

Methodology

This prospective observational study was conducted in the Department of Nephrology at a tertiary center in north India. The primary aim was to determine the change in the 5-D Itch Score and serum IL-31 levels from the pre- to post-transplant period and to correlate the change in serum IL-31 levels with the change in the 5-D Itch Score over the same interval.

Patients ≥ 18 years of age with CKD V and pruritus, who were planned for kidney transplantation at the study center during the specified timeframe, were included. Patients with pre-existing skin disease or pruritus from any other cause were excluded.

Itch Assessment

Pruritus severity was evaluated using the 5-D Itch Scale (Figure 1). This instrument comprises five domains—duration, degree, direction, disability, and distribution—yielding a total possible score of 5 to 25.

Score Range	Interpretation
<9	No pruritus
9–11	Mild pruritus
12–17	Moderate pruritus
18–21	Severe pruritus
>21	Extremely severe pruritus

Serum IL-31 Levels

Samples for serum IL-31 were obtained at the time of admission for kidney transplantation and at one month following surgery.

Statistical analysis

Data were entered into a Microsoft Excel spreadsheet and analyzed using SPSS version 28.0. Continuous variables were presented as mean \pm standard deviation (SD). Categorical variables were expressed as frequencies and percentages. Comparisons between groups for continuous variables were done using one-way ANOVA. Associations between categorical variables were examined using Pearson's chi-square test. Correlation between continuous variables was assessed using Spearman's correlation coefficient. A multivariate linear regression analysis was performed to identify independent predictors. A p-value of <0.05 was considered statistically significant.

5-D Itch Scale

1. **Duration:** During the last 2 weeks, how many hours a day have you been itching?

Less than 6hrs/day 6-12 hrs/day 12-18 hrs/day 18-23 hrs/day All day

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

2. **Degree:** Please rate the intensity of your itching over the past 2 weeks

Not present Mild Moderate Severe Unbearable

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

3. **Direction:** Over the past 2 weeks has your itching gotten better or worse compared to the previous month?

Completely resolved Much better, but still present Little bit better, but still present Unchanged Getting worse

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4. **Disability:** Rate the impact of your itching on the following activities over the last 2 weeks

	Never affects sleep	Occasionally delays falling asleep	Frequently delays falling asleep	Delays falling asleep and occasionally wakes me up at night	Delays falling asleep and frequently wakes me up at night
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Sleep					
	N/A	Never affects this activity	Rarely affects this activity	Occasionally affects this activity	Frequently affects this activity
	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Leisure/Social					
	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Housework/Errands					
	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Work/School					
	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

5. **Distribution:** Mark whether itching has been present in the following parts of your body over the last 2 weeks. If a body part is not listed, choose the one that is closest anatomically.

Head/Scalp	<input type="checkbox"/>	Soles	<input type="checkbox"/>
Face	<input type="checkbox"/>	Palms	<input type="checkbox"/>
Chest	<input type="checkbox"/>	Tops of Hands/Fingers	<input type="checkbox"/>
Abdomen	<input type="checkbox"/>	Forearms	<input type="checkbox"/>
Back	<input type="checkbox"/>	Upper Arms	<input type="checkbox"/>
Buttocks	<input type="checkbox"/>	Points of Contact w/ Clothing (e.g waistband, undergarment)	<input type="checkbox"/>
Thighs	<input type="checkbox"/>	Groin	<input type="checkbox"/>
Lower legs	<input type="checkbox"/>		
Tops of Feet/Toes	<input type="checkbox"/>		

Figure 1 5D Itch score

Table1 Change in Itching severity in Post Transplant period

Pre- Transplant Severity	Complete Resolution	Mild Pruritus	Moderate Pruritus	Severe Pruritus	Extremely Severe Pruritus
Mild (26 patients)	23	3	0	0	0
Moderate (36 patients)	21	11	4	0	0
Severe (16 patients)	7	8	1	0	0
Extremely Severe (8 patients)	4	3	1	0	0

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