

Assessment Of Allergic Rhinitis And Its Consequences On Quality Of Sleep Among The Allergic Rhinitis Patients Attending The Tertiary Care Centre In Kancheepuram District

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Abstract

Introduction: Allergic rhinitis is an extremely common health problem affecting between 10-25% of the world's population. Patients with AR suffer from both nasal symptoms and ocular symptoms. Impairments in performance of daily activities and QOL affect both adults and children, and patients may also suffer from sleep disorders, emotional problems, and impaired social functioning.

Aim: To assess allergic rhinitis and its consequences on quality of sleep.

Materials and methods: In a 3-month duration, it is a unblinded cross sectional study with sample of 100 population to assess the quality of sleep with a questionnaire.

Result: Most of these Allergic Rhinitis patients had features of Nasal congestion, Stuffy nose, Postnasal drip, headache during nights which affected the quality of sleep.

Conclusion: significant impact of allergic rhinitis on all dimensions of sleep quality and 30 % of the study population had restless sleep during nights.

Keywords: allergic rhinitis, quality of sleep, nasal congestion

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I. Introduction

Allergic rhinitis (AR) is an extremely common health problem affecting between 10-25% of the world's population. Patients with AR suffer from both nasal symptoms (congestion, rhinorrhea, itching, and sneezing) and ocular symptoms (itching, redness, and tearing)^[1]. The negative impact on sleep quality and quantity, and consequently on various aspects of the patient's life, is an under-recognized and under-treated component of AR morbidity^[2]. Nasal congestion, which is one of the most bothersome and prevalent symptoms of AR, is thought to be the leading symptom responsible for rhinitis-related sleep problems^[6,7].

In addition to reducing clinical symptoms, pharmacologic therapies for AR that specifically reduce inflammatory cells and mediators – and therefore nasal congestion and other symptoms – should also improve sleep quality and overall quality of life^[3,9] (QOL).

It has been 40 years since Cottle suggested that “sleeping patterns are in great measure dependent on good nasal function”. Allergic rhinitis is one of the major causes of impaired nasal function. It is caused by airborne particles that affect people who are allergic to them, and its symptoms are brought about by the activation of mast cells, basophils, and other proinflammatory cells of the nasal mucosa^[11]. It is now recognized that the symptoms reported by patients with allergic rhinitis comprise more than the classic symptoms of sneezing, rhinorrhea, and nasal obstruction. Impairments in performance of daily activities and QOL affect both adults and children, and patients may also suffer from sleep disorders, emotional problems, and impaired social functioning^[8].

Mechanisms of sleep changes in allergic rhinitis

Mediators	Effect on sleep
Histamine	Involved in balance between wake fullness and slow wave activity during sleep through H1 receptors in brain ^[10]
CysLT	Increased slow wave sleep
IL-1	Effects probably mediated in part through increase PGD2, increase non REM sleep, associated with Decreased latency to sleep onset, increased latency to REM and decreased REM duration
IL-10	associated with Decreased latency to sleep onset, increased latency to REM and decreased REM duration

TNF alpha	associated with Decreased latency to sleep onset, increased latency to REM and decreased REM duration
PGD2	probably mediated in part through increase PGD2
Bradykinin	Increased REM, increased non REM
Substance P	Increased latency to REM, arousing effect^[5]

AIM: To assess allergic rhinitis and its consequences on quality of sleep.

II. Methods

Subject

One hundred adults 18 years of age or older were enrolled. All patients were required to have current symptoms of NAR with impaired sleep quality. Symptoms were required to be sufficiently troublesome to require additional medication and to score 1.0 or more in the symptom domain of the Standardized Rhino conjunctivitis Quality of Life Questionnaire^[12] (RQLQ(S)) (0 = no impairment, 6 = maximum impairment).

Study design

The study was a 3-month, unblinded, cross sectional study with subjects assessed in the clinic. The study is being conducted in Karpaga Vinayaga Institute of Medical Science and Research Centre, Maduranthagam. Study population was patients who are attending ENT OPD, All the patients males and females attending ENT OPD with symptoms and signs of allergic rhinitis, excluding Age less than 18 years and more than 60 years and Patients with other causes of sleep disturbance with Sample size 100 (convenient sampling)

Outcome measures

Nocturnal Rhino conjunctivitis Quality of Life Questionnaire.

The self-administered version of this questionnaire was completed by all patients at OP visit.

Statistics

The data collected from the self-structured questionnaire answered by the sample population was analyzed by SPSS software and the following results were obtained

Sleep problem analysis

7% of the population had no trouble in getting sleep, 19% population are hardly troubled getting sleep, 40% population are somewhat troubled getting sleep, 23% population are moderately troubled getting sleep, 8% population are quite a bit troubled getting sleep.

5% of population had no trouble getting good night sleep and do not wake up during night, 19% are hardly troubled, 26% are somewhat troubled, 31% are moderately troubled, 14% are quite a bit troubled, 4% are very troubled and 1% population are extremely troubled getting a good night sleep and wake up during night.

3% of population are not restless (tossing and turning) during sleep, 19% are hardly restless, 30% are somewhat restless, 21% are moderately restless, 15% are quite a bit restless, 9% are very restless and 3% are extremely restless (tossing and turning) during sleep.

6% of population had no trouble of stuffy nose, 9% are hardly troubled, 28% are somewhat troubled, 18% are moderately troubled, 20% are quite a bit troubled, 9% are very troubled and 10% are extremely troubled having to get up because of stuffy nose and to blow nose.

Sleep time problems

5% of population had no trouble of nasal congestion/stuffy nose, 16% are hardly troubled, 23% are somewhat troubled, 22% are moderately troubled, 21% are quite a bit troubled, 11% are very troubled and 2% are extremely troubled of nasal congestion/ stuffy nose.

10% of population had no trouble of sinus pressure/pain, 18% are hardly troubled, 19% are somewhat troubled, 23% are moderately troubled, 17% are quite a bit troubled, 10% are very troubled and 3% are extremely troubled of sinus pressure/pain.

8% of population had no trouble of runny nose, 14% are hardly troubled, 14% are somewhat troubled, 25% are moderately troubled, 22% are quite a bit troubled, 11% are very troubled and 6% are extremely troubled of runny nose.

7% of population had no trouble of post nasal drip, 16% are hardly troubled, 21% are somewhat troubled, 16% are moderately troubled, 16% are quite a bit troubled, 18% are very troubled and 6% are extremely troubled of post nasal drip.

3% of population had no trouble of headache, 14% are hardly troubled, 26% are somewhat troubled, 14% are moderately troubled, 24% are quite a bit troubled, 11% are very troubled and 8% are extremely troubled of headache.

Symptoms on waking in the morning

2% of population had no trouble of waking up tired/unrefreshed, 15% are hardly troubled, 21% are somewhat troubled, 28% are moderately troubled, 12% are quite a bit troubled, 15% are very troubled and 7% are extremely troubled waking up tired/unrefreshed.

3% of population had no trouble of waking up with nasal congestion/stuffy nose, 13% are hardly troubled, 14% are somewhat troubled, 28% are moderately troubled, 22% are quite a bit troubled, 14% are very troubled and 6% are extremely troubled of waking up with nasal congestion/stuffy nose.

6% of population had no trouble of waking up with congestion in sinuses, 15% are hardly troubled, 28% are somewhat troubled, 18% are moderately troubled, 16% are quite a bit troubled, 13% are very troubled and 4% are extremely troubled of waking up with congestion in sinuses.

4% of population had no trouble of taking time to clear night time drainage after waking, 16% are hardly troubled, 20% are somewhat troubled, 28% are moderately troubled, 17% are quite a bit troubled, 10% are very troubled and 5% are extremely troubled of taking time to clear night time drainage after waking.

Practical problems

5% of population had no trouble of having to avoid Symptom triggers such as dust, smoke, strong smell, perfumes, 9% are hardly troubled, 23% are somewhat troubled, 25% are moderately troubled, 22% are quite a bit troubled, 12% are very troubled and 4% are extremely troubled of having to avoid Symptom triggers such as dust, smoke, strong smell, perfumes.

4% of population had no trouble of needing to rub nose/eyes 13% are hardly troubled, 20% are somewhat troubled, 21% are moderately troubled, 14% are quite a bit troubled, 22% are very troubled and 6% are extremely troubled of need to rub nose/eyes.

4% of population had no trouble of taking medications, 12% are hardly troubled, 24% are somewhat troubled, 17% are moderately troubled, 17% are quite a bit troubled, 16% are very troubled and 10% are extremely troubled of taking medications.

III. Results

Allergic rhinitis moderately affects the quality of sleep. Majority of Allergic Rhinitis patients had troubled getting sleep and around 30% of patients had restless sleep during nights^[4]. Most of these Allergic Rhinitis patients had features of Nasal congestion, Stuffy nose, Postnasal drip, headache during nights which affected the quality of sleep^[13]. These patients had a feeling of unrefreshed sleep during nights and affected the daily work activities according to our study.

IV. Conclusion

The present cross-sectional study provides details regarding the allergic rhinitis and its consequences on the sleep quality. This study done using the Nocturnal Rhino conjunctivitis Quality of Life Questionnaire in the study population for three months. It is already known that AR adversely affects quality of life, but to our knowledge, there is change in frequency and pattern of sleep quality in the population with AR had never been determined. Moreover, this study also addresses the consequences of sleep quality on day to day life. The results show a significant impact of AR on all dimensions of sleep quality and 30 % of the study population had restless sleep during nights. This findings suggest that patients consulting for AR should be routinely questioned about their sleep quality and their daytime somnolence ^[14]. This helps in early detection and management of sleep quality in these patients.

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