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This issue contains:

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Best Regards,

Medical Team, Micro Labs Limited.

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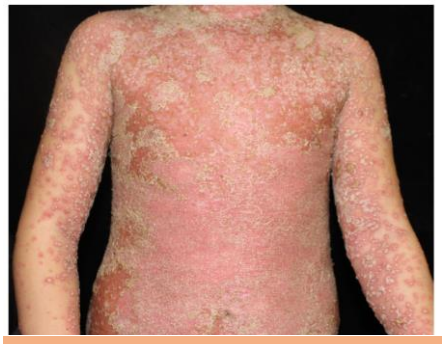
Relationship between psoriasis comorbidities, different subtypes and related influencing factors

Introduction:

Psoriasis is a chronic inflammatory dermatological condition characterized by recurrent episodes. The primary clinical manifestations include plaques and scaly erythema. Globally, approximately 3% of individuals are affected by psoriasis, with its prevalence steadily increasing.[1] Psoriasis can be classified into several subtypes based on clinical presentation, including pustular psoriasis (PP), erythrodermic psoriasis (EP), psoriatic arthritis (PsA), and psoriasis vulgaris (PV). Among these, psoriasis vulgaris is the most prevalent form. Numerous studies conducted in recent years have demonstrated that psoriasis is a systemic disease that, in addition to causing skin damage, can cause multiple other systemic diseases. Although the exact pathophysiology of coexisting conditions in psoriasis patients is unknown, common risk factors, cellular mediators, shared inflammatory pathways, and genetic susceptibility are thought to play a role. But studies on the clinical patterns of various comorbidities linked to psoriasis is currently lacking.[2] The purpose of this study was to obtain a thorough understanding of the clinical traits of psoriasis comorbidities and investigate the association between psoriasis comorbidities, various subtypes, and associated contributing factors.



Psoriasis

Methods:

In this retrospective study, medical records of psoriasis patients admitted to the dermatology and non-dermatology departments between January 2013 and September 2023 were gathered. Patients with psoriasis diagnosed while hospitalized and whose basic medical records, diagnosis, and course of treatment were complete were the criteria for inclusion. Exclusion criteria included incomplete medical records; type 1 diabetes and familial hyperlipidemia; patients with metabolic diseases such as hypothyroidism and Cushing syndrome; and patients who had previously been hospitalized but whose medical records were only counted from the first hospitalization. Through a review of the patients' electronic medical records, the demographic and clinical characteristics of psoriasis inpatients were established. The chi square test, also known as Fisher's exact test, was used to compare psoriasis comorbidities and associated risk factors between groups at a predetermined test level of 0.05. A statistically significant difference was indicated by a $P < 0.05$.

Results:

This study included 1,097 psoriasis patients, with psoriasis vulgaris being the most prevalent subtype, accounting for 87.2% of cases. The average age of the sample was 53.5 ± 15.2 years, comprising 65.6% males and 34.4% females. The study involved psoriasis inpatients from 27 departments. Common comorbidities included hypertension (38.2%), hyperlipidaemia (29.4%), type 2 diabetes mellitus (24.6%), fatty liver disease (21.4%), coronary heart disease (21.0%), tumours (15.5%), gastroduodenal disease (14.4%), osteoarthropathy (11.8%), and cerebrovascular disease (10.8%) (Table 1). There were statistically significant differences in the incidence of autoimmune disease ($p = 0.003$), osteoarthropathy ($p < 0.001$), hypertension ($p = 0.015$), and hyperuricemia ($p < 0.001$) among the various psoriasis subtypes. Furthermore, the distribution of comorbidities is significantly impacted by gender, alcohol consumption, and smoking.

Parameter	PV (n = 957)	PsA (n = 95	PP (n = 26)	EP (n = 19))	Total (n = 1097)
Hypertension	351 (36.7)	50 (52.6)	12 (46.2)	6 (31.6)	419 (38.2) %
Hyperlipidaemia	279 (29.2)	31 (32.6)	7 (26.9)	6 (31.6)	323 (29.4) %
T2DM	232 (24.2)	28 (29.5)	6 (23.1)	4 (21.1)	270 (24.6) %
Fatty liver disease	201 (21.0)	25 (26.3	5 (19.2	4 (21.1)	235 (21.4) %
Coronary heart disease	203 (21.2)	21 (22.1)	3 (11.5)	3 (15.8)	230 (21.0) %
Tumours	158 (16.5)	10 (10.5)	2 (7.7)	0	170 (15.5) %
Gastroduodenal diseases	140 (14.6)	14 (14.7)	3 (11.5)	1 (5.3	158 (14.4) %
Osteoarthropathy	56 (5.9)	63 (66.3)	6 (23.1)	4 (21.1)	129 (11.8) %
Cerebrovascular disease	105 (11.0))	11 (11.6)	2 (7.7)	1 (5.3	119 (10.8) %

Table 1. Comorbidities and complications of patients with different subtypes of psoriasis

Discussion:

In this study, the most common subtype was identified as psoriasis vulgaris, accounting for 87.2% of cases. Arthritis psoriasis (8.7%), pustular psoriasis (2.4%), and erythrodermic psoriasis (1.7%), in order of prevalence. The male to female ratio was 2.06:1, meaning that there were substantially more males than females. A systematic review has revealed that most studies reported a slight male predominance in overall psoriasis, despite the lack of agreement on gender differences in the incidence of psoriasis.[3] People with psoriasis can be of any age or gender. Studies conducted in India and Nigeria revealed that most of their samples came from the fourth decade.[4] In this study, patients between the ages of 31 and 60 had the largest age distribution (54.1%).

Conclusion:

The distribution of comorbidities and complications associated with psoriasis varied according to disease subtype and was influenced by gender and lifestyle factors, such as alcoholism and smoking. Further research was necessary to elucidate the complex pathways linking psoriasis to its comorbidities and to develop targeted therapies that could significantly enhance patient outcomes.

Comorbidities related to psoriasis, specifically cardiovascular and endocrine metabolic diseases, are often associated with drinking and smoking among psoriasis patients.

Reference:

1. He S et al. Single-cell analysis and machine learning identify psoriasis-associated CD8+ T cells serve as biomarker for psoriasis. Frontiers in Genetics. 2024 Jun 10; 15:1387875
2. Huang R et al. A retrospective analysis of comorbidities in patients with psoriasis at a single centre. Postepy Dermatol Alergol. 2024 Apr;41(2):164-172.
3. Iskandar IYK et al. Systematic review examining changes over time and variation in the incidence and prevalence of psoriasis by age and gender. Br J Dermatol 2020; 184: 243-58.
4. Alajmi RS et al. Patterns of comorbidities in psoriasis patients: a cross-sectional study. Cureus 2021; 13: e14907.

Effect of mineral-based oil baths on transepidermal water loss and dry skin through infancy

Introduction:

About 20% of children in developed nations suffer from atopic dermatitis (AD), which is characterized by dry, itchy, and irritated skin that is prone to infections. Both lesional and nonlesional atopic skin exhibit increased transepidermal water loss (TEWL) as a result of the skin barrier function being compromised. Frequent use of emollient bath additives starting at 2 weeks of age did not prevent atopic dermatitis in the general population randomized controlled trial PreventADALL, and its impact on skin barrier function during infancy remains unknown. A skin barrier protein that is necessary for epidermal differentiation, including the formation and operation of the stratum corneum, is encoded by the FLG gene. In contrast to 10% of the general population, approximately 20–50% of AD patients14 have at least one FLG mutation. So, the author sought to evaluate the impact of the skin intervention on TEWL and

dry skin during infancy, and then to determine whether carrying FLG mutations could have any bearing on the potential effects. This allowed us to better understand why the skin intervention in the PreventADALL study did not prevent AD.

Methods:

This was an exploratory subanalysis of the PreventADALL study, a multicenter RCT and prospective birth cohort that enrolled 2697 pregnant women and used an electronic questionnaire to gather baseline data. The primary analyses included all 2153 of the 2394 randomized infants whose TEWL was measured on at least one of the clinical follow-up investigations at 3, 6, and/or 12 months of age. Additionally, the author analysed 1683 infants who also had information on their FLG mutation status. Also, the author assessed dry skin from birth, as well as dry skin (1) at any or multiple time-points, (2) at any time-point as moderate or severe, and (3) on cheeks and/or extensor surfaces of the extremities at any time-point for sensitivity analysis. Using mixed-effects regression modeling, the skin intervention's effects on TEWL and dry skin during infancy were evaluated. Weekly diaries, birth records, and electronic questionnaires were used to gather information on background traits and protocol compliance.

Results:

In total, 2153 infants were enrolled and randomized to receive either an oil bath four times a week for two weeks through 8 months as part of the "Skin intervention" (n=995) group or no skin intervention (n=1158) group. Throughout the first year of life, the SI group's TEWL (95% confidence interval) was, on average, 0.42 g m^{-2} h^{-1} (0.13–0.70, P=0.004) higher than that of the NSI group (Figure 1). At 3 months, the levels were significantly higher [8.6 (8.3–9.0) vs. 7.6 (7.3–7.9)], but they were similar at 6 and 12 months. At three months of age (59% vs. 51%) and six months of age (63% vs. 53%), the NSI group was observed to have dry skin significantly more frequently than the SI group; however, at 12 months of age, the difference was no longer significant.

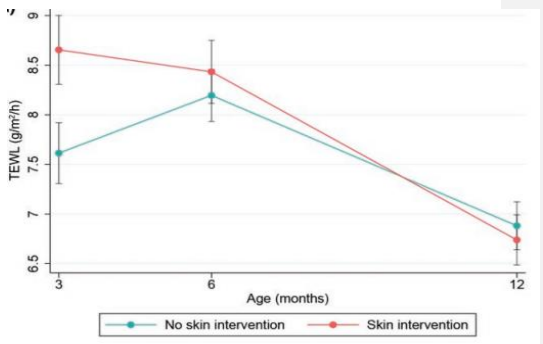


Figure 1. TEWL, in g m–2 h–1 (95% CI), was calculated using a linear mixed-effects model with random effects on the individual for repeated measurements at 3, 6, and 12 months of age in 2153 infants in the Skin intervention and No skin intervention groups.

Discussion:

This study indicated that infants who received a skin intervention involving face cream and bath oil containing paraffinum liquidum exhibited higher trans epidermal water loss (TEWL) at three months. Likewise, O'Connor C et al. found that infants who were given frequent emollient baths and leave-on emollients starting from day two of life showed significantly increased TEWL at two months of age.[2] This study's finding of reduced skin barrier function at three months in the skin intervention group was also supported by other study, which has reported increased TEWL associated with the use of leave-on emollients.[3]

Conclusion:

Frequent oil baths starting at two weeks of age resulted in lower skin barrier function throughout infancy as compared to controls. This was mostly due to higher TEWL at three months of age, and skin that was less dry at three and six months of age was observed in infants who received the skin intervention

Frequent oil baths starting at two weeks of age resulted in lower skin barrier function through infancy.

Reference:

1 Rehbinder EM et al. Frequent oil baths and skin barrier during infancy in the PreventADALL study. Br J Dermatol. 2024 Jun 20;191(1):49-57
2 O'Connor C et al. Early emollient bathing is associated with subsequent atopic dermatitis in an unselected birth cohort study. Pediatric Allergy and Immunology. 2023 Jul;34(7):e13998.
3 Kelleher MM et al. Skin care interventions in infants for preventing eczema and food allergy. Cochrane Database Syst Rev. 2021 Feb 5;2(2):CD013534.

Capillaroscopic analyses of lesions in patients with scleroderma-spectrum diseases

Introduction:

Nail-fold capillaroscopy is a non-invasive technique for evaluating the microcirculation in nail folds and is especially helpful for diagnosing systemic sclerosis and scleroderma-spectrum diseases, such as dermatomyositis, polymyositis, mixed connective tissue disease, and undifferentiated connective tissue disease, as well as for assessing activity, response to treatment, and the relationship between changes in microvessels and changes in organs.[1] Cutolo et al. defined scleroderma-like pattern microangiopathy as the capillaroscopic alterations typical of systemic sclerosis that occur in scleroderma-spectrum disorders.[2] About 20–40% of patients with idiopathic inflammatory myopathies, particularly DM with Raynaud's phenomenon, have such abnormalities diagnosed. About 50% of patients with MCTD and 5–

10% of patients with UCTD have the scleroderma-like pattern. Thus, the capillaroscopic images of the patients with scleroderma spectrum disorders were examined in this study. Additionally, a potential association between the clinical picture and serological profile and capillaroscopic abnormalities was evaluated.[1]

Methods:

In this observational study, 15 patients with scleroderma-spectrum conditions were included. Among them, 7 patients met the European League Against Rheumatism/American College of Rheumatology classification criteria, while 8 patients were diagnosed with mixed connective tissue disease (MCTD) using the Alarcon-Segovia diagnostic criteria. Nailfold capillaroscopy was performed on each subject using a 200× magnification Dino-Lite USB microscope. The first row of nailfold capillaries on fingers 2–5 of both hands was inspected. To prevent Raynaud's episodes, patients were instructed to remain at room temperature for fifteen minutes prior to the assessment. Nailfold microcirculation was evaluated qualitatively, categorizing the images into normal, non-specific lesions, and scleroderma-like microangiopathic patterns. Non-specific changes included twisted capillaries, microhaemorrhages, and dilated loops.

Results:

Out of the fifteen patients in the study, 7 were diagnosed with dermatomyositis (DM) and 8 with mixed connective tissue disease (MCTD). Scleroderma-like microangiopathy was found in 47% of patients with scleroderma-spectrum disorders, including 43% with DM and 50% with MCTD. Vascular abnormalities included early patterns in 42% of MCTD patients, active patterns in 29% (1 with DM and 1 with MCTD), and late patterns in 29% (only in DM patients). Non-specific changes were present in 27% of patients, with 28% in the DM group and 25% in the MCTD group. Normal capillaroscopic images were observed in 27% of patients, including 28% with DM and 25% with MCTD. Comparison between the DM and MCTD groups revealed that MCTD patients had significantly higher levels of muscle enzymes, as well as a significantly higher prevalence of arthritis and Raynaud's phenomenon. (Table 1)

Parameter	Study group	DM	MCTD
Number of patients	15	7	8
Raynaud's phenomenon	6 (40%)	3 (43%)	7 (87.5%)
ANA (Antinuclear antibodies)	15 (100%)	7(100%)	8 (100%)
ENA (Extractable nuclear antigen)	13 (87%)	5 (71.4%)	8 (100%)
Arthritis	6 (40%)	1 (14.3%)	5 (62.5%
Creatine kinase	9 (60%)	6 (85.7%)	3 (37.5%)

Table 1. Clinical characteristics of the DM and MCTD groups

Discussion:

In this study, significantly higher muscle enzyme levels in dermatomyositis (DM) patients was noted while mixed connective tissue disease (MCTD) patients had a higher incidence of arthritis and Raynaud's phenomenon. No association was found between scleroderma-like microangiopathy and specific clinical symptoms or capillaroscopic anomalies. The initial scleroderma-like microangiopathy pattern was unique to the MCTD group, consistent with existing study.[3]

Conclusion:

The analysis showed that the incidence of Raynaud's phenomenon and arthritis was statistically significantly higher in patients with systemic connective tissue disease than in those with dermatomyositis, and that the reduced number of vessels correlated with the occurrence of interstitial lung disease.

Monitoring scleroderma-spectrum disorders requires measuring capillary density, and a rapid vascular loss is linked to a higher severity of the condition.

Reference:

1. Wiąk-Walerowicz K et al. The usefulness of nailfold capillaroscopy in scleroderma-spectrum disorders: a single-centre observational study. Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii. 2024 Jun 3;41(3):296-300
2. Cutolo M et al. Nailfold capillaroscopy in rheumatology: ready for the daily use but with care in terminology. Clin Rheumatol 2019; 38: 2293-7.
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Case Report on Sporadic Pemphigus Foliaceus in a 3-Year-Old Vietnamese Girl

Introduction:

Pemphigus is a rare autoimmune blistering disease that affects the skin and mucous membranes, characterized by circulating autoantibodies against desmoglein's. This

autoimmune response results in the loss of cell-to-cell adhesion, leading to the formation of flaccid blisters and erosions that are prone to secondary infection and can cause significant morbidity and mortality. Although pemphigus is most commonly observed in adults, it can also occur in children, with an estimated incidence of eight cases per million per year. Only 1.4%–2.9% of pemphigus vulgaris (PV) cases involve patients younger than 12 years.[1] Childhood pemphigus remains rare, with PV being more prevalent than pemphigus foliaceus (PF) in the pediatric population. Misdiagnosis and diagnostic delays are frequent and can have severe consequences.[2] This report presents a rare case of sporadic pemphigus foliaceus in a 3-year-old Vietnamese girl.

Case Presentation:

A 42-month-old Vietnamese child presented with significant skin scaling and reddening. The skin lesions had initially appeared eight weeks prior, with scaly, crusted erythematous macules covering her face. Prior to the onset of these lesions, the patient had not been on any medication and had an unremarkable medical history. Initially misdiagnosed with inflamed eczema, she was treated with antibiotics for six weeks without improvement. She was then hospitalized for two weeks at a paediatric facility for a major skin infection and sepsis before being referred to our hospital.

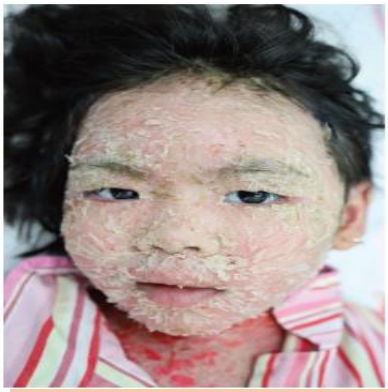

Figure 1. Patient with pemphigus foliaceus having large, faky scales on their face underneath diffuse erythema

Upon examination, her face displayed tight skin with ectropion and large, flaky scales against a background of diffuse erythema (Figure 1). On her trunk and extremities, there were areas of crusted erythematous skin interspersed with wet, eroded patches (Figure 2). The skin sores were extremely painful and restricted her movement. Nikolsky's sign was positive, but there was no involvement of nails or mucous membranes.

Microscopic analysis of the scaly erythematous lesions revealed superficial acantholysis and numerous isolated splits at the sub corneal layer, supporting the diagnosis of pemphigus foliaceus (PF). Haematocrit and biochemical tests were within normal limits, while antinuclear antibody (ANA) and anti-dsDNA tests were negative. Testing for DSM-1 and DSM-3 was not performed.

Figure 2. The trunk and extremities of a patient with pemphigus foliaceus showing widespread, crusty, scaly lesions

Treatment with prednisolone was initiated at 15 mg/day and increased to 20 mg/day after two weeks due to the slow healing of the lesions. The treatment regimen was adjusted to accommodate the patient's low glucose-6-phosphate dehydrogenase (G6PD) levels, maintaining the prednisolone dosage at 20 mg/day. After 4 weeks, the medication successfully reduced desquamation. The prednisolone dosage was then tapered by 2.5 mg every two weeks, reaching 5 mg/day by the third month. By the end of the eighth month of follow-up, systemic corticosteroids were discontinued, and the patient achieved complete remission.

Discussion:

Corticosteroids remain the most effective first-line treatment of PF in current guidelines. In this study, prednisone at 1 mg/kg/day resulted in a slow clinical response, with gradual symptom improvement despite the high dose. This indicates that while effective, the treatment required extended time to achieve results. Kianfar N et al. identified several corticosteroid-sparing agents, including azathioprine, mycophenolate mofetil, hydroxychloroquine, niacinamide, IV immunoglobulins, methotrexate, cyclophosphamide, and minocycline. Notably, two children who failed systemic corticosteroids and adjuvants showed dramatic improvement with rituximab. As the first FDA-approved biologic for pemphigus vulgaris in adults, rituximab has also demonstrated safety and efficacy in childhood and juvenile cases, making it a viable first-line therapy.[3]

Conclusion:

The course of pediatric PF is typically benign but chronic. Children with PF have not been known to die, and the lesions heal without leaving scars. For two months to over three years, nine kids had no lesions and didn't need any more care. However, most of the others required 5–20 mg of prednisone every other day because they were unable to stop taking systemic medications. More case reports are necessary to improve our knowledge of the best course of care and long-term outlook for pediatric patients with PF.

Pemphigus foliaceus in children can be misdiagnosed initially, so accurate diagnosis via skin biopsy and prompt corticosteroid treatment are crucial. Monitoring and adjusting therapy led to successful management and remission.

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1. Renert-Yuval Y et al. Diagnosis, treatment, and long-term outcomes of pediatric pemphigus: a retrospective study at tertiary medical centres. Int J Dermatol. 2024 May 31. PMID: 38819034.
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