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Sleep-related Choking Episodes: Is it Allergic or Reflux?

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Abstract

Background: Sleep-related choking attacks and cough which leads to poor quality of life, arise from laryngeal irritability with unknown exactly etiology. The important causes are upper airway cough syndrome (UACS) due to either allergy or gastro- esophageal reflux.

Aim: To determine the efficacy of 2 treatment regimens among sleep-related choking patients depending on ambulatory 24-hour pH monitoring results.

Methods: A randomized controlled study was carried out on 324 patients with sleep-related choking attacks and cough. All patients were subjected to visual analog scale (VAS). Patients with positive reflux documented by pH monitoring received esomeprazole for 4 weeks. While negative reflux patients divided into equal randomized groups: one control group received esomeprazole and the study group received cetirizine for the same period.

Results: 70.8% showed marked improvement in positive reflux patients received esomeprazole. 52.6% in the control patients group showed marked improvement who received esomeprazole while statically significant improvement in study group (87.3%) who received cetirizine.

Conclusion: Sleep-related choking episodes could be allergic as well as laryngopharyngeal reflux disease.

Keywords: Nocturnal choking; LPRD; Allergy

Introduction

Sleep-related choking attacks and cough which usually characterized by suddenly arousal attack during sleep with unresponsive to external stimuli during the attack [1].

It is defined also as episodic from sleep disruption with feeling of suffocation and repetitive cough with similar patients history from suddenly awakening and intense fear from feeling of impending death for a period last up to 45s and returned to normal within minutes following by exhausted feeling [2]. Generally it leads to poor quality of life [3].

Vocal cord paresis due to multiple system atrophy with autonomic failure (MSA-AF) also is strong etiological factor in developing Sleep-related choking attacks and cough [4].

Nocturnal choking attacks arise from laryngeal irritability with unknown exactly etiology [5].

However, due to the rarity of sleep-related choking episodes, it was very difficult to predict its clear pathogenesis and etiological factors [6].

The important causes of nocturnal cough are upper airway cough syndrome (UACS) due to either allergy or gastro- oesophageal reflux [7].

Chronic cough, throat clearing and choking related to LPRD [8], psychological stress, and allergy causes [9].

Sleep-related choking attacks and cough associated usually with aero digestive irrelative lesions could be produced by laryngopharyngeal reflux disease (LPRD) [10].

laryngopharyngeal reflux disease (LPRD) with laryngeal penetration is a possible etiological explanation without any stridor or laryngospasm during daytime or sleep [8].

Subclinical laryngopharyngeal reflux disease (LPRD) may be the explanation for sleep related choking in who denies any LPRD symptoms with negative ambulatory 24-hour pH monitoring results [11].

Some authors believe that the evidence that the two are related is not established [12].

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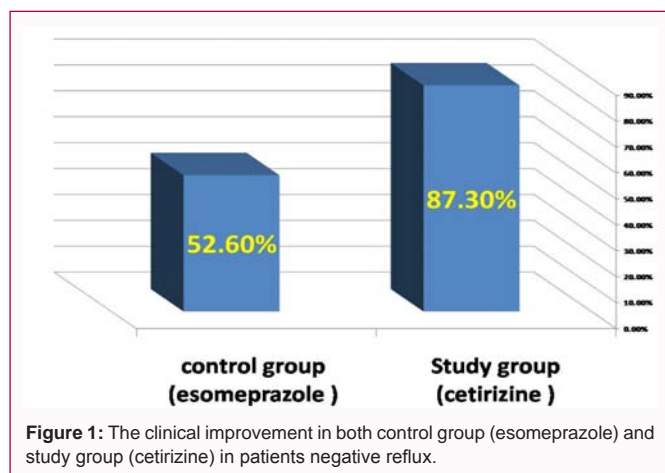


Figure 1: The clinical improvement in both control group (esomeprazole) and study group (cetirizine) in patients negative reflux.

Some authors refer it to allergic origin and relate "paradoxical vocal fold to asthma with the treatment of it with bronchodilators or antihistaminic [13].

Our study aimed to determine the efficacy of 2 treatment regimens among Sleep-related choking patients depending on ambulatory 24-hour pH monitoring results.

Materials and Methods

A randomized controlled study was carried out in Suez Canal University Hospital during the period from January 2007 to January 2012.

324 patients with sleep-related choking attacks and cough were included in this study while we excluded patients with smoking, alcohol intake, chronic rhino sinusitis infections of the upper respiratory tract, mass lesions of the vocal cords (nodules, polyps, and cysts), mechanical or chemical injuries of the larynx, any neurological deficit, previous neck surgery or previous treatment for LPRD and previous used of anti reflux medical therapy.

All patients were subjected to the following:-

A) Complete history; complete ENT examination, complete neurological examination especially cranial nerves assessment.

B) A special questionnaire was designed to evaluate the intensity of the symptom using the visual analog scale (VAS). A score of 0 indicated absence of the symptom; a score of 10 indicated the most severe intensity of the symptom.

C) Laryngoscopic examination to demonstrate the vocal cords mobility or any abnormalities could be detected.

D) Nasopharyngeal examination (to exclude sinusitis and post nasal discharge).

E) Barium swallows (to exclude any associated disorder such as hiatus hernia).

F) Ambulatory 24 h pH-monitoring with calculation of mean percentage of the time (pH <4) then a 24 Hours pH monitoring was ordered (positive when pH lower than 4 [14].

Ethical consideration

Written consents were obtained from all patients before the study. The local ethics committee had approved the study.

Patients with positive reflux documented by pH monitoring

received once-daily esomeprazole 40mg for 4 weeks [14]. While patients with negative reflux documented by pH monitoring results divided into equal randomized groups: one control group (received only esomeprazole 40mg for 4 weeks) [14] and the study group (received 10 mg. cetirizine *Hydrochloride* is given as a single daily dose for the same period) [15].

A senior otolaryngologist was blind to the treatment protocol performed follow-up evaluation for all patients after the end of medical treatment by VAS questionnaire

Statistical analysis

The data collected were processed using SPSS version 15(SPSS Inc., Chicago, IL, USA). Quantitative data were expressed as means±SD while qualitative data were expressed as numbers and percentages (%). Student *t*-test was used to test the significance of difference for quantitative variables that follow normal distribution.

Results

324 patients (137 males and 187 females) diagnosed with sleep-related choking attacks and cough with mean age 44.6 years were included to our study. The mean duration of sleep-related choking attacks and cough was (3.2) months.

168 patients (51.9%) had positive reflux documented by ambulatory 24 h pH-monitoring. All of them had sleep-related choking and Cough as the main represented symptoms, 74 patients (44%) had a Feeling of lump in throat and 51 patients (30.4%) had frequent throat cleaning.

Laryngoscopic examination revealed that red, irritated arytenoids were detected in 48 patients (28.6%) while no abnormalities could be detected in the others.

168 patients (51.9%) had positive reflux received esomeprazole 40mg for 4 weeks [14] 119 patients (70.8%) showed marked improvement in follow-up evaluation after the end of medical treatment by VAS questionnaire, partial improvement occurred in 23 patients (13.7%) while 26 patients (34.3%) reported no improvement (15.5%).

156 patients (48.1%) had negative reflux documented by ambulatory 24h pH-monitoring. All of them had sleep-related choking and Cough as the main represented symptoms, 102 patients (65.4%) had a throat irritation with tickling sensation.

Laryngoscopic examination revealed no abnormalities could be detected in all of them.

156 patients with negative reflux were equally divided into two randomized groups: one control group (78 patients) received esomeprazole 40mg for 4 weeks [14] and the study group (78 patients) received 10 mg cetirizine *Hydrochloride* is given as a single daily dose for the same period [15].

41 patients (52.6%) in the control group showed marked

Table 1: Comparison the clinically improvement between control group (esomeprazole) and study group (cetirizine) with negative reflux after 4 weeks.

	Control group (esomeprazole)	Study group (cetirizine)	P value
Marked improvement	41patients (52.6%)	68 patients (87.3%)	S
partial improvement	9 patients (11.5%)	3 patients (3.8%)	S
no improvement	28 patients (35.9%)	7 patients (8.9%)	S

All comparisons were significant ($P_{.05}$ was considered statistically significant).

improvement in follow-up evaluation after the end of medical treatment by VAS questionnaire comparing and 68 patients (87.3%) in the study group who had a statically significant improvement when compared with the control group, partial improvement occurred in 9 patients (11.5%) in the control group and 3 patients (3.8%) in the study group.

While 28 patients (35.9%) in the control group reported no improvement and 7 patients (8.9%) in the study group (Table 1, Figure 1).

Discussion

Choking is the inability to breathe with coughing and sudden inability to talk or cry out, during the nocturnal attacks when develops there are a fear of going to bed with poor quality of life [16].

Some authors mention that such episodes were reported to be occurred also during wakefulness not during sleep only [17].

Because of the infrequency of the sleep related choking episodes, the pathophysiology of the events will be difficult to be documented and explore, therefore the understanding of the disorder rests largely upon the clinical course and response to treatment with differential diagnosis should include nocturnal bronchial asthma, nocturnal allergic coughing fits, epilepsy manifesting as laryngospasm [18].

There are various extrinsic and intrinsic stimuli can trigger laryngeal stimulus conditions lower the threshold levels for laryngeal irritability leading to cotornal choking with cough with sleep aural effects [19].

Diagnosis of sleep-related choking needs careful and detailed history and the exclusion of neurological conditions. The patients described awoke because of choking The pathogenesis of aural in such condition is unexplored and is likely to be complex. Some authors suggest that gastro-oesophageal reflux may play a role. Postnasal drip and allergic condition may be associated factors that contribute to the laryngeal irritability [20].

Sleep related choking episodes reported as a main symptom in patients with the gastroesophageal reflux [21] nocturnal choking attacks had gastro-oesophageal reflux. They reported that the attacks could sometimes be suppressed by coughing [22], Gastroesophageal reflux with aspiration is a possible explanation for Sleep related choking episodes Even in absence of LPRD symptoms the presence of a history of gastroesophageal reflux, caution should patients with LPRD had associated respiratory symptoms as choking and wheezing episodes, LPRD may be documented by 24-hour esophageal pH monitoring, but the rarity of the Sleep related choking episodes makes the likelihood of detecting concomitant gastroesophageal reflux Sleep related choking episodes most unlikely [23].

we found that 168 patients (51.9%) had positive reflux documented by ambulatory 24h pH-monitoring. All of them had sleep-related choking and Cough as the main represented symptoms 119 patients (70.8%) showed marked improvement after received esomeprazole 40mg for 4 weeks nocturnal choking attacks, due to gastro-oesophageal reflux as the cause with evidence of laryngeal involvement But made for gastro-oesophageal reflux as the triggering factor [24].

Choking can also be symptom of asthma, allergies, or cold. It can also occur due to infection which causes throat tissue to swell. Allergic reactions can also cause the throat to swell. allergic reaction

to medications had been reported [25].

Some believe that nocturnal choking and cough "asthma like" expiratory wheeze on allergic basis etiological factor with direct relationship to specific allergen is triggered by a sensory stimulus changes to laryngeal function 156 patients (48.1%) had negative reflux documented by ambulatory 24h pH-monitoring were equally divided into two randomized groups: one control group (78 patients) received esomeprazole 40mg for 4 weeks [14] and the study group (78 patients) received 10mg cetirizine *Hydrochloride* is given as a single daily dose for the same period which showed statically significant improvement when compared with the control group. Allergic coughing can often and is therefore usually considered as being chronic. Allergy-induced coughing and Sleep related choking should be considered when patients have persist for several weeks [26].

A chronic allergic cough may produce common allergy symptoms, along with Sleep related choking [27]. Allergy-related coughing can be treated easily and effectively short-term use of antihistamines [28] treatment of extrinsic and intrinsic stimuli that may trigger these condition needs proton pump inhibitors for gastroesophageal reflux with many reports that patient resistance to current this therapeutic interventions and it is important to deal with them [29].

Conclusion

Sleep-related choking episodes could be allergic as well as laryngopharyngeal reflux disease.

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