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Research Article

To Study the Effects of Hypnosis on Patients of Allergic Rhinitis using Total Nasal Symptom Score (Tnss)

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ABSTRACT
Background: Allergic rhinitis is a common chronic condition that can significantly affect quality of life. Hypnosis has been proposed as a complementary approach for symptom management. This study evaluated the effect of hypnosis on allergic rhinitis symptoms using the Total Nasal Symptom Score (TNSS).
Methods: An interventional study was conducted among 47 patients with allergic rhinitis at the Department of Otorhinolaryngology, A.J. Institute of Medical Sciences and Research Centre, Mangalore, from August 2022 to December 2023. Participants were assessed using TNSS before the hypnotic intervention and at 15, 30, 45 and 60 days after intervention. Changes in individual nasal symptoms and overall TNSS were evaluated.
Results: The mean pre-intervention TNSS was 7.28 ± 2.42. Following hypnosis, the mean TNSS decreased to 6.85 ± 2.03 at 15 days, 5.19 ± 1.34 at 30 days, 4.87 ± 1.17 at 45 days and 3.53 ± 1.23 at 60 days. A reduction in several individual allergic rhinitis symptoms was also observed during follow-up. Positive correlations were observed between baseline TNSS and TNSS at 15, 30, 45 and 60 days ($r = 0.982$, 0.861, 0.768 and 0.531, respectively; $p < 0.001$).
Conclusion: Hypnotic intervention was associated with a progressive reduction in TNSS over 60 days. Hypnosis may be a complementary approach for reducing symptoms of allergic rhinitis. Further controlled studies with larger sample sizes are required.

Keywords: Allergic Rhinitis, Hypnosis, Total Nasal Symptom Score, Tnss, Complementary Therapy.

INTRODUCTION

Allergic rhinitis (AR) is a common chronic inflammatory disorder of the upper respiratory tract characterised by symptoms such as nasal obstruction, rhinorrhea, sneezing and nasal itching, often associated with ocular symptoms. It is frequently triggered by aeroallergens, including pollen and grass. Allergic rhinitis can adversely affect sleep, daily activities, work performance and overall quality of life, making effective symptom control an important aspect of patient management. [1,2]

The management of allergic rhinitis includes allergen avoidance, pharmacological therapy and allergen immunotherapy. Antihistamines and intranasal corticosteroids are commonly used for symptomatic management, while allergen immunotherapy may provide longer-term disease modification in appropriately selected patients. However, persistent symptoms, treatment adherence, adverse effects and the requirement for prolonged treatment remain important clinical considerations. [2-4]

Assessment of symptom severity is an essential component of evaluating treatment response in allergic rhinitis. The Total Nasal Symptom Score (TNSS) is a commonly used clinical outcome measure incorporating the major symptoms of allergic rhinitis. It provides a simple and reproducible method for assessing changes in symptom severity before and after an intervention. [5,6]

Hypnosis is a psychological intervention involving focused attention, relaxation and increased responsiveness to suggestion. It has been investigated as a complementary therapeutic approach in several conditions in which psychological, neurological and physiological processes may interact. The possible influence of hypnosis on allergic manifestations has been investigated previously, with proposed mechanisms involving interactions between psychological

processes, the central nervous system, autonomic responses and immune mechanisms. [7,8]

The role of hypnosis in allergic rhinitis has been explored in previous clinical studies. Langewitz et al. conducted a randomized controlled intervention study in patients with moderate-to-severe pollen-induced allergic rhinitis and reported significant improvements in retrospective pollinosis symptom scores among patients who learned self-hypnosis. The study also demonstrated an effect on nasal provocation responses, suggesting a potential beneficial role of self-hypnosis in allergic rhinitis. [9]

Similarly, an earlier preliminary study evaluating group hypnosis and self-hypnosis reported subjective improvement in allergy symptoms among a substantial proportion of participants, with improvement being associated with regular practice of hypnosis. [10] These findings suggest that hypnosis may have potential as a complementary approach for symptom management in patients with allergic disorders.

Despite these observations, evidence regarding the clinical effects of hypnosis in allergic rhinitis remains limited. Most established treatment guidelines focus on pharmacological therapy, allergen avoidance and allergen immunotherapy, while hypnosis is not routinely included as a standard treatment modality. [1-4,11] Therefore, further clinical evaluation using standardized symptom assessment tools is warranted.

The present study was undertaken to evaluate the effects of hypnosis on patients with allergic rhinitis using the Total Nasal Symptom Score (TNSS). Changes in individual allergic rhinitis symptoms and overall TNSS were assessed at 15, 30, 45 and 60 days following the hypnotic intervention.

MATERIALS AND METHODS

Study Design and Setting

This interventional study was conducted in the Department of Otorhinolaryngology, A.J. Institute of Medical Sciences and Research Centre, Mangalore, over a period of 16–18 months from August 2022 to December 2023. The study was initiated after obtaining approval from the Institutional Ethics Committee. Written informed consent was obtained from all participants before enrolment.

Study Participants

A total of 47 patients with symptoms of allergic rhinitis attending the Department of Otorhinolaryngology, either as outpatients or inpatients, were included in the study. Participants aged 16–55 years with sensitisation to grass and/or pollen and a history of moderate-to-severe allergic symptoms for at least two years were eligible for inclusion.

Patients who were pregnant, had mild allergic asthma, psychiatric disorders, drug abuse, concurrent use of non-conventional treatments, or a history of pollen immunotherapy within the preceding two years were excluded from the study.

Sampling

Participants were selected using convenience sampling. A total sample size of 47 patients was included in the final analysis.

Data Collection

A detailed clinical history was obtained from each participant, followed by a comprehensive ENT examination. Baseline assessment of allergic rhinitis symptoms was performed before the hypnotic intervention. The same participants were reassessed following the intervention to determine changes in symptom severity.

Assessment of Nasal Symptoms

The primary outcome was the change in Total Nasal Symptom Score (TNSS) before and after the hypnotic intervention. The symptom assessment included the following parameters:

1. Nasal obstruction
2. Sneezing
3. Rhinorrhea
4. Nasal itching
5. Pharyngeal itching
6. Watering of the eyes

The pre-intervention and post-intervention scores were recorded for each participant and used for comparison.

Statistical Analysis

The pre- and post-intervention TNSS values were compared using a paired *t*-test. A p value <0.05 was considered statistically significant.

RESULTS AND OBSERVATIONS

A total of 47 participants with allergic symptoms were included in the study. The participants were assessed at baseline and followed up at 15, 30, 45 and 60 days after the hypnotic intervention. The changes in Total Nasal Symptom Score (TNSS) and individual nasal symptoms were evaluated during follow-up.

Table 1. Age-wise Distribution of Study Participants

Age group (years)	Frequency (n)	Percentage (%)
20–29	11	23.4
30–39	20	42.6
40–49	11	23.4
50–59	5	10.6
Total	**47**	**100.0**

Observation: The majority of participants (42.6%) were in the 30–39-year age group, followed by 20–29 and 40–49 years (23.4% each). Participants aged 50–59 years constituted 10.6% of the study population. The mean age was 36.62 ± 8.56 years.

Table 2. Gender-wise Distribution of Study Participants

Gender	Frequency (n)	Percentage (%)
Male	21	44.7
Female	26	55.3
Total	**47**	**100.0**

Observation: Females constituted 55.3% of the study participants, while males constituted 44.7%.

Table 3. Pre-Intervention TNSS among Study Participants

Parameter	Minimum	Maximum	Mean ± SD
Nasal obstruction	1	3	1.94 ± 0.70
Nasal discharge	1	3	1.87 ± 0.61
Sneezing	0	3	1.70 ± 0.77
Itching & watering of eyes	0	1	0.26 ± 0.48
Nasal itching	0	3	1.06 ± 0.79
Palatal & pharyngeal itching	0	1	0.40 ± 0.40
Total TNSS	**3**	**12**	**7.28 ± 2.42**

Observation: The mean pre-intervention TNSS was 7.28 ± 2.42, with individual symptom scores demonstrating the presence of nasal and associated allergic symptoms.

Table 4. TNSS Parameters at 15-day Follow-up after Hypnosis

Parameter	Minimum	Maximum	Mean ± SD
Nasal obstruction	1	3	1.81 ± 0.64
Nasal discharge	1	3	1.72 ± 0.49
Sneezing	0	3	1.60 ± 0.74
Itching & watering of eyes	0	1	0.23 ± 0.47
Nasal itching	0	3	1.04 ± 0.75
Palatal & pharyngeal itching	0	1	0.40 ± 0.50

Observation: At 15 days, a reduction in the mean scores of most individual symptoms was observed compared with baseline.

Table 5. TNSS Parameters at 30-day Follow-up after Hypnosis

Parameter	Minimum	Maximum	Mean ± SD
Nasal obstruction	1	2	1.57 ± 0.50
Nasal discharge	0	2	1.49 ± 0.58
Sneezing	0	3	1.28 ± 0.65
Itching & watering of eyes	0	1	0.13 ± 0.39
Nasal itching	0	2	0.64 ± 0.60

Palatal & pharyngeal itching	0	1	0.17 ± 0.38

Observation: A further reduction in the mean scores of nasal obstruction, nasal discharge, sneezing, ocular symptoms, nasal itching and pharyngeal itching was observed at 30 days.

Table 6. TNSS Parameters at 45-day Follow-Up after Hypnosis

Parameter	Minimum	Maximum	Mean ± SD
Nasal obstruction	1	2	1.62 ± 0.49
Nasal discharge	0	2	1.40 ± 0.57
Sneezing	0	2	1.21 ± 0.62
Itching & watering of eyes	0	1	0.13 ± 0.39
Nasal itching	0	2	0.40 ± 0.57
Palatal & pharyngeal itching	0	1	0.09 ± 0.28

Observation: At 45 days, the mean scores remained lower than the pre-intervention values, particularly for nasal itching and pharyngeal itching.

Table 7. TNSS Parameters at 60-day Follow-up after Hypnosis

Parameter	Minimum	Maximum	Mean ± SD
Nasal obstruction	0	2	1.13 ± 0.44
Nasal discharge	0	2	1.06 ± 0.52
Sneezing	0	2	0.72 ± 0.54
Itching & watering of eyes	0	1	0.02 ± 0.14
Nasal itching	0	2	0.55 ± 0.54
Palatal & pharyngeal itching	0	1	0.04 ± 0.20

Observation: The lowest mean scores for most symptoms were observed at 60 days, indicating sustained reduction in allergic symptoms during follow-up.

Table 8. Overall TNSS after Hypnotic Intervention

Follow-up period	Minimum	Maximum	Mean ± SD
15 days	3	11	6.85 ± 2.03
30 days	3	8	5.19 ± 1.34
45 days	3	7	4.87 ± 1.17
60 days	2	8	3.53 ± 1.23

Observation: The mean TNSS progressively decreased from 6.85 ± 2.03 at 15 days to 3.53 ± 1.23 at 60 days.

Table 9. Correlation between Pre-Intervention and 15-Day Post-Hypnosis TNSS

Assessment	Mean ± SD	Correlation coefficient (r)	*p* value
Pre-intervention	7.28 ± 2.42	0.982	<0.001
15-day follow-up	6.85 ± 2.03		

Observation: A strong positive correlation was observed between baseline TNSS and 15-day TNSS (r = 0.982), which was statistically significant.

Table 10. Correlation between Pre-Intervention and 30-Day post-Hypnosis TNSS

Assessment	Mean ± SD	Correlation coefficient (r)	*p* value
Pre-intervention	7.28 ± 2.42	0.861	<0.001

30-day follow-up	5.19 ± 1.34		

Observation: A strong positive correlation was observed between baseline and 30-day TNSS (r = 0.861), with statistical significance.

Table 11. Correlation between Pre-Intervention and 45-Day post-Hypnosis TNSS

Assessment	Mean ± SD	Correlation coefficient (r)	*p* value
Pre-intervention	7.28 ± 2.42	0.768	<0.001
45-day follow-up	4.87 ± 1.17		

Observation: A statistically significant positive correlation was observed between pre-intervention and 45-day TNSS (r = 0.768).

Table 12. Correlation between Pre-Intervention and 60-Day Post-Hypnosis TNSS

Assessment	Mean ± SD	Correlation coefficient (r)	*p* value
Pre-intervention	7.28 ± 2.42	0.531	<0.001
60-day follow-up	3.53 ± 1.23		

Observation: A statistically significant positive correlation was observed between baseline and 60-day TNSS (r = 0.531). The correlation was weaker than that observed at earlier follow-up periods.

DISCUSSION

The present interventional study evaluated the effects of hypnosis on allergic rhinitis symptoms using the Total Nasal Symptom Score (TNSS) among 47 participants. Participants were assessed at baseline and subsequently followed at 15, 30, 45 and 60 days after the hypnotic intervention. The principal finding of the study was a progressive reduction in mean TNSS during follow-up.

In the present study, the mean age of participants was 36.62 ± 8.56 years, with the largest proportion belonging to the 30–39-year age group. Females constituted 55.3% of the study population, while males constituted 44.7%. The participants represented a broad adult age range and had a history of allergic symptoms for at least two years.

At baseline, the mean TNSS was 7.28 ± 2.42, indicating a considerable burden of allergic rhinitis symptoms. Among the individual symptoms, nasal obstruction, nasal discharge and sneezing contributed substantially to the overall symptom score. TNSS is frequently used in allergic rhinitis clinical research because it provides a practical method for assessing the severity of major nasal symptoms and evaluating response to treatment. [5,6]

Following the hypnotic intervention, a progressive decline in mean TNSS was observed. The mean TNSS was 6.85 ± 2.03 at 15 days, 5.19 ± 1.34 at 30 days, 4.87 ± 1.17 at 45 days and 3.53 ± 1.23 at 60 days. Thus, the lowest mean TNSS was observed at 60 days of follow-up. The improvement was also reflected in several individual symptoms, including nasal discharge, sneezing, ocular symptoms and palatal/pharyngeal itching.

The findings of the present study are consistent with previous investigations exploring hypnosis in allergic rhinitis. Langewitz et al. conducted a randomized controlled study among patients with moderate-to-severe allergic rhinitis associated with grass or birch pollen. Their study reported a significant improvement in retrospective pollinosis symptoms among patients who learned self-hypnosis, with a reduction of 29.2 points on a 0–100 visual analogue scale during the first year. An effect on nasal provocation responses was also reported. [9] The improvement in TNSS observed in the present study is in accordance with the direction of findings reported by Langewitz et al., although direct numerical comparison is inappropriate because the outcome measures and study designs differed.

The present findings are also comparable with the preliminary observations of Madrid et al., who investigated group hypnosis and self-hypnosis in individuals with allergies. A substantial proportion of participants reported improvement in allergy symptoms, and improvement was associated with regular practice of self-hypnosis. [10] Together, these findings provide preliminary support for further investigation of hypnosis as a complementary

intervention for allergic symptoms.

The mechanism through which hypnosis may influence allergic rhinitis symptoms remains uncertain. Previous literature has discussed possible interactions between psychological processes, the central nervous system, autonomic regulation and immune responses. [7,8] Hypnosis may also influence the perception and subjective experience of symptoms through relaxation and suggestion. However, the present study assessed clinical symptom scores only and therefore cannot establish a specific physiological mechanism responsible for the observed improvement.

An important observation in the present study was the sustained reduction in TNSS during the 60-day follow-up. The mean TNSS decreased from 7.28 ± 2.42 at baseline to 3.53 ± 1.23 at 60 days. This suggests that symptom improvement was maintained throughout the observation period. However, because the study did not include a separate control or sham-hypnosis group, factors such as natural variation in allergic symptoms, changes in allergen exposure, placebo effects and regression toward the mean cannot be completely excluded.

The correlation analysis demonstrated positive correlations between baseline TNSS and TNSS at 15, 30, 45 and 60 days, with correlation coefficients of 0.982, 0.861, 0.768 and 0.531, respectively. All reported correlations were statistically significant. The decreasing strength of correlation over time suggests that the relationship between baseline symptom severity and subsequent TNSS became weaker with increasing follow-up duration. Nevertheless, correlation analysis should not be interpreted as evidence of treatment efficacy by itself; the observed change in mean TNSS is more directly relevant to the study objective.

Conventional treatment remains the established approach for management of allergic rhinitis. Current guidelines recommend appropriate pharmacological treatment, allergen avoidance and, in selected patients, allergen immunotherapy. [1-4,11] Allergen immunotherapy has demonstrated clinical efficacy and may provide longer-term benefits, particularly in appropriately selected patients with allergic rhinoconjunctivitis. [12] Therefore, hypnosis should be considered a potential complementary intervention rather than a replacement for established evidence-based treatment.

The present study has several limitations. The sample size was relatively small, and participants were selected using convenience sampling. The study did not include a randomised control group or sham-hypnosis group. The primary outcome was based on symptom scoring, and objective measures such as nasal airflow, inflammatory biomarkers, medication consumption and quality-of-life scores were not available for evaluation. In addition, follow-up was limited to 60 days. These limitations restrict the ability to establish a definitive causal relationship between hypnosis and improvement in allergic rhinitis symptoms.

Despite these limitations, the study demonstrated a consistent reduction in TNSS following hypnotic intervention over the 60-day follow-up period. The findings are broadly consistent with previous clinical observations suggesting a potential role for hypnosis in allergic symptom management. Larger randomised controlled studies with standardised hypnosis protocols, longer follow-up and objective clinical or immunological outcomes are required to confirm these findings.

Overall, the present study suggests that hypnosis may have potential as a complementary approach for reducing the symptom burden of allergic rhinitis, as demonstrated by the progressive reduction in TNSS during follow-up.

CONCLUSION

Hypnotic intervention was associated with a progressive reduction in Total Nasal Symptom Score among patients with allergic rhinitis over 60 days. The findings suggest that hypnosis may be a useful complementary approach for reducing allergic rhinitis symptoms. Further controlled studies with larger sample sizes are required to confirm its effectiveness.

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