported that pityriasis versicolor prevalence was (22.4%), chronic course, duration varied from 1 to 5 years. Post inflammatory hypopigmentation (PIH) was found in (20%) of students. **Hogade and Reddy**,[12]reported that PIH secondary to abrasions/mechanical trauma varied from 6 months to 4 years. Most common sites were upper and lower limbs. PIH secondary to burn ranging from 6 months to 2 years, commonly seen on upper limbs, face and neck region.

As regard to nail and mucous membrane changes associated with hypopigmentation disorders, most of children were normal. Leukonychia was noticed in some children. Wood`s light lamp, was a great tool to differentiate the different types of hypopigmented diseases as color of lesion give yellowish florescent color in pityriasis versicolor cases and no change in color in pityriasis alba and post inflammatory cases.

#### To Cite:

Khater, M, Elshobaky, O., Abbas, R., Khashaba, S. Prevalance of Hypopigmentary Disorders in Primary School Children in Zagazig City Pilot Study. *Zagazig University Medical Journal*, 2023; (15-18): -.doi: 10.21608/zumj.2020.45962.1971

## CONCLUSIONS

We can conclude that: Common hypopigmentary diseases constitute a significant health problem among primary school children in Zagazig city. The most prevalent hypopigmented diseases were pityriasis alba 56%, followed by pityriasis versicolor 24%, post-inflammatory hypopigmentaion 20%.

**Declaration of interest:** no conflicts of interest. The authors along are responsible for the content and writing of the paper.

**Funding information** None declared.

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