Clinicopathological study of pityriasis alba in Libyan patients

Abstract

Pityriasis alba is a common, benign skin disorder occurring predominantly in children and adolescents. Most patients have a history of atopy, and pityriasis alba may be a minor manifestation of atopic dermatitis. It is characterized by ill-defined macules and patches or thin plaques, round or oval, often with mild scaling, and sometimes with mild pruritus. The lesions initially may be mildly erythematous, and over time they become hypopigmented. They are most commonly located on the face (especially the cheeks), arms, and upper trunk, and they are more noticeable in people with darker skin types. Sun exposure accentuates the lesions. Pityriasis alba resolves spontaneously, with a gradual return of normal skin pigmentation. .

Aim of the study

To assess the etiological and physical characteristics in Libyan pityriasis alba patients

Participants and Methods

One hundred patient attending to dermatology department outpatient clinic, Alwahda hospital-Derna-Libya are included in this descriptive study. Diagnosis of PA is done by dermatological clinical examination. Detailed history of age, gender ; history of atopy, sun exposure, frequency of bathing , with physical examination of site, number of lesion is recorded.

Results

The study included 100 Libyan pityriasis alba patient, 69(69%) male, 31 (31%) female, their age ranged from 2-19 years. 89% of patient's lesions were on face only , 8% on face and

extremities and 3% on face and neck. The number of pityriasis alba lesions ranged from 2 to 12 lesions, scales were evident in only 73% of patients and 27% had no scaly lesions**.** The duration of the disease ranged from 1 week to 2 years**.** 66% were Fitzpatrick skin type IV and 34% skin type III.

Xerosis presented in 70%. History of atopic dermatitis was +ve in 11% and -ve in the other 89%**.** History of atopy +ve in 55%, -ve in 45% of patients Family Hisory of atopy + ve in 90% and -ve in 10% . In 37% of Pityriasis alba patients, the lesions were recurrent and 63% had no hisory of recurrence**.** Only 4% of our patients were using sunscreens, Sun exposure hrs per day ranged between 1 to 6 hrs. The times of bathing per week ranged from 1 to 7 times per week.

Conclusion

Our data suggested that pityriasis alba is more prone in children of skin type IV with strong family history of atopy, and strong association with skin xerosis,Sun exposure and neglected sunscreen usage. To the best of our knowledge, this is the first publication about pityriasis alba from our country.

Keywards: Pityriasis alba, Derna-Libya, Atopy, Xerosis, Fitzpatrick skin types

Introduction

"Pityriasis alba, a relatively common skin disorder in children and young adults, is characterized by the presence of ill-defined, scaly, faintly erythematous patches. These lesions eventually subside, leaving hypopigmented areas that then slowly return to normal pigmentation (see the images below)" (1,2). "Lesions may progress through the following three clinical stages: Papular (scaling) erythematous Papular (scaling) hypochromic Smooth hypochromic. No known cause of pityriasis alba has been reported. The condition is not contagious, and no infectious agent has been identified. Leading theories as to the origin of the lesions in pityriasis alba have involved atopy and post inflammatory changes". (3) "A large number of patients with pityriasis alba have a history of atopic disease, and atopic

patients are prone to developing the condition" (20). "Other theories of origin include hypopigmentation secondary to pityriacitrin, a substance produced by Malassezia yeasts that acts as a natural sunscreen. In one study, atrophic sebaceous glands were noted in almost half the cases of pityriasis alba. In another study, iron deficiency anemia was reported in 16.5% of patients" (4), however, "this may be a coincidental finding, and the clinical relevance of anemia is not yet known. Excessively dry skin, which is frequently exacerbated by cold, dry environments, also appears to be a common factor in pityriasis alba.

Reported contributory factors related to the development of pityriasis alba are excessive and unprotected sun exposure, poor hygienic habits, and environmental influences such as temperature, humidity, and altitude" (5). "In addition, one study found patients with pityriasis alba to be more likely to have low levels of serum copper, which could contribute to tyrosinase dysfunction and thus a decrease in the production of melanin"(6). "Although the exact incidence has not been described, as many as 5% of children may have pityriasis alba" (7). "The disorder is not seasonal, but the dry, slightly scaly appearance tends to worsen during cold months, when the air is relatively dry inside the home. In addition, sun exposure may make the lesions more obvious during spring and summer. The condition is more common in patients with a history of atopy. In a study of 9955 school children aged 6-16 years who lived in a tropical region, the prevalence of pityriasis alba was 9.9%"(8). In a study from South India, the overall frequency of hypopigmentary disorders among children seen in a dermatology outpatient department was 3.28 per 1000(9). In the 113 children treated for hypopigmentary disorders over a 23-month study period, pityriasis alba was the most common diagnosis (24.7%). "Another study, in Nepal, showed that the prevalence of pityriasis alba within a wide range of dermatoses was 5.2%" (10). "Age-, sex-, and race-related demographics Pityriasis alba is most common in children aged 3-16 years, with 90% of cases occurring in children younger than 12 years. The disease occasionally is found in adults" (11). "Males and females are equally susceptible to the disease, but a slight male predominance has been noted" (2, 5). "Pityriasis alba occurs in people of all races. In one study, the incidence of PA was slightly high in light-skinned people, whereas other studies

have demonstrated a higher incidence among more darker skin" (5,12). "The condition is frequently more apparent and cosmetically bothersome in patients with darker complexions" (5,12). "Some scholars believe that the occurrence of the disease may be related to personal hygiene habits such as skin dryness caused by regular bathing, etc" (9). **"**There are 2 clinical variants of classic PA (CPA): endemic PA, which occurs in children living in poor socioeconomic conditions, and atopy-related" (13). The improvement of endemic PA in a few months with mild topical hydrating creams, topical antimicrobials, and sunscreens, and its deterioration with the use of topical corticosteroids and calcineurin inhibitors, suggest distinctive etiologies (13), with clear prognostic and therapeutic implications.

"Classic PA also must be distinguished of Extensive Pityriasis Alba (EPA). Both show fewer melanocytes and melanosomes"(14) and "both manifest as hypopigmented macules with scaling. However, EPA is more common in adults, has a more generalized and symmetric distribution, tends to appear on the trunk, and usually is not associated with a history of atopy or evidence of erythema" (15).

Aim of the study

The study aim was to assess the etiological and physical characters of PA patients in Derna - Libya.

Materials and methods

A total of 100 Libyan patient with pityriasis alba attending the outpatients department of Alwahda teaching hospital, Derna - Libya, were included in this cross-sectional study. Each patient exposed to detailed history and complete dermatological examination according to the prepared proforma as following:

1. Detailed disease history to record age, sex, duration of lesions, history of recurrence, history of atopic dermatitis, atopy and family history of atopy, times of bathing, number of sun exposure and sunscreen usage.
2. Dermatological examination of all patients was carried out in order to determine skin type, xerosis, number of lesions and the site involved.

Statistical analysis

Data were analyzed using statistical package for social science (SPSS) version 22. Descriptive analysis, frequencies, mean, standard deviation (SD) and chi square used for analysis.

Results

The study included 100 Libyan pityriasis alba patients and 100 participants as control group. Sixty nine patients (69%) were males and 31patients (31%) were females (Table.1), The age ranged from 2-19 years with median of 8.2 years and mean ±SD: 7.50 ±3.45 years (Figure.1) .

In 89% of patients lesions were on face only, 8% on face and extremities and 3% on face and neck (Figure.2). The number of pityriasis alba lesions ranged from 2 to 12 lesions with mean ± SD of 4.53± 1.9 , 31% of patients had 4 to 7 lesions 2 to 3 lesions in 32% and more than 7 lesions in 7% of patients (Figure.3). Scales were evident in only 73% of patients and 27% had no scaly lesions. The duration ranged from 1 week to 2 years with mean ±sd 15.34± 14.22736 months (Figure.4). According to physical characteristics of participant patients , 66% were Fitzpatrick skin type IV and 34% skin type III (Figure.5). Xerosis presented in 70% and 30% were clear (Figure.6). In the study patients, history of atopic dermatitis was positive in 11% and history of atopy was positive in 55%. Family history of atopy was recorded in 90%. In 37% of PA patients the lesions were recurrent. only 4% of our patients were using sunscreens**.** Sun exposure ranged between _1 to 6 hrs with mean of 2.79 ± SD 1.391 hrs per day , 56% with more than 2hrs per day and 44% 2hrs or less (Figure.7).The times of bathing per week ranged from 1 to 7 times (Figure.8).

Table 1: Gender distribution across groups

Group	Gender		Total
	Male	Female	
Case group	69	31	100
	69.0%	31.0%	100.0%
Control group	9	16	25
	36.0%	64.0%	100.0%
Total	78	47	125
	62.4%	37.6%	100.0%

Pearson Chi-Square 9.283, $P = 0.002$ (Significant)

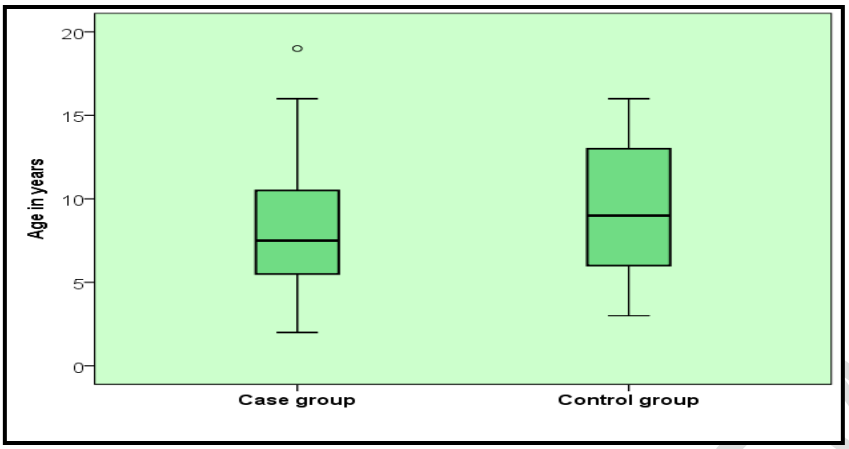

Figure 1: Age parameters comparison across the study groups

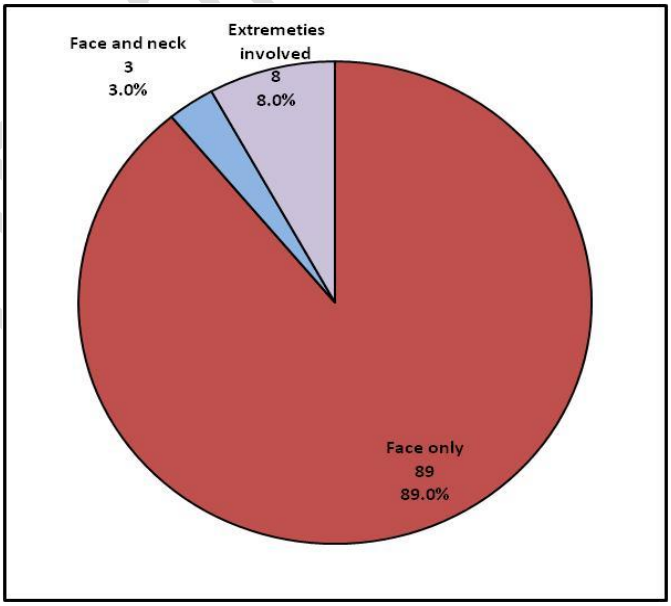

Figure 2:Distribution of the study participants with pityriasis alba according to the anatomical sites of the lesions

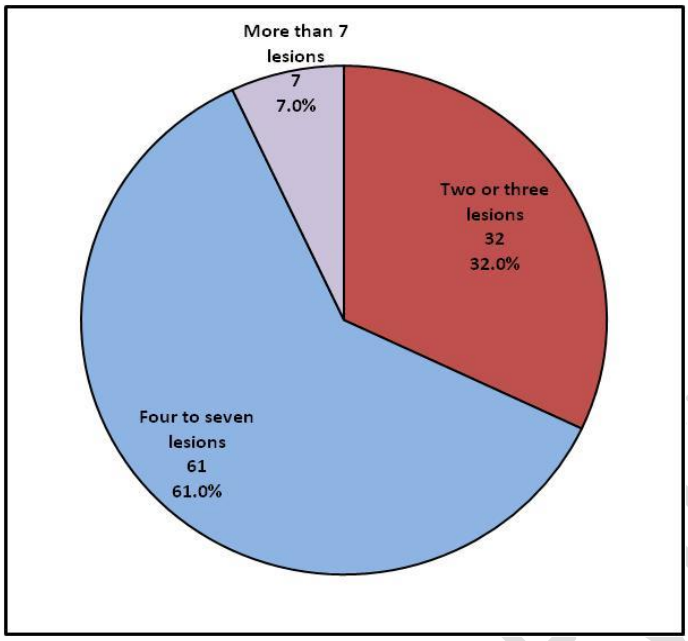

Figure 3: Distribution of the study participants with pityriasis alba according to the number of the lesions

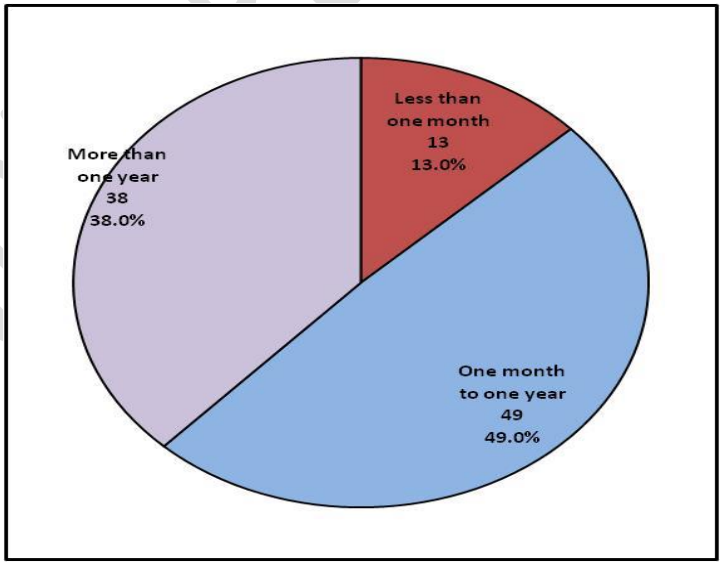

Figure 4: Distribution of the study participants with pityriasis alba according to the duration of the lesion

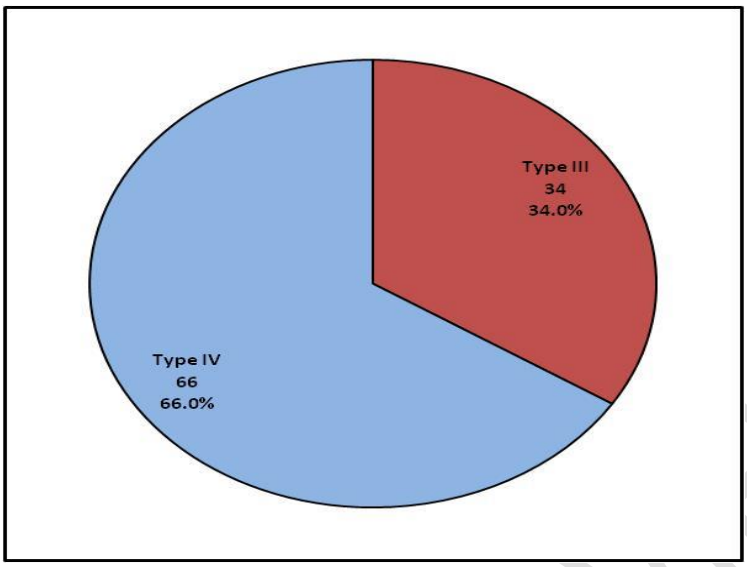

Figure 5: Distribution of the study participants with pityriasis alba according to the Fitzpatrick skin type

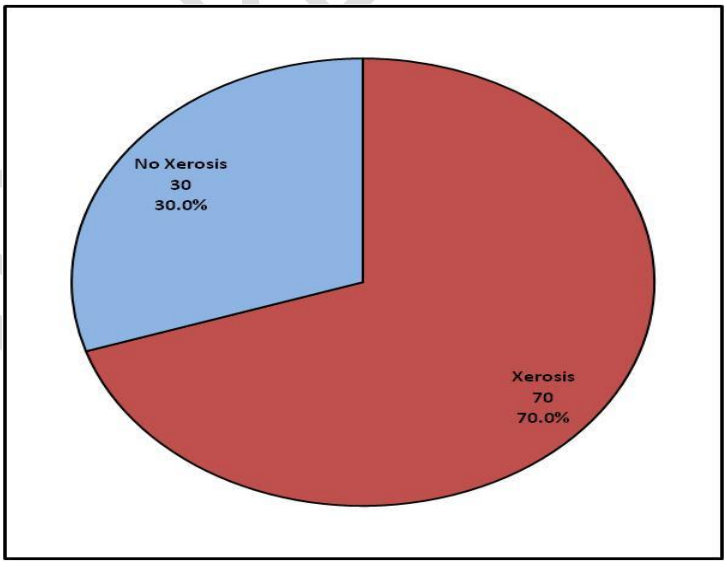

Figure 6: Distribution of the study participants with pityriasis alba according to the presence of xerosis

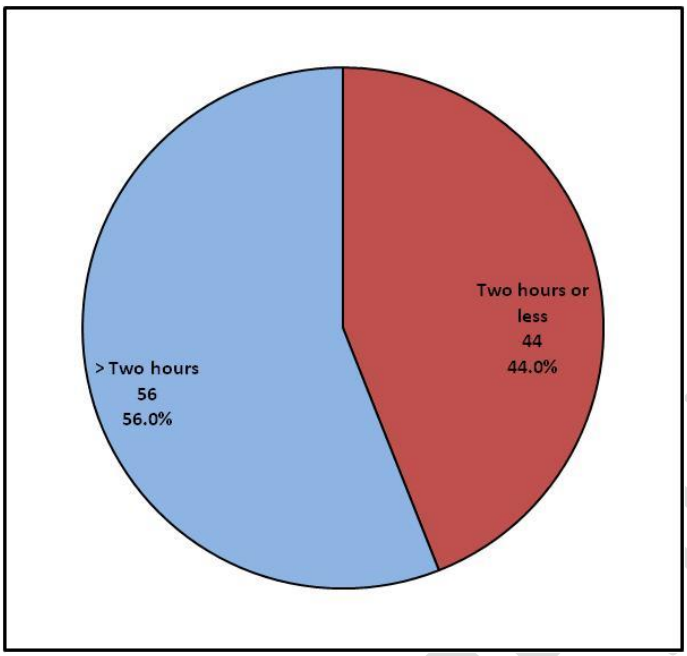

Figure 7: Distribution of the study participants with pitryiasis alba according to the duration of daily sun exposure

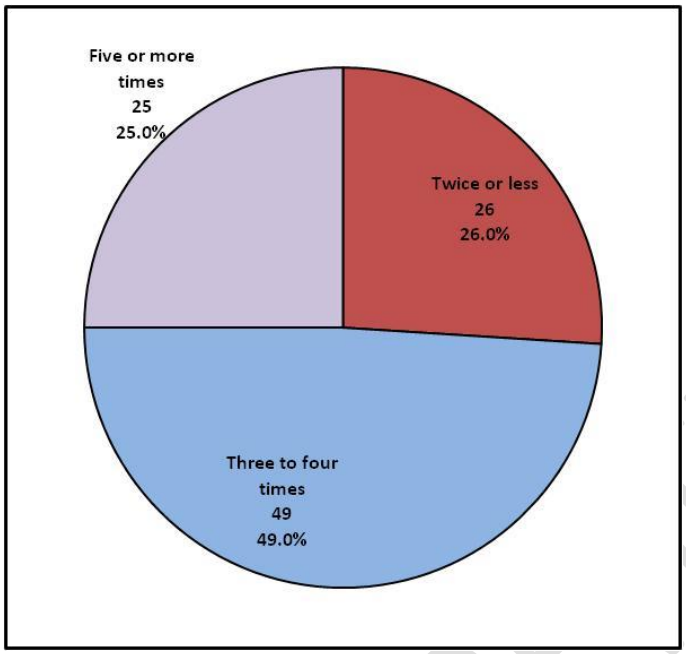

Figure 8: Distribution of the study participants with pitryiasis alba according to the habit of bathing per week

Discussion

"Pityriasis Alba is a common skin disorder affecting mainly children and young adults;

however, its etiopathogenesis is poorly understood, and there are many discrepancies about its Epidemiology in the literature. So this study is designed to assess the possible risk factors of pityriasis alba. The present study described the clinical characteristics of the diagnosed lesions of PA among patients whereas their number range: 2 – 12 lesions, mean ± SD: 4.53 ± 1.9 and they were commonly small in size with scales in 73% of patients. and more than one third were recurrent. Some literature described the disease as rounded, oval or irregular plaque with indistinct margins" (16,17,18). "Other mentioned that PA lesions are asymptomatic hypo-pigmented patches on the face, neck, trunk and proximal extremities of children. The single lesion has sharply demarcated margins and is covered by a fine branny scale" (19). "Moreover, it was reported that most lesions persist for some months and some may still show hypopigmentation for a year or more after all scaling subsides. Recurrent crops of new lesions may develop at intervals. The average duration of the common facial form in childhood is a year or more. as in our study lesion persist more than a year in 38% of patients . Pityriasis alba is found almost entirely in preadolescent children. In most instances, the lesions clear at puberty, however persistence into adulthood has been reported" (12,18,19). This study showed that the age of patients ranged from 2-19 years with median of 8.2 years and mean 7.50 This is slightly different from many reports at the age of 3–16 years old(2) and mean of 9.6 years old (16,20,21). "Differences in age distribution of PA may be due to differences in culture, ethnic group and external environment. Both sexes are equally susceptible to the disease, but a slight male predominance has been noted" (16,22,23). "A clinico epidermiological study was carried out in 200 patients attending the skin department of H Command hospital, Air Force, Bangalore by Vinod et al The study group comprised of 115 (57.5%) males and 85 (42.5%) females" (3). The male to female ratio was 1.35:1 whereas in our study group which comprised of 100 PA patients (69%) males and (31%) females with ratio of 2.2 : 1 . A study carried out by Martin RF et al., [1990] and other studies found that PA has equal incidence in both boys and girls. In other hand extensive pityriasis alba a clinical variant of PA has female predominance (14,20).

“Regarding sun exposure, in study done by Khafagy MG et al.(24) they found that it increased the risk of PA by more than four times. Our study is compatible with this because 56% of our patients exposed to sun for more than two hours per day and 96% are not using sun screens This may be explained by the fact that sun exposure causes tanning of the surrounding skin, which makes affected areas more prominent. This finding may give the reason why the majority of lesions occur in the face as our study found that 89% of PA lesion are on face only .and Vinod et al face was the only site involved in 91% of patients” (16,20,22) , “Essentially, PA lesions are more observable in darker- skinned patients. In this study, we found that pa was more prevalent in skin photo type IV and III (66%skin phototype IV and 44 % skin phototype III). These results were consistent with the study conducted by Ysabel et al.and other authors found that skin phototype IV was most frequently affected (61.8%) and skin phototype III (31.3%)” (25,26,27) and Khafagy found skin phototype III or IV increases the risk of PA by more than four times (24). Elshafey et al. found that PA was more prevalent in individuals with darker skin and higher phototype categories (74.8% of patients with types VI and V and Blessmann et al., [2002] who revealed that “ultraviolet light B (UVB) had a strong influence on the development of PA in dark-skinned individuals (OR = (21,23), In our study, there was significant relation between PA and patients personal hygiene assessed by asking them about the frequency of bathing per week which showed that more than 70% of patients take a bath more than three times weekly . other studies found an increased incidence of PA among those with more frequent bathing” (9). “In this study there was no significant relation between pityriasis alba and the frequency of bathing, This may be due to removal of normal epidermal defensins and other natural protective substances from the skin surface by frequent bathing making one more prone to have pityriasis alba. On the contrary, Elshafey et al found no relation between the incidence of pityriasis alba and frequency of bathing” (21). “Atopic diathesis has commonly been described as a pathogenic factor in PA and some authors have even stated that PA is a feature of a tendency towards depigmentation, found exclusively in atopic patients” (4). “An unequivocal relationship between some signs of AD (xerosis,palmar hyperlinearity, Daniel Morgan folds) and PA was found: Blessmann et al., found that the presence of atopy signs was more common in PA patients; furthermore, he found important linear correlation between PA and atopic dermatitis signs, specifically when considering the presence of two or three signs of atopy” (23).

Although atopic symptoms are often absent at the onset of PA, they may appear later in life (2328) this agree with this study as xerosis was found in 70 % of patients.

Conclusion

Pityriasis alba constitute a major health issue, males were commonly affected, with mean age of 7.5 years. In majority of patients lesions were on face only and skin type IV. Personal and family history of atopy was high. The mean time of sun exposure was 2.79 hours/ day and there was no significant correlation with frequency of bathing.

Ethical Approval and consent

The study was approved by hospital ethical committee. Every participant was informed and they willing accepted participation in the study.

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Details of the AI usage are given below:

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