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Ethylmethylhydroxypyridine succinate in improving the quality of life in patients with bronchial asthma

Key words: bronchial asthma, ethylmethylhydroxypyridine succinate, quality of life.

In medicine, there is always a disease that most lower level of overall health, disability and life expectancy of the patient. Such diseases include in pulmonology and bronchial asthma (BA). In recent years, interest in studying quality of life (QOL) in patients with asthma worldwide increases significantly. This is primarily because the disease is accompanied by respiratory discomfort, emotional significance that exceeds even pain [1, 2]. Past studies of the comparative assessment of QOL of patients with BA and coronary heart disease have shown that constant fear of death experienced 98.0 % of patients with asthma versus 47 % of patients with coronary heart disease. Asthma is a not only medical but also social problem.

Respiratory discomfort and its highest manifestation – choking, accompanied by fear of death, permanent expectation of attack, adherence to medication on the one hand, and the use of drug timidity (fear of the constant use of glucocorticosteroids) – on the other – all this and more reduce QOL for patients with diseases of bronchopulmonary system. Obstruction of the airways in asthma leads to reduced capacity rights by restricting all components of a normal life. In recent years, the accumulated scientific evidence indicating about one that deserves attention in terms of quality of life – its prognostic value in patients with BA [3, 4].

Summarizing the materials should be noted that asthma leads to restriction of all components of a normal life. These restrictions are increasing in parallel disease severity. It is known that QOL-parameters determined by the severity of clinical signs, functional performance, severity and duration of disease and patient age. However, even within the same stage of disease QOL-indicators can vary considerably depending on the controllability of the disease [5]. This confirms the heterogeneity of asthma not only clinical and functional characteristics, but also QOL-indicators that reflect the subjective perception of the disease that for a sick person is no less important than the objective functional performance [6].

Progressive clinical and functional violations involving not only physical activity and restriction of daily activities, but also increasing psychosocial problems that doctors pay, usually

enough attention. It turns out that QOL is one of the important and independent parameters that in the practice of patients with BA need to be evaluated along with functional indicators.

Today it is indisputable fact that one of the pathogenic mechanisms controlled BA is undoubtedly oxidative stress. Oxidative stress can be a critical factor in the development of asthma and can run different cascades of intracellular signaling pathways, leading to disruption of immunological tolerance and enhance allergic inflammation. Timely control of oxidative stress appropriate methods is crucial for the effective management of asthma [7]. Therefore, it is important to develop and implement new methods of recovery of physical activity to improve QOL of patients with BA.

In conducting the work was carried out to study the effectiveness ethylmethylhydroxypyridin succinate on the background of standard treatment remission, to improve anaerobic endurance that will improve the controllability of the flow and thus QOL in these patients.

The main aim was to investigate the effectiveness ethylmethylhydroxypyridin succinate in the treatment of patients with BA.

Materials and methods

The study was conducted at the department of pulmonology at SO «National institute of phthysiology and pulmonology named after F.G. Yanovsky NAMS of Ukraine». To solve the problems of research object of study were patients with BA. The study included patients only if their voluntary consent for the purpose and amount of planned inspections.

According to these criteria in the study included 60 patients with BA in remission from 21 to 68 years old on average (32,4 ± 5,1 years old), including 25 men and 35 women. All patients were divided into groups: group (30 patients) received within 60 days of daily drug, which includes ethylmethylhydroxypyridin succinate, 125 mg 2 times a day and standard basic therapy remission, which included the use of inhaled corticosteroids and β_2 -agonist long and short-term action to purchase asthma symptoms. The second group (30 patients) received

only basic therapy prolonged period of remission and theophylline within one month. These patients included in a prospective randomized controlled study.

When the diagnosis of BA was taken into account history, clinical symptoms, indicators of lung function, reversibility of obstruction in the sample with bronchodilators. Selection of patients by severity of asthma was conducted in accordance with the criteria of Decree of MOH Ukraine № 128 from 19.03.2007 «On approval of clinical protocols of medical care in Pulmonology» and the Decree of MOH Ukraine № 868 from October 8, 2013 «Unified clinical protocol primary, secondary (specialized) medical care Bronchial asthma» [8]. As controls were examined 30 healthy volunteers had no clinically significant severe disease. The study was divided into an initial visit to the clinic, visit the second – immediately after treatment and received third visit in 1 year.

All patients underwent spirometric studies to define basic parameters of respiratory function (ERF):

FEV_1 – forced expiratory volume in 1-st sec,

FEV_1/FVC – index Gensler,

FVC – forced vital capacity,

PEF – peak expiratory volume velocity.

As a questionnaire to determine QOL of the patients were asked to complete a general questionnaire SF-36. Survey respondents carried out by self-completion questionnaire them for the purpose of determining the optimal specificity and sensitivity to changes in QOL. Statistical: statistical processing of material is conducted via licensed software products that are included in the package Microsoft Office Professional 2000 license Russian Academic OPEN NO LEVEL № 17016297 personal computer IBM Atlon program Excel. To test the normality of data distribution method used Lapacho SN et al. (2001) (function NORMSAMP-1, which is embedded in Excel Environment) [10, 11]. Work carried out at state expense.

Results of the study

At the beginning of the observation FEV_1 in patients with I-st group made up 64.8 %, FVC was 73.8 %, PEF rate 84.5 %, the ratio FEV_1/FVC was 82.3 %. After treatment in this group of patients significant changes in terms spirometric happened. Namely FEV_1 accounted for 67.3 %, FVC was 81.5 %, PEF was 83.8 %, the ratio FEV_1/FVC was 85.4 %. After a year of observation FEV_1 in patients with I-st group remained unchanged and amounted to 69.5 %, FVC was 81.2 %, PEF – 84.7 %, the ratio FEV_1/FVC – 88.3 %. In the 2-nd group of patients at the beginning of the observation FEV_1 accounted for 71.3 %, FVC was 78.3 %, PEF – 88.2 %, the ratio FEV_1/FVC – 84.3 %. During the observation period of significant change in the estimated parameters also were observed: on the second visit – FEV_1 accounted for 73.4 %, FVC was 84.3 %, PEF – 87.1 %, the ratio FEV_1/FVC – 85.2 %, the third visit – FEV_1 amounted to 79.2 %, FVC – 74.5 %, PEF – 82.6 %, the ratio FEV_1/FVC – 81.4 %.

In patients of group I at the beginning of the observation observed significant difference in physical activity (PA), which was reduced to $(61,5 \pm 1,6)$ scores measure the role of physical problems Russia (PR) was $(44,3 \pm 1,8)$ points. There was a significantly increased rate of emotional problems (EP) – $(84,6 \pm$

$1,6)$ scores measure the mental sphere, «viability» (MS) – $(43,4 \pm 1,6)$ points and «mental health» software (MH) – $(48,2 \pm 2,1)$ points. Were significantly reduced rates of social activity (SA) to $(53,8 \pm 2,1)$ points. Also observed a significant low subjective perception of asthma patients general state of his health, labeled «general health» (GH) – $(33,2 \pm 1,3)$ points. Parameter QOL «Pain» virtually no different from the healthy group $(33,1 \pm 1,5)$ points.

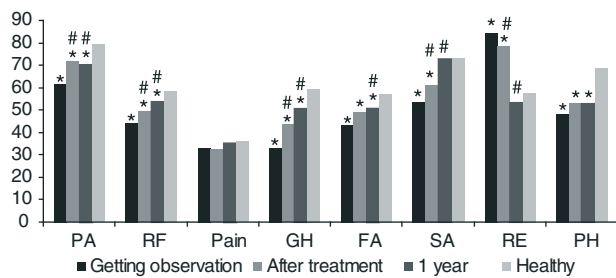
Immediately after treatment ethylmethylhydroxypyridin succinate rates were significantly positive trend compared to the beginning of observation – physical activity (PA) was $(71,9 \pm 1,3)$ scores measure the role of physical problems Russia (PR) was $(49,3 \pm 1,8)$ points rate emotional problems (EP) decreased to $(78,3 \pm 1,8)$ scores measure the mental sphere, «viability» (MS) – $(48,7 \pm 1,5)$ points and «mental health» software (MH) – $(53,2 \pm 2,3)$ points. Indicators of social activity (SA) also increased – to $(61,3 \pm 1,2)$ score, subjective perception of asthma patients general state of his health, labeled «general health» (GH) health care was adequate $(43,5 \pm 1,6)$ points. The «pain» remained unchanged and amounted to $(32,4 \pm 2,1)$ points.

The positive dynamics persisted and after a year of observation. Physical activity (PA) was $(70,6 \pm 2,0)$ scores measure the role of physical problems Russia (PR) was $(53,6 \pm 1,6)$ points, the rate of emotional problems (EP) $(53,2 \pm 1,8)$ scores measure the mental sphere «viability» (MS) – $(50,8 \pm 1,5)$ points and «mental health» software (MH) – $(50,8 \pm 1,5)$ points. Indicators of social activity (SA) were high – $(72,6 \pm 2,0)$ score, subjective perception of asthma patients general state of his health, labeled «general health» (GH) health care was adequate $(50,5 \pm 2,2)$ points. The «pain» was $(35,6 \pm 1,6)$ points (Fig. 1)

Analysis of QOL of patients with asthma severity 2-nd group showed significant changes compared to the healthy group in QOL-parameters, which remained stable during follow-up after treatment of a comprehensive theophylline.

Specifically, at baseline was observed significant difference in physical activity (PA), which was reduced to $(60,4 \pm 1,5)$ scores measure the role of physical problems Russia (PR) was $(43,5 \pm 1,6)$ points. There was a significantly increased rate of emotional problems (EP) – $(82,8 \pm 1,7)$ scores measure the mental sphere, «viability» (MS) – $(44,3 \pm 1,5)$ points and «mental health» software (MH) – $(45,3 \pm 1,8)$ points. Were significantly reduced rates of social activity (SA) to $(53,6 \pm 1,6)$ points. Also observed a significant low subjective perception of asthma patients general state of his health, labeled «general health» (GH) – $(32,5 \pm 1,2)$ points. Parameter QOL «Pain» virtually no different from the healthy group $(33,3 \pm 1,3)$ points (Fig. 2)

Immediately after treatment significant changes in the estimated performance is not the case. Specifically, the physical activity (PA) was reduced to $(58,3 \pm 2,2)$ scores measure the role of physical problems (PR) was $(42,5 \pm 2,0)$ points. Remained significantly increased rate of emotional problems (EP) – $(82,7 \pm 2,3)$ scores measure the mental sphere, «viability» (MS) – $(48,7 \pm 1,8)$ points and «mental health» software (MH) – $(47,6 \pm 1,8)$ points. Significantly reduced rates remained social activity (SA) to $(54,5 \pm 1,6)$ points. Also observed a significant low subjective

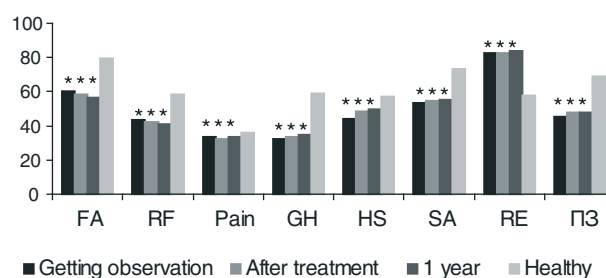


differences in comparison with visits I probable ($p < 0,05$)
 * differences compared to the indicator group healthy probable ($p < 0,05$)

Figure 1. Dynamics of the main components determining QOL in patients of I group

perception of asthma patients general state of his health, labeled «general health» (GH) – (33,5 ± 1,6) points. Parameter QOL «Pain» virtually no different from the healthy group (32,5 ± 1,9) points. No significant changes in comparison with the beginning of observation in terms of estimated happened.

After a year of observation continued significant difference in estimated performance compared to healthy group. Specifically, the physical activity (PA) was reduced to (56,7 ± 1,6) scores measure the role of physical problems (PR) was (41,3 ± 1,8) points. Remained significantly increased rate of emotional problems (EP) – (83,6 ± 2,2) scores measure the mental sphere, «viability» (MS) – (49,5 ± 1,7) points and «mental health» software (MH) – (47,9 ± 1,6) points. Was significantly reduced rate to social activity (SA) – (55,5 ± 1,8) points. Also observed a significant low subjective perception of asthma patients general state of his health, labeled «general



* differences compared to the indicator group healthy probable ($p < 0,05$)

Figure 2. Dynamics of the main components determining QOL in patients of group II

health» (GH) – (34,5 ± 1,8) points. Parameter QOL «Pain» virtually no different from the healthy group (33,5 ± 2,0) points. No significant changes in comparison with the beginning of observations evaluated parameters were not.

Conclusions

Application ethylmethylhydroxypyridin succinate, against standard treatment period of remission of BA, allows significantly improve QOL due to the significant improvement in physical activity (reducing the role of physical problems), reduction of emotional problems (mental improvement areas by vitality and mental health), normalization subjective perception of patients general state of his health, which remained stable during the year observation period, which gives reason to recommend ethylmethylhydroxypyridin succinate adjuvant therapy for patients with this disease.

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РОЛЬ ЭТИЛМЕТИЛГИДРОКСИПИРИДИНА СУКЦИНАТА В УЛУЧШЕНИИ КАЧЕСТВА ЖИЗНИ БОЛЬНЫХ БРОНХИАЛЬНОЙ АСТМОЙ

Л.М. Курик

Резюме

Качество жизни — один из важных и самостоятельных параметров, который в практике ведения больных бронхиальной астмой (БА) необходимо оценивать наряду с функциональными показателями. Сегодня уже является безоговорочным тот факт, что одним из патогенетических механизмов неконтролируемости БА, несомненно, является оксидантный стресс, который может быть критическим фактором развития астмы и запускать каскады различных внутриклеточных сигнальных путей, что приводит к нарушению иммунологической толерантности и усилению аллергического воспаления. Своевременный контроль оксидантного стресса соответствующими методами имеет решающее значение для эффективного управления астмой. Поэтому очень важным является разработка и внедрение новых методов восстановления физической активности с целью улучшения качества жизни больных БА. В проведенной работе проводилось изучение эффективности этилметилгидроксипиридина сукцината на фоне базисной терапии периода ремиссии для повышения анаэробной выносливости, что позволит улучшить контролируемость течения, а следовательно, и качество жизни данной категории больных.

Результаты. Сразу после проведенного лечения этилметилгидроксипиридина сукцинатом была получена достоверная положительная динамика по сравнению с началом наблюдения, а именно: физическая активность (РА) нормализовывалась с $(61,5 \pm 1,6)$ до $(71,9 \pm 1,3)$ балла; показатель роли физических проблем (PR) — с $(44,3 \pm 1,8)$ до $(49,3 \pm 1,8)$ балла; эмоциональных проблем (EP) — снижался с $(84,6 \pm 1,6)$ до $(78,3 \pm 1,8)$ балла; показатели ментальной сферы: «жизнеспособность» (MS) — нормализовался с $(48,7 \pm 1,5)$ до $(48,7 \pm 1,5)$ балла, «психическое здоровье» (MH) — с $(48,2 \pm 2,1)$ до $(53,2 \pm 2,3)$ балла. Показатель социальной активности (SA) также достоверно возрос — с $(53,8 \pm 2,1)$ до $(61,3 \pm 1,2)$ балла, субъективное восприятие больными БА общего состояния своего здоровья, обозначенное как «общее здоровье» (GH), составило от $(33,2 \pm 1,3)$ до $(43,5 \pm 1,6)$ балла. Параметр «Боль» («Rain») оставался без изменений: $(35,6 \pm 1,6)$ и $(32,4 \pm 2,1)$ балла соответственно. Положительная динамика сохранялась и через год наблюдения.

Выводы. Применение этилметилгидроксипиридина сукцината на фоне базисной терапии периода ремиссии БА позволяет достоверно улучшить качество жизни за счет достоверного улучшения физической активности (уменьшение роли физических проблем), уменьшения эмоциональных проблем (улучшения ментальной сферы за счет жизнеспособности и психического здоровья), нормализации субъективного восприятия больными общего состояния своего здоровья, которая оставалась стабильной в течение всего периода наблюдения, что дает основания рекомендовать этилметилгидроксипиридина сукцинат для комплексной терапии больных с данной патологией.

Ключевые слова: бронхиальная астма, этилметилгидроксипиридина сукцинат, качество жизни.

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РОЛЬ ЭТИЛМЕТИЛГИДРОКСИПИРИДИНУ СУКЦИНАТУ У ПОКРАЩАННІ ЯКОСТІ ЖИТТЯ ХВОРИХ НА БРОНХІАЛЬНУ АСТМУ

Л.М. Курик

Резюме

Якість життя — один з важливих і самостійних параметрів, який у практиці ведення хворих на бронхіальну астму (БА) необхідно оцінювати поряд з функціональними показниками. Сьогодні вже є беззаперечним той факт, що одним з патогенетичних механізмів неконтрольованості БА, безсумнівно, є оксидантний стрес, який може бути критичним фактором розвитку астми і запускати каскади різних внутрішньоклітинних сигнальних шляхів, що призводить до порушення імунологічної толерантності і посилення алергічного запалення. Своєчасний контроль оксидантного стресу за допомогою відповідних методів має вирішальне значення для ефективного управління астмою. Тому дуже важливим є розробка і впровадження нових методів відновлення фізичної активності з метою поліпшення якості життя хворих на БА. У проведеній роботі вивчалась ефективність етилметилгидроксипиридину сукцинату на тлі базисної терапії періоду ремісії для підвищення анаеробної витривалості, що дасть змогу покращити контрольованість перебігу, а отже і якість життя даної категорії хворих.

Результати. Відразу після проведеного лікування етилметилгидроксипиридину сукцинатом спостерігалась достовірно позитивна динаміка в оцінюваних показниках порівняно з початком спостереження, а саме: фізична активність (РА) нормалізувався з $(61,5 \pm 1,6)$ до $(71,9 \pm 1,3)$ бала; показник ролі фізичних проблем (PR) — з $(44,3 \pm 1,8)$ до $(49,3 \pm 1,8)$ бала; емоційних проблем (EP) — знижувався з $(84,6 \pm 1,6)$ до $(78,3 \pm 1,8)$ бала; показник ментальної сфери: «життєздатність» (MS) — нормалізувався з $(48,7 \pm 1,5)$ до $(48,7 \pm 1,5)$ бала, «психічне здоров'я» (MH) — з $(48,2 \pm 2,1)$ до $(53,2 \pm 2,3)$ бала. Показники соціальної активності (SA) також достовірно зростали з $(53,8 \pm 2,1)$ до $(61,3 \pm 1,2)$ бала, суб'єктивне сприйняття хворими загального стану свого здоров'я, позначене як «загальне здоров'я» (GH), зросло з $(33,2 \pm 1,3)$ до $(43,5 \pm 1,6)$ бала. Параметр «Біль» («Rain») залишався без змін: $(35,6 \pm 1,6)$ і $(32,4 \pm 2,1)$ бала відповідно. Позитивна динаміка зберігалася і через рік спостереження.

Висновки. Застосування етилметилгидроксипиридину сукцинату на тлі базисної терапії періоду ремісії БА дає змогу достовірно поліпшити якість життя за рахунок достовірного поліпшення фізичної активності (зменшення ролі фізичних проблем), зменшення емоційних проблем (поліпшення ментальної сфери за рахунок життєздатності і психічного здоров'я), нормалізації суб'єктивного сприйняття хворими загального стану свого здоров'я, яка залишалася стабільною протягом всього періоду спостереження, що дає основи рекомендувати етилметилгидроксипиридину сукцинат для комплексної терапії хворих з даною патологією.

Ключові слова: бронхіальна астма, якість життя, етилметилгидроксипиридину сукцинат.

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