

A Study on Psoriasis of Nails- Severity Scoring System

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Abstract:

Objective: To observe nail changes in all psoriasis patients attending our OPD and to compare the findings between Nijmegen nail psoriasis Activity Index Tool (N-NAIL) and Nail Psoriasis Severity Index (NAPSI) with the clinical severity by using PASI score.

Materials and methods: Thirty patients with nail psoriasis were included in the study. Full history taking and clinical examination were done in all patients. The nails changes were observed in all psoriasis patients and interpreted according to Nijmegen Nail Psoriasis Activity Index Tool (N-NAIL) and Nail Psoriasis Severity Index (NAPSI) and compared with PASI score.

Results: A total of 30 patients (21 males and 9 females) were included in the study. The nail changes observed in our study were onycholysis (53%), pitting (40%), subungual hyperkeratosis (33%), beau's lines (20%), crumbling (6%) and leukonychia (3%). (10%) had psoriatic arthritis. There was no correlation between both the scoring system and the severity of the disease.

Conclusion: In our study, we found that there was no correlation between both the scoring systems with the severity of the disease. Nail psoriasis seems to be an overlooked feature of the disease and hence an adequate nail psoriasis scoring system is necessary to prevent nail psoriasis.

Keywords: Nail psoriasis, Nijmegen nail psoriasis activity score (N-NAIL), Nail Psoriasis Severity Index (NAPSI).

1. INTRODUCTION

Psoriasis is an immunologically mediated inflammatory dermatosis which is characterized by erythematous scaly plaques, extremely variable in clinical manifestations ranging from innocuous lesions to life threatening pustular & erythrodermic psoriasis. It can affect any part of the body including the scalp, nail, palms and soles. Psoriasis can affect the nails with an incidence rate of 10% to 56%.^[1] Nail psoriasis in the absence of cutaneous disease is present in 5% to 10% of psoriasis patients.^{[2][3]} There is no sex predilection. Patients above 40 years of age are affected twice as often as those under 20 years.^{[4][5]} The prevalence of nail psoriasis associated with psoriatic arthropathy ranges from 50-87%.^{[6][7]} Clinical findings diagnostic for nail psoriasis are pitting, oil drop or salmon patch, onycholysis, subungual hyperkeratosis, nail plate discoloration, beau lines, red lunula and splinter hemorrhage, which depends on the anatomical site and extent of involvement.

The present study was conducted to compare the nail changes in all psoriasis patients which includes onycholysis, pitting, crumbling, subungual hyperkeratosis, beau lines, leukonychia, oil spots and interpret according to Nijmegen Nail Psoriasis Activity Index Tool (N-NAIL) and Nail Psoriasis Severity Index (NAPSI) with clinical evaluation using PASI score.

2. MATERIALS AND METHODS

The study was conducted in the Department of Dermatology, Sree Balaji Medical College from January 2016 to February 2016. Thirty patients with nail psoriasis were included in our study. All the types of psoriasis were included in our study. Full history taking and complete physical examination was done in all patients. The nails changes were observed in all psoriasis patients and interpreted according to Nijmegen Nail psoriasis Activity Index Tool (N-NAIL) and Nail Psoriasis Severity Index (NAPSI) and compared with the PASI score.

3. STATISTICAL ANALYSIS

Demographic variables and clinical variables in categorical/dichotomous were given in frequencies with their percentages. Nijmegen, NAPS I & PASI score was given in mean and standard deviation. Correlation between Nijmegen score, NAPS I score and PASI score was analyzed using Karl Pearson correlation coefficient method. Comparison of mean Nijmegen, NAPS I & PASI SCORE was analyzed using one-way analysis of Variance. Comparison of mean NAPS I SCORE & PASI score was analyzed using student independent t-test. Age wise comparison of Nijmegen, NAPS I & PASI score was analyzed using one-way analysis of Variance. Sex wise comparison of Nijmegen, NAPS I & PASI SCORE was analyzed using student independent t-test. Type of psoriasis comparison of Nijmegen, NAPS I & PASI SCORE was analyzed using one-way analysis of Variance. $P < 0.05$ was considered statistically significant.

4. RESULTS

A total of 30 patients (21males and 9 females) were included in the study. Most common age group was in the range of 21-30 years (26.6%) followed by 41-50 years (20.0%). [Figure 1] Twenty patients (66.6%) had chronic plaque type psoriasis, five patients (16.7%) had scalp psoriasis, two patients (6.7%) had palmoplantar psoriasis, two patients (6.7%) had plantar psoriasis and 1 patient (3.3%) had nail psoriasis alone. [Figure 2] 3 patients (10%) had psoriatic arthritis. There was positive correlation between the type of psoriasis with the scoring system (Nijmegen, NAPS I and PASI score). [Table 2] The nail changes observed in our study was onycholysis (53.3%), pitting (40%), subungual hyperkeratosis (33.3%), beau’s lines (20%), crumbling (6.7%) and leukonychia (3.3%). [Figure 3] There was positive correlation between N-NAIL score and NAPS I score. [Table 1] There was no correlation between NAPS I score, N-NAIL score with the PASI score.

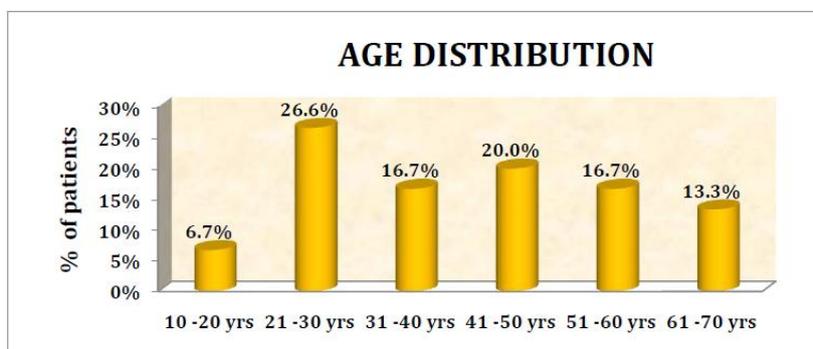


Figure1.

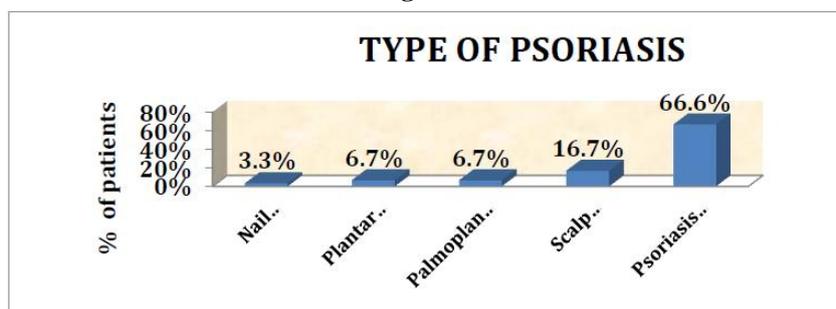


Figure2.

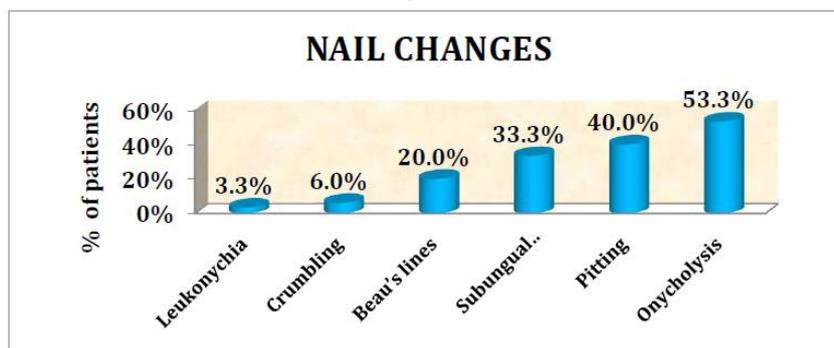


Figure3.

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Table1. Correlation Between Nijmegen Score Napsi Score Pasi Score

	Mean ± SD	Karl Pearson Correlation Coefficient	Interpretation
Nijmegen score Vs NAPSI score	8.47 ± 7.99 Vs 11.93 ± 11.77	r= 0.92 p=0.001 significant	There is a significant, positive , Strong correlation between Nijmegen score and NAPSI score
Nijmegen score Vs PASI score	8.47 ± 7.99 Vs 7.81 ± 7.62	r=0.29 P=0.13 not significant	There is a not significant, positive , Fair correlation between Nijmegen score and PASI score
NAPSI score Vs PASI score	11.93 ± 11.77 Vs 7.81 ± 7.62	r=0.25 P=0.21 not significant	There is a not significant, positive , Fair correlation between NAPSI score and PASI score

Not Significant $P > 0.05$ AT * significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

Table2. Type of Psoriasis Comparison of Nijmegen, Napsi & Pasi Score

		N	Mean	Std. Deviation	Onaway ANOVA F-test
N-NAIL SCORE	Nail ps	1	39.00	0.00	F=8.34 P=0.001 significant
	Plantar ps	2	3.00	0.00	
	PPPs	2	4.00	2.82	
	Ps.vulgaris	20	8.50	6.32	
	Scalp ps	5	6.20	2.38	
	Total	30	8.47	7.98	
NAPSI SCORE	Nail ps	1	56.00	0.00	F=7.59 P=0.001 significant
	Plantar ps	2	4.50	2.12	
	PPPs	2	5.00	1.41	
	Ps.vulgaris	20	12.00	9.35	
	Scalp ps	5	8.60	5.98	
	Total	30	11.93	11.771	
PASI SCORE	Nail ps	1	0.00	0.00	F=2.78 P=0.05 significant
	Plantar ps	2	3.20	0.00	
	PPPs	2	4.20	0.84	
	Ps.vulgaris	20	10.69	7.83	
	Scalp ps	5	1.12	0.50	
	Total	30	7.81	7.6299	

5. DISCUSSION

In the past years attention towards nail psoriasis and the treatment of nail psoriasis is increasing and specific nail psoriasis severity scores are needed. In 2003, Rich et al developed the nail psoriasis severity index (NAPSI), a simple objective tool for the measurement of nail psoriasis severity. It is used to evaluate the severity of nail bed and nail matrix psoriasis by area of involvement in the nail unit. Several other nail psoriasis scoring systems (modified NAPSI, nail area severity, target NAPSI, psoriasis nail severity score and Baran scoring) have also been developed. Each of these tools scores the presence or absence of nail psoriasis manifestations, but they differ in the type of scoring of features included and all have their advantages and disadvantages. Recently, Nijmegen nail psoriasis activity tool (N-NAIL) was developed which reflects better clinical severity than all other nail psoriasis scoring systems. In the N-NAIL, red lunula, oil spot/salmon patch and splinter hemorrhages are not included. Sum of the total score of all involved nails is the total N-NAIL score for that patient at that time. They are scored by percentage of involved area (PASI score) to give an impression of the severity.

Because no gold standard for nail psoriasis severity scoring exists, we did a compare study to find out the correlation between the NAPSI score and N-NAIL score with the severity of the disease (using PASI score). On comparison, we found that males were affected when compared to females, the common age group affected ranged between 21-30 years followed by 41-50 years. According to previous studies, Pitting is the most common abnormality seen in psoriasis in both adults and children.^{[8][9]} Grover et al, reported onycholysis as the most prevalent nail change (76.0%) of patients.^[10] In our

study, onycholysis (53.3%) was the most common abnormality followed by pitting (40%), subungual hyperkeratosis (33.3%), beau’s lines (20%), crumbling (6.7%) and leukonychia (3.3%). There was positive correlation between N-NAIL score and NAPSI score (coefficient score of 0.92) as there are few nail changes common in both the scoring system. There was no correlation between NAPSI score, N-NAIL score with the PASI score. On comparison, Nijmegen nail score has few advantages over NAPSI score as it takes only few minutes to calculate and it includes only five nail changes (onycholysis, beau’s lines, crumbling, pitting and subungual hyperkeratosis).

6. CONCLUSION

In our study on comparison between the NAPSI score and N-NAIL score, we found that there was no correlation between both the scoring systems with the severity of the disease. Nail psoriasis seems to be an overlooked feature of the disease and hence an adequate nail psoriasis scoring system is necessary to prevent nail psoriasis.

The Nijmegen-Nail psoriasis Activity Index Tool. [11]

Feature	Manner of scoring
Onycholysis/oil-drop discoloration	0= absent 1= 0-25% 2= 25-50% 3=> 50%
Pitting	0 = absent 1= mild 2= moderate 3= severe
Crumbling	0= absent 1= mild 2= moderate 3= severe
Beau’s lines	0= absent 1= 1 Beau Line 2= 2 Beau Lines 3= ≥ 3 Beau Lines
Subungual hyperkeratosis	0= absent 1= 1 mm 2= 2mm 3= ≥ 3mm

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