

ASSESSMENT OF FUNCTIONAL STATUS AND QUALITY OF LIFE OF STUDENTS AFTER ACUTE RESPIRATORY VIRAL DISEASES

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Annotation. *Purpose:* explore the functional status and quality of life of students after acute viral infectious diseases.

Material: a total of 25 students aged 19-22 years after the acute respiratory viral infections and 20 healthy people.

Results: It was found that the students observed a significant increase in heart rate at rest compared with healthy. Also deteriorates the functional state of the respiratory system. Overall performance of such students 60-80% lower than in healthy persons. Students after acute respiratory viral infections found increased tone autonomic nervous system. This impairs their function. *Conclusions:* after acute respiratory viral diseases in students the deterioration of the functional state. Significant deterioration in the quality of life of students is associated with reduced physical and social activity, peaking emotional problems.

Keywords: functional, state, students, quality, life, respiratory, diseases.

Introduction

Every year more than 90% of people catch cold. Every year from 9 to 16 million of people catch flu or other acute virus respiratory infections (AVRI) that is 25-30% from all morbidity and about 80-90% from infectious morbidity in Ukraine [<http://www.umj.com.ua/article/8047/principi-diagnostiki-ta-likuvannya-xvorix-na-gostri-respiratorni-virusni-zaxvoryuvannya>]. Prevalence of these diseases on the earth, covering of great number of people by epidemic process (sometimes with heavy after-effects), significant economic losses condition importance of respiratory infections' problem for mankind. Every adult person suffers from flu or other AVRI twice a year, schoolchild – three times a year, children of pre-school age – 6-10 times. Constant circulation of viruses among population, annual season increasing of morbidity is an integral component of people's existence [6, 9, 13]. By the data of world health protection organization (WHPO) every year 1.5 billion of people suffer from flu or other AVRI, i.e. every fourth inhabitant of the earth [10].

That is why flu and other AVRI, which are registered in all countries of the world, are of great medical, social and economic importance, influencing negatively on health of population and resulting in undesirable medical, psychological and social after effects [17, 18]. It is known that flu and other AVRI have been remaining rather a problem of health protection for many countries, while economic losses, directly or indirectly connected with flu and AVRI epidemics, are hundreds of billion of dollars [8, 12, 14].

Alongside with it there has appeared strong trend in increasing of quantity of students with weak health; many students have initial stages of diseases. For the period of studying students' health worsens. With every year quantity of students – members of special health groups – is increasing [1, 3, 11].

Both junior and senior students show unserious attitude to personal physical fitness, to own health; they manifest absence of desire to use means of physical culture and sports in everyday life. There are many cases, when students get medical certificates, permitting release from physical loads, while such students belong to main health group [2, 16].

Main reasons of such students' attitude to physical exercises' practicing are: harmful habits; deficit of time for preparation for other classes; absence of desire to practice physical culture; absence of conditions for practicing of physical culture [2, 4].

In existing conditions of life we observe steady worsening of health, weakening of organism's functional reserves, systemic disordering of posture, presence of different abnormalities in supporting-motor system, reduction of physical fitness's level and etc.

Scientists have determined that recent years we can observe increasing of special health groups' contingent at the beginning of studying at HEE and their replenishment by the last year of teaching of physical culture [1, 7, 8]. Such trend takes place against the background of weakening of nervous system's functions in the process of studying and examination session that negatively influences on health of future specialists [4, 5, 8]. It is known that healthy way of life is an important factor of formation and strengthening of students' health, which depend on it by 50% and more. The most active components of healthy life style are: rational students' work, rational eating, rational motion functioning, hardening, personal hygiene, absence of harmful habits [2, 4, 17].

To day there exists a number of scientific works by domestic and foreign scientists, which are devoted to students' health and factors, influencing on it [14, 16, 19, 20]. Nevertheless we have not found scientific information about influence of respiratory diseases on students' functional state and about demand in appropriate specialists' response to existing changes in functional state. Research of this problem is especially urgent for students, who study at specialized sport establishments and physical culture faculties.

This fact is still more acute because after respiratory diseases students immediately start not only theoretical studying but also physical work envisaged by academic process. This fact is undoubtedly a risk factor for their health, as far as AVRI, which they suffered from, significantly weaken functional state of their organisms.

In our opinion determination of functional changes after acute respiratory diseases is urgent and demanded. This problem requires additional researches oriented on correction of physical loads' scopes. It is possible to include additional correction means for maintenance and improvement of students' health and life quality.

The present work has been fulfilled in compliance with plan of scientific-research works of Prikarpatskiy national university, named after Vasil Stefanik, for 2010-2015 and is a fragment of complex scientific topic of department of sport-pedagogic disciplines "Organizational-methodic principles of sport-pedagogic technologies' application for improvement of health of different population strata" (state registration number 0114U002625). The author is an executor of this topic's fragment.

Purpose, tasks of the work, materials and methods

The purpose of the work is researching of students' functional state and life quality after acute virus respiratory diseases. For achievement of this purpose we formulated the following tasks:

1. Estimation of cardio-vascular and respiratory systems' functional state of students, who suffered from acute virus respiratory diseases.
2. Determination of level of vegetative provisioning of students' inner organs functioning after acute virus respiratory diseases.
3. Characteristic of life quality of students, who suffered from acute virus respiratory diseases.

For achievement of our purpose and realization of our tasks we conducted work among students of physical education faculty of Prikarpatskiy national university, named after Vasil Stefanik and Prikarpatskiy faculty of Academy of Home Affairs of Ukraine. 25 2-4 years' students, who suffered from acute virus respiratory diseases, of age from 19 to 22 years were involved in our researches. They were experimental group (EG). Control group consisted of 20 2-4 years' students, who, by the moment of examination, were practically healthy and were not ill during last 3-4 months.

Determination of heart beats rate (HBR) we conducted with palpating of radial artery during 1 minute after 5-7 rest in lying on back or sitting position. Blood pressure was measured with sphygmo-manometer by M.S. Korotkov's (1905) method and under regulations of WHPO (1996). We registered systolic (SBP) and diastolic (DBP) pressure.

Stange's test (breathing pause after inhale) was conducted after 3-5 minutes' rest. Genchi's test was conducted for determination of period of pause after exhale by analogous methodic. Interval between registrations of time of exhale/inhale pauses was not more than 5 minutes.

James's test was conducted for determination of general physical workability and level of its reduction among students, who suffered from acute virus respiratory diseases. Student ascended one step with frequency of about 20 times per minute. The height of step depended on mass of body. For mass of 70 kg step height was 20 cm; for mass from 50 to 70 kg – 25 cm; for mass less than 50 kg – 30 cm. The test was evaluated basing on quantity of ascending up to shortness of breath.

For evaluation of inner organs' vegetative provisioning of students, who suffered from AVRI, we conducted Ortho- and clinical-static tests.

For determination of life quality (LQ) we conducted questioning with the help of SF-36 questionnaire, which was worked out by J. Ware et al. in 1993 році [5, 15]. It consists of 36 questions, grouped in 8 domains: "physical functioning", "role of physical problems in restriction of life activity", "physical pain", "general attitude to health", "life-potentials", "social functioning", "role of emotion problems in restriction of life activity", "mental health". Points were calculated with the help of calculation table. Indicators can vary from 0 to 100; with it 100 is the best from all possible values.

Results of the researches

The received results of testing of cardio-vascular and respiratory systems' functional state (students after AVRI) are given in table 1.

Table 1

Results of testing of cardio-vascular and respiratory systems' functional state (students after AVRI)

Indicator	Control group n=20	Experimental group, n=25
Heart beats rate, b.p.m.	76.3±1.3	84.3±2.1**
Systolic BP, mm, merc.col.	123.2±1.11	131.1±2.3*
Diastolic BP, mm, merc.col.	82.4±2.1	92.3±1.2*
Stange's test	46.3±1.3	18.7±2.4***
Genchi's test	27.3±1.8	10.2±2.7**
James's test	87.5±3.2	17.6±1.4***

Note: confidence of indicators in comparison with the same of control group: * - $p < 0.05$; ** - $p < 0.01$; *** - $p < 0.001$

The received results of functional tests witness that students, who suffered from AVRI, had confidently higher HBR in rest ($p < 0.01$) in comparison with control group. Students of EG showed confidently higher mean values of SBP and DBP ($p < 0.05$) in comparison with values of practically healthy students, who had these indicators in the range of normal.

Results of tests for breathing pauses showed that EG students had mean values of these indicators confidently lower ($p < 0.001$) in comparison with the same in CG that witnessed about unsatisfactory functional state of respiratory system.

James's test showed that students, who suffered from AVRI (EG), had lower quantity of ascending on step than the same in control group ($p < 0.001$) and witnessed about worsening of workability by 60-80%.

Evaluation of vegetative provisioning of inner organs' functioning of students is given in table 2.

Table 2

Evaluation of vegetative provisioning of inner organs' functioning of students after AVRI

Indicator	Control group, n=20	Experimental group, n=25
Ortho-static test, the 10 th minute		
HBR increment, b.p.m	7.6±0.13	18.3±2.1*
Reduction of SBP, mm, merc.col.	8.6±0.17	17.5±1.7*
Clinical static test, the 10 th minute		
HBR increment, b.p.m	8.7±0.15	22.5±2.7***
Reduction of SBP, mm, merc.col.	6.5±0.19	30.8±3.1***

Note: confidence of indicators in comparison with the same of control group: * - $p < 0.001$

Evaluation of tonus of vegetative nervous systems' links (students after AVRI) showed that they have much higher mean values of HBR increment and SBP reduction during Ortho-static test in comparison with control group. HBR increment in CG was evaluated by us as satisfactory and decreasing of HBR – as condition, close to disease. Mean values of HBR increment and SBP reduction during clinical static test (students after AVRI) were confidently higher ($p < 0.001$) comparing with the same in control group and were evaluated by us as “unsatisfactory” or “pathology” accordingly.

Results of testing by SF-36 questionnaire are given in table 3.

Table 3

Results of testing by SF-36 questionnaire

Indicator	Control group, n=20	Experimental group, n=25
Physical functioning	97.3±2.1	34.9±10.56***
Role functioning	92±3.1	12.7±2.08***
Pain	100±2.1	74.8±5.19*
General health	94±1.3	57.5±8.84***
Life potentials	99.6±3.4	51.3±4.29***
Social functioning	97±5.4	68.4±5.13**
Role of emotional problems	89±3.2	32.2±4.63***
Mental health	94±3.1	50.1±5.18***

Note: confidence of indicators in comparison with the same of control group: * - $p < 0.05$; ** - $p < 0.01$; *** - $p < 0.001$

The fulfilled questioning with SF-36 questionnaire witnessed reduction of life quality of students, who suffered from AVRI in comparison with practically healthy students, by all tested characteristics. The worst are such aspects of life as role functioning, physical functioning, social functioning; role of emotional problems increases.

Conclusions:

So, by results of the fulfilled testing of students after AVRI, after comparison of the received data with the data of practically healthy persons we can say that after respiratory diseases functional state of cardio-vascular system worsens, that is characterized by increasing of HBR in rest, increasing of SBP and DBP mean values. Weakening of

respiratory system's functional state is proved by negative results of tests for breathing pauses and reduction of general workability by 60-80% (as per James's test).

Students, who suffered AVRI, showed imbalance of vegetative regulation of inner organs with increasing of sympathetic part's tonus and with significant increasing of parasympathetic part of vegetative nervous system; by the data of different authors it plays rather important role in worsening of bronchial tree's drainage function.

Significant worsening of life quality of students, who suffered from AVRI, is connected with reduction of their physical and social functioning as well as with sharpening of emotional problems.

Research of introduction of physical education means, which would correct cardio-vascular and respiratory systems' functional state, vegetative nervous system, which would improve quality of students' life, seems to be promising in the future.

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