

Evaluation of the Results of Clinical and Functional Studies and Quality of Life in Ronchopathyin Patients with Nasal Breathing Disorders

SanjarS.Sharipov¹, UlugbekS.Khasanov², DjakhongirF.Shamsiev¹, UlugbekN.Vokhidov¹,
Aziza U.Sharipova¹, Iskandar I.Ismoilov¹

¹Tashkent State Dental Institute, Tashkent, Uzbekistan.

²Tashkent Medical Academy, Tashkent, Uzbekistan.

ABSTRACT

The aim of this study was to evaluate the results of clinical and functional studies and the quality of life of patients with nasal breathing disorders with ronchopathy. We examined 130 patients with rhonchopathy who were on inpatient treatment in the ENT department of the 3rd clinic of the Tashkent Medical Academy. Based on the classification of rhonchopathy, the patients were divided into 2 groups. The study showed that the severity of snoring depends on the degree of obstruction of the nasal and pharyngeal airway, which is more often observed in the deviation of the nasal septum, vasomotor rhinitis and polypoid rhinosinusitis.

KEYWORDS

Rhonchopathy, ENT Diseases, Diagnostics, Snoring.

Introduction

The relevance of the study of pathological snoring is due to the prevalence of this pathology among the population, the social significance in the process of communication of people, the risk of developing cardiovascular diseases, sudden death at night in apnea, the ineffectiveness of conservative treatment [2, 5, 8, 10, 15].

Snoring in a dream is a phenomenon common among the population with a tendency to steadily increase. 45% of the adult population snore occasionally, and 25% snore constantly. The vast majority of sufferers are men. At the age of 30-35 years, 40% of men and 20% of women snore. The severity and frequency of snoring increases with age [1, 4, 12]. Recent statistical studies conducted in France, the Netherlands, the United States, Italy, and other countries indicate that snoring has become more common in all age and professional groups, which suggests that not only the age factor but, apparently, other factors of biological and social properties determine the prevalence of snoring [3, 6, 7, 11, 14].

The key pathophysiological process of pathological snoring is obstructive respiratory failure. The consequence of obstructive respiratory disorders is an acoustic phenomenon - snoring, the occurrence of apnea, chronic oxygen deficiency, sleep and wake disorders, cyclic fluctuations in heart rate, fluctuations in blood pressure, pressure in the pulmonary artery, increased sympathetic influences, the development of irreversible structural changes with the formation of cardiovascular diseases, the development of sudden death at night in apnea [6, 9, 12, 13].

According to most authors who study pathological snoring, the main cause of the acoustic phenomenon and obstructive breathing disorders during sleep at night are various pathological and age-related changes in the upper respiratory tract, and in particular the pharynx and nasal cavity. At the same time, there are no objective criteria and objective methods for diagnosing disorders in this area that cause snoring are not sufficiently developed [2, 7, 10].

Treatment of pathological snoring is a difficult section of clinical medicine. To date, a large arsenal of therapeutic agents has been accumulated, ranging from attaching a marble ball to the back with a band-aid, which prevents the snoring person from turning over on his back, and ending with radical methods of surgical treatment on the organs and tissues of the upper respiratory tract [1, 4, 6, 11].

This study aimed to evaluate the results of clinical and functional studies and the quality of life of patients with nasal breathing disorders with ronchopathy.

The material of this study is 130 patients with ronchopathy (2019-2020), who were treated in the ENT department of the 3-clinic of the Tashkent Medical Academy. The control group consisted of 20 healthy volunteers, including 90 men (72,85%) and 50 women (27,14%). The age of the patients ranged from 18 to 70 years, the average age was

44,5±6,8 years. Most of the studied patients were of working age, i.e. within 30-49 years, the majority of whom were men. As can be seen from the data presented, among the patients suffering from ronchopathy and OSA, men prevailed, and in the age group – patients of middle and older age.

The selection of patients was carried out on the basis of clinical and laboratory studies. Diagnosis of ronchopathy was developed in the presence of 2 pathognomic signs, i.e. pathological snoring (5 days a week) and nocturnal hypoxemia. Based on clinical studies, in particular, ENT examination, endoscopy of ENT organs, X-ray examination, polysomnography, and biochemical studies, an algorithm for diagnosing ronchopathy was developed. Based on the peculiarities of breathing during night sleep and the results of polysomnography, the patients were divided into 2 groups. The first group included 80 patients with a mild degree of ronchopathy, who showed the initial signs of pathological snoring, the appearance of snoring in the supine position was observed, and when the body position changed, the snoring stopped, without changing the quality of life. The second group included 50 patients with moderate-severity ronchopathy, characterized by persistent pathological snoring, the appearance of snoring in any supine position of the trunk, the appearance of apnea, impaired breathing during sleep, and changes in the quality of life. The patients had insomnia, sleep disturbance, morning fatigue, headache, daytime drowsiness. The control group consisted of 20 practical healthy volunteers who were included in this group because they had no history of snoring and according to relatives. Patients with severe ronchopathy were not included in the study. Statistical data processing was performed using the software package "Microsoft Excel 2016", "Statistics 8".

The Result of this Study

In the distribution of patients by their weight, it was revealed that 48 patients (60%) from group 1 had a weight within the normal range (BMI 20-24,9), 21 people (26,2%) had grade I obesity (BMI 25-29,9), 11 people (13,8%) had grade II obesity (BMI 30-40), 11 patients from group 2 (22%) had a weight within the normal range (BMI 20-24,9), 18 people (36%) had grade I obesity (BMI 25-29,9), 17 people (34%)-grade II obesity (BMI 30-40), 4 people (8%) – grade III obesity (BMI >40).

All patients suffering from ronchopathy were comprehensively examined. Their complete clinical studies, survey, examination of ENT organs were conducted, and special methods of examination were used, i.e. polysomnography, anterior active rhinametry, tomography, endoscopy of the nose and pharynx, and biochemical studies. The following characteristics of snoring were taken into account: 1) the strength of snoring; 2) the monotony of the sound of snoring; 3) the relationship of snoring from the position of the patient's torso; 4) the intensity of alcohol consumption. In patients suffering from pathological snoring and OSA, in addition to nighttime complaints, morning headaches, rapid mental and physical fatigue, daytime drowsiness, as a rule, a decrease in sexual desire are observed. During endoscopic examinations, a Karl Storz transverse endoscope was used (Germany) with side optics with a diameter of 4.0 mm, 0 and 70 degrees. Endoscopic examination of the nasal cavity was performed in a sitting position of the patient before and after anemization of the mucous membrane before surgical correction of the nose, as well as at all subsequent visits to the patient (after 14, 28 days, 3 months, 6 months, 1 year, then every year). All sections of the nasal cavity were visually examined in turn, starting from the nasal passage. At the same time, special attention was paid to the position of the middle nasal passage and nasopharynx. The middle nose was visually examined.

The reverse movement of the inspection endoscope is started from its back side. Viewed position ostiomeatal complex, located in the front offices of the middle passage of the nose, the front part of the middle turbinate, which is its integral part, a hook-like process, the cells of the nasal bumps, fortnightly slit, deep frontal cavity, nostrils and lateral sinus. The final stage was devoted to the examination of the upper nasal passages. The openings of the posterior nasal cavities, the sphenothmoid depression and the nasal septum, as well as the confluence of the wedge-shaped cavity located above the compartment between the upper nasal concha, were examined. With a full endoscopic examination can determine acute recurrent disease internal cavities of the nose and cavities around the nose and causes of aggravating factors in the development of inflammation of the nasal cavity. In accordance with this, the choice of the method of treatment of the disease is facilitated.

Computed tomography is performed on a double-helical computed tomograph "Multislice" HighspeedNX/13a. The tomography step is 5 mm, and the thickness of the separately displayed layer is 5 mm. The study is carried out during the period when there is no relapse in the axial and coronary projections.

Received 15 December 2020; Accepted 05 January 2021.

A decrease in the transport function of the mucous membrane during inflammation in the nasal cavity leads to the creation of conditions for the development of the inflammatory process and a violation of the respiratory function of the nose. In 18 patients from group 1, as in the control group, the standard parameters of mucociliary transport were recorded, i.e., they were $12,8 \pm 0,2$ and $11,5 \pm 0,2$ minutes. In 62 patients from group 1, mucociliary transport was $19,7 \pm 0,7$ minutes, corresponding to the 1st degree of mucociliary insufficiency, and in 42 patients, mucociliary transport was $33,4 \pm 1,2$ minutes, corresponding to the 2-3 degree of mucociliary insufficiency. To study the results of the study of mucociliary transport and compare the effects of nasal diseases on snoring in all patients, the studies were conducted in a vertical and horizontal position. When comparing the apparent violation of mucociliary transport with «constant» nasal congestion in patients with rhinopathy, a correlation was found between the intensity of snoring and the slowing of mucociliary transport of 2-3 degrees. In patients with high-intensity snoring in the vertical position, there is a deceleration of mucociliary transport of the 2nd degree, and in the horizontal position, a deceleration of mucociliary transport of the 3rd degree, i.e., it was 35 minutes or more. In 39 patients from group 2, there was a slowdown in the transport function of the undulating epithelium of the 2nd and 3rd degrees, and in most patients from group 1, a slowdown of the 1st degree prevailed. In patients from the 2nd group, there was an increase in the function of nasal discharge, a curvature of the nasal septum of the 2nd degree, and in patients with vasomotor rhinitis-of the 1st degree.

The secretion of the nasal mucosa from the side of hypertrophy of the lower shells was estimated as grade 1, and from the opposite side – grade 3, i.e. it was practically not observed due to the development of a subatrophic process. In relation to the control group and patients from group 1, patients from group 2 showed higher functions of nasal mucosal secretion. To determine the violation of nasal patency, anterior active rhinomanometry was used, the results of which were recorded in qualitative and quantitative form. In patients from group 2, compared with patients from group 1, there was a pronounced violation of nasal patency. Anterior active rhinomanometry revealed an increase in air flow resistance when the patient's body changed from a vertical position to a horizontal one.

The results of the conducted studies have shown that in diseases of the nasal cavity, accompanied by a violation of breathing through the nasal cavity, the transport function of the nasal mucosal layer also decreases.

In order to assess the condition of the nose and pharynx, a complete endoscopic examination was performed using an endoscope (Fig. 1, 2).

According to the results of endoscopic examination of the nasal cavity in the control group, it was found that the mucous layer of the nasal cavity is moist and has a pink color. Breathing through the nose is free, the nasal septum is located on the midline. In patients from group 1, the following was observed: in 34 patients – curvature of the nasal septum, in 26 patients-nasal cavity polyps, in 18 patients - hypertrophy of the lower shells, in 2 patients-adenoid vegetation, in 4 patients-chronic tonsillitis, in 8 patients-hypertrophy of the uvula. In patients from the 2nd group, the following was observed: in 21 patients – a curvature of the nasal septum, in 12 patients-a polyp of the nasal cavity, in 12 patients - hypertrophy of the lower shells, in 4 patients-adenoid vegetation, in 3 patients-chronic tonsillitis, in 10 patients-hypertrophy of the uvula.

In order to clarify the changes in the nose and paranasal sinuses, radiography and computed tomography of the paranasal sinuses were performed in all patients from group 1 and 2. Computed tomography of the paranasal sinuses in axial and coronary projections was performed in 7 patients with suspected maxillary sinus cyst. On radiological indicators, patients from group 2 showed more clearly signs of inflammation of the paranasal sinus mucosa, compared with patients from group 1 (48,9% and 20%, respectively, $p < 0,05$). Radiography of the paranasal sinuses in 19 patients from group 2 (38%) and 9 patients from group 1 (11,25%) revealed one or another level of thickening of the paranasal sinus mucosa, the presence of polyps in the maxillary sinus and cells of the lattice labyrinth.



Fig. 1. Patient G., 38 years old.
Endoscopic examination
revealed a curvature of the nasal septum.

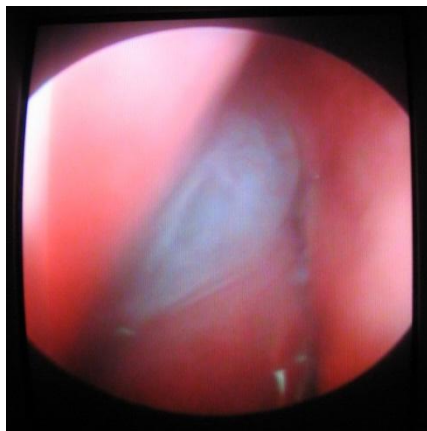


Fig. 2. Patient N., 56 years old.
Endoscopic examination
revealed a nasal polyp.

Conclusion

General clinical studies began with a survey of patients and their relatives. Therefore, for the purpose of subjective assessment (SF-36) of the quality of life of patients with diseases of the ENT organs, a survey was conducted. According to the results of surveys conducted to determine the quality of life of patients, patients of group I revealed PF (physical activity) – $94,67 \pm 6,4$; RP (the value of physical problems in life restriction) – $98,56 \pm 18,4$; BP (physical pain) – $92,4 \pm 10,5$; GH (general perception of health) – $82,93 \pm 15,1$; VT (vital activity) – $96,31 \pm 11,9$; SF (social activity) – $97,89 \pm 12,4$; RE (the value of sensory problems in life restriction) – $98,92 \pm 16,1$; MN (mental health) – $97,69 \pm 11,5$; in patients of the 2nd group, PF – $86,35 \pm 6,8$; RP – $92,20 \pm 22,0$; BP – $85,81 \pm 12,1$; GH – $74,15 \pm 10,4$; VT – $82,76 \pm 10,4$; SF – $93,07 \pm 12,9$; RE – $91,95 \pm 20,8$; MN – $88,46 \pm 12,1$.

From the above, it follows that in patients with rhinopathy, the following is observed: in 31% of cases – curvature of the nasal septum, in 17,3% of cases – vasomotor rhinitis, in 23,3% of cases – polypous rhinosinusitis, in 16,4% of cases – chronic tonsillitis, in 12% of cases – adenoid vegetation. Assessment of the quality of life of patients with nasal breathing disorders against the background of rhinopathy showed a decrease in indicators such as physical activity, social activity, vital activity, mental health, general perception of health, and the appearance of physical pain, physical and sensory problems that limit life activity.

References

- [1] Burman, D. (2017). Sleep Disorders: Sleep-Related Breathing Disorders. *FP Essent*, 460: 11-21.
- [2] Chouard, C.H. (2017). Did Napoleon suffer from chronic rhinopathy?. *Acta oto-laryngologica*, 137(4), 361-364.
- [3] Chouard, C.H. (2017). Did Napoleon suffer from chronic rhinopathy?. *Acta oto-laryngologica*, 137(4), 361-364.
- [4] Djuraev, J.A., Khasanov, U.S., Vohidov, U.N., & Sharipov, S.S. (2020). Results of Allergological and Immunological Research in Patients with Polypoid Rhinosinusitis. *Asian Journal of Immunology*, 34-40.
- [5] Castillo, S.G., Vázquez, M.D.P.S.H., Navarro, R.C., Ruiz, J.C., González, F.J.C., Mayoral, R.G., & Montes, J.A.R. (2018). Obstructive sleep apnoea syndrome. *Anales de Pediatría (English Edition)*, 88(5), 266-272.
- [6] Hong, S.N., Yoo, J., Song, I.S., Joo, J.W., Yoo, J.H., Kim, T.H., & Lee, S.H. (2017). Does snoring time always reflect the severity of obstructive sleep apnea?. *Annals of Otolaryngology & Rhinology*, 126(10), 693-696.

Received 15 December 2020; Accepted 05 January 2021.

- [7] Khasanov, U.S., Vohidov, U.N., & Sharipov, S.S. (2019). Role of Pathology of Nose and Pharynx in the Development of Snoring. *In International Scientific Review of the Problems and Prospects of Modern Science and Education*, 85-86.
- [8] Saidakramovich, K.U., Nuridinovich, V.U., & Salomovich, S.S. (2018). Use of modern technologies in the diagnostics of rhonchopathy. *European science review*, 11-12.
- [9] Khasanov, U. S., Vokhidov, U. N., & Sharipov, S. S. (2019). Optimization of the Diagnosis of Rhonchopathy in Patients with Diseases of Ent-Organs. *In European Research: Innovation In Science, Education and Technology*, 75-76.
- [10] Mickelson, S.A. (2016). Nasal surgery for obstructive sleep apnea syndrome. *Otolaryngologic Clinics of North America*, 49(6), 1373-1381.
- [11] Sharipov, S.S., Khasanov, U.S., & Vokhidov, U.N. (2018). Modern aspects of treatment of rhonchopathy. *European science review*, 5-6, 229-231.
- [12] Sharipov, S.S., Khasanov, U.S., & Vokhidov, U.N. (2018). Modern aspects of treatment of rhonchopathy. *European science review*, 5-6, 229-231.
- [13] Siber-Hoogeboom, R., Schicht, M., Hoogeboom, S., Paulsen, F., & Traxdorf, M. (2017). Obstructive sleep apnea and rhonchopathy are associated with downregulation of trefoil factor family peptide 3 (TFF3)—Implications of changes in oral mucus composition. *PloS one*, 12(10), e0185200.
- [14] Zhao, G., Li, Y., Wang, X., Ding, X., Wang, C., Xu, W., & Han, D. (2018). The predictive value of polysomnography combined with quality of life for treatment decision of children with habitual snoring related to adenotonsillar hypertrophy. *European Archives of Oto-Rhino-Laryngology*, 275(6), 1579-1586.