Med Discoveries
An open access journal of science and medicine

Article Type: Research Article
Volume 3, Issue 6
Received: May 21, 2024
Accepted: Jun 19, 2024
Published Online: Jun 26, 2024

Alzheimer's Disease Treatment with Chronic Antiorthostatic Sleeping in -4° to -50°, Periodic and Progressive Conditions, Blood Shift to the Head and Simulated Microgravity

Alexei B Fedorov[1]; Sergei K Denogratov[2]; Nikolai C Neofitov[1]*; Pavel L Merkov

[1]Institute of Gravitational Physiology, Athens, Greece.

[2]Institute of Hypokinetic Physiology, Sofia, Bulgaria.

***Corresponding Author:** Nikolai C Neofitov*

Tel: 30-2107628676; Email: nneofitov@mail.com

Abstract

Objectives: Chronic antiorthostatic sleeping (CAS) in -4^0 to -50^0 involves Periodic and Progressive Conditions (PPC), Blood Shift to the Head (BSH) and simulated microgravity (SMG) and blood boosts to the brain. We hypothesized that CAS could treat Alzheimer's disease. We sought to determine the extent to which CAS could treat Alzheimer's.

Methods: Studies performed on eighty male and female patients with mild Alzheimer's disease. They were divided into two groups. The patients who have been treated with CAS in -4^0 to -50^0 assigned to the 1st group and the patients who have been treated with the prescribed drugs assigned to the 2nd group. They have been studied during the pre-experimental period of four-years or more and experimental period of ten-years or more.

Results: MRI scans were normal of brains of patients with mild Alzheimer's disease. The patients of the 1st group with mild Alzheimer's disease have been treated to fairly normal level compared to the 2nd group of patients. The patients of the 1st group benefited in all parts of the body. The patients of 2nd group with mild Alzheimer's disease have not been treated compared to the 1st group of patients.

Conclusion: While cautious interpretation is appropriate given the small patients' number the findings provide clear evidence of Alzheimer's disease treatment to fairly normal level via CAS in -4^0 to -50^0 and involved conditions, suggesting a potential prevention and clinical therapy for Alzheimer's disease.

Keywords: Reduced brain's stress; Brain's relaxation; Bran's ability to change; Brain's blood volume pull; Brain's blood flow increase; Blood and brain communication.

Introduction

Chronic Antiorthostatic Sleeping (CAS) in -4^0 to -50^0 is a new technical method/ principle. CAS involves Periodic and Progressive Conditions (PPC), Blood Shift to the Head (BSH), and Simulated Microgravity (SMG). CAS provides a novel approach of prevention and treatment of major diseases. Cardiovascular diseases prevented and/or reversed after undergoing CAS therapy. Chronic obstructive pulmonary disease prevented or reversed after undergoing CAS treatment. Optimal arterial blood pressure attained after patients undertaken CAS treatment. Arthritis and osteoarthritis prevented and/or improved after undertaking CAS therapy. Cerebrovascular disease (strokes) prevented after patients undergoing CAS treatment. Osteopenia prevent-

Citation: Fedorov AB, Denogratov SK, Neofitov NC, Merkov PL. Alzheimer's Disease Treatment with Chronic Antiorthostatic Sleeping in -4° to -50°, Periodic and Progressive Conditions, Blood Shift to the Head and Simulated Microgravity. Med Discoveries. 2024; 3(6): 1175.

ed and/or reversed after undergoing CAS treatment. Diabetic mellitus prevented and/or reversed after treatment with CAS. Regenerative treatment of kidney diseases promoted after kidney disease patients undertaking CAS therapy. Tissues or organs regeneration promoted after undergoing CAS treatment. Longevity conditions provided after undertaken CAS treatment.

It is well known that blood and other body fluids migrate to the lower parts of the body. Blood migration to lower parts of the body produce more blood volume in the pelvic region and lower half parts of the body. Retention of blood volume in the lower parts of the body reduces blood volume and lower filling of blood to the central vascular bed [1]. Reduction of blood volume in the lower half parts of the body determines the severity of blood delivery to the brain. Lower blood volume slows down blood flow to the brain that forced to work harder. Lower blood volume in the lower extremities leads to lower blood flow to the brain which is most detrimental to the human brain. CAS in -4^0 to -50^0 is the method for combating blood and other body fluids shifting to lower half part of the body and the best solution for boosting blood volume and blood flow to the brain [2-5].

For the treatment of Alzheimer's disease has been proposed several measures with little or no success. Studies on the effect of earth gravity on healthy and diseased humans [6], blood redistribution during hypokinesia (diminished muscular activity [7-13] and blood volume and blood flow increase in the head (2-5) had shed a new light. Some studies through CAS in -4^0 to -50^0 have found Alzheimer's disease therapy [14,15]. CAS in -4^0 to -50^0 is the best method for more blood, oxygen and energy delivery to the brain. CAS provides a unique condition for extra blood volume and blood flow to the brain. Blood volume pull on the brain and blood flow increase in the brain through CAS in -4^0 to -50^0 has a medical regulatory effect on Alzheimer's brain allowing changes in the brain.

It is known that CAS in -4^0 to -50^0 which involves PPC, BSH and SMG safely boosts blood to the brain. We hypothesized that CAS in -4^0 to -50^0 and the involved conditions of CAS and blood boost to the brain could achieve Alzheimer's disease treatment. To provide evidence of Alzheimer's disease treatment via CAS and PPC, BSH and SMG and blood boost to the brain and to establish a potential prevention and clinical therapy we sought to determine the extent to which CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood boost to the brain could achieve Alzheimer's disease treatment.

Materials and methods

Protocols of the experimental studies were reviewed and approved by the Committee for Human Subjects Protection of the Institutional Review Board. Studies were conformed to the principles of the Declaration of Helsinki. A caregiver (spouse, relative) received verbal and written explanations of the experimental protocols prior to providing written informed consent. Among the participants were no patients with heart and eye disease, history of epilepsy, contraindication to MRI, systemic or psychiatric disease and other neurodegenerative diseases or those undergoing treatment which could affect the neuropsychological testing and participation in other clinical trials.

Patients received their diagnoses from the Clinics of Dementia using the International Classification of Disease (ICD-10) of Alzheimer's disease and the Peterson (mild cognitive impairment) MCI criteria [16], which also conducted most clinical assessments of the investigation. At the time of enrolment to the experimental study Alzheimer's patients were undergoing treatment for mild stages of Alzheimer's disease.

Alzheimer's disease patients were randomly assigned to either follow to treatment with CAS (1^{st} group of patients) or medication treatment (2^{nd} group of patients).

Group 1: Forty Alzheimer's patients have been treated with CAS in -4^0 to -50^0 which involved PPC, BSH and SMG and blood boost to the brain. They were assigned to the 1^{st} group of Alzheimer's disease patients and served as experimental group of patients. The patients of 1^{st} group were under hypokinesia (diminished muscular activity) that is they were not allowed to exercise or perform other physical activities which required greater physical effort and forced blood and other body fluids to migrate to lower part of body and working muscles.

Group 2: Forty Alzheimer's patients were treated with the prescribed medication. They were assigned to the 2^{nd} group of patients and served as the control group of patients. They were allowed to perform physical exercises and other activities as they pleased.

Protocol

Eighty patients with mild Alzheimer's disease aging 72.3±10.5 and 66.4±11.4 years for the 1^{st} group and the 2^{nd} group were assigned to Group 1 and Group 2, respectively. The study consisted of pre-experimental period of four years or more and experimental period of ten-years or more of CAS in -4^0 to -50^0. Patients enrolled to the experiment not later than one year after diagnosed with Alzheimer's disease. Before the enrolment to the experiment the brain and the heart of patients underwent thorough examination. Blood shifting to the head through CAS in -4^0 to -50^0 imposes severe stress and pressure on the brain and the heart which are forced to work very hard. Because of the potential of adverse reactions of brain and heart care was taken and the patients were monitored closely. The patients wear a heart rate monitor. Because CAS in -4^0 to -50^0 is a booster of immunity immune system may overreact causing autoimmune disorders. During the treatment with CAS the patient's clinical signs and symptoms and behavioral reactions determined. The treatment of CAS in -4^0 to -50^0 administered at the patient's home by a caregiver (spouse or relative).The caregivers instructed so to ensure that the Alzheimer's patients were slept at the same degree of Antiorthostatic Position (AOP) each time the patients went to bed, so that the same degree of AOP was applied when the position of bed changed to a different degree. Nine patients of the 1^{st} group could not tolerate the treatment with CAS in -4^0 to -50^0 and these patients dropped-out.

Method of chronic antiorthostatic sleeping position in -4^0 to -50^0

This method of CAS involves PPC, BSH, SMG and blood boost to the brain. Patients slept without a pillow in Antiorthostatic Position (AOP) in -4^0 to -50^0 for 10-hours at night and 2-hours at midday. The AOP level increased by -2-degrees each time the position of patients changed. Actual tests at different degrees of AOP performed after adaptation of patients to that AOP level achieved. The degree of AOP increased after the ability of patients to adapt to a specific degree of AOP established. Adaption to each degree required many weeks before patients were able to adapt to that particular degree of PPA. At each level of AOP patients were kept for a necessary period of time to secure patients adaptation to that level of AOP. The individual differences of patients and behavioral reactions to a particular AOP degree

and their physical conditions and clinical responses were taken into consideration to facilitate adaptation of patients to that level of AOP. Experimental protocol changed from time to time in order to improve ability of patients to adapt to a specific degree of AOP. To ensure the comfort of patients the level and duration of AOP changed as required each time the AOP degree changed.

Imaging

A Magnetic Resonance Imaging (MRI) was performed with a Skyra 3T system (Siemens, Erlangen, Germany) during the pre-experimental and experimental period to determine changes in the brain tissue and skull. MRI brain scans on patients were performed once in the preexperimental period and every two years during the experimental period.

Statistical analyses

Results were analyzed using STATA version 14.2 (StataCorp, LP, Texas, USA). Paired t-tests were used to test preexperimental and post experimental changes. The degree of significance was set to <0.05. Results presented as mean ± Standard Deviation (SD).

Results

Chronic antiorthostatic sleeping in -4^0 to -50^0 affects all parts of the body. Myriad signs and symptoms were shown and weird things have been found in the body. Patients of the 1st group exhibited puffiness in the face, tachycardia, arrhythmia and extrasystoles (Table 1). Other signs and symptoms were shown first in the right side and then in the left side of the body. Most signs and symptoms were shown in the upper part of the body. As the degree of CAS increased more changes occur in all parts of the body. In -40^0 to -50^0 of CAS the size and density of paraspinal muscles of trunk reduced and the upper part of the body tended to lean to the left, and patients felt a pull down on their back and had trouble of walking or balancing. In the patients of the 1st group spinal cord expanded and body height increase in -40^0 to -50^0 of CAS. In -40^0 to -50^0 of CAS five patients of the 1st group diagnosed with myasthenia gravis. The patients of the 1st group showed runny nose and few patients showed lower grade fever of 37.1 to 38.3^{0}C for 2 to 3 days. It is assumed that over longer duration of CAS in -40^0 to -50^0 some other complex signs and symptoms and weird things could be found in the whole body.

During the pre-experimental period of four years or more MRI scans of brains of patients with mild Alzheimer's disease were normal. Patients with mild Alzheimer's disease of the 1st group who have been treated with CAS have shown some signs of adjustment to CAS and some signs of improvements as Alzheimer's disease patients became adapted to CAS in -4^0 to -50^0. Patients with mild Alzheimer's disease of the 2nd group who have been treated with prescribed medication have not shown any improvements.

During the experimental period of ten years or more MRI scans of brains of patients with mild Alzheimer's disease were not detected microscopic changes and MRI scans of brains were normal in patients with mild Alzheimer's disease. Patients of the 1st group with mild Alzheimer's disease were treated to a fairly normal level compared to the 2nd group of patients. Brain volume, cerebral cortex and cranial size increased and cranial and brain shapes changed in the 1st group of patients compared to 2nd group of patients. The 1st group of patients benefited in all parts of the body of CAS in -4^0 to -50^0. Patients of the 2nd group of mild Alzheimer's disease were not treated compared to the 1st group.

Table 1: Signs and symptoms of chronic antiorthostatic sleeping position in -4^0 to 50^0 and periodic and progressive conditions, blood shift to the head and simulated microgravity.

Puffiness in the face
Tachycardia
Arrhythmias
Tinnitus in the right ear
Loud heart sounds
Ventricular extrasystoles
Vertigo symptoms
Urinary incontinence
Fecal incontinence
Feeling of fullness (pressure) or stuffiness in the right ear
Right eyelid droop
Retinal hemorrhage
Eyes watering
Blurred vision
Blepharoptosis
Muscle spasms in the right and left leg
Deep vein symptoms in the right and left leg
Left knee and right knee pain
Left hand and right hand pain
Left foot and right foot pain
Skin lesions in the left arm and hand
Urticaria on upper back and on hip
Urticaria on upper right arm and leg
Upper body back discoloration
Upper body back pruritus
Arms and legs pruritus
Atopic dermatitis in the thighs

Discussion

Myriad signs and symptoms and weird things in the body could indicate compensatory phenomena. As patients adapted to CAS in -4^0 to -50^0 benefits appeared in all parts of the body. It is not known why signs and symptoms appeared first in right side of the body and it is not clear why most signs and symptoms were shown in upper parts of the body. The different heart rhythms suggest a communication between the heart and the brain. The lean to the left of the upper part of the body, the feeling of a pull down in their back and the trouble of walking and balancing were caused due to the changes in the size and density of paraspinal muscles; these symptoms reversed after five to six years. Body height increased because of growth of spinal cord. The growth of spinal cord in -40^0 to -50^0 of CAS allowing the squishy spinal discs between vertebra freedom relax and expand - almost like relieving a pressure on a spring. The runny nose could have been associated with immune system's action. Myasthenia gravis may be attributable to the overreaction of immune system. The symptoms of myasthenia gravis reversed after five to six years. The improved memory ability of patients in 1st group may be attributable to blood boost to the brain. The expectation is that over longer duration of time of

CAS in -4^0 to -50^0 additional benefits could be manifested in all parts of the whole body.

MRI scans of brains were normal in Alzheimer's disease patients of the 1st group. That MRI scans were normal in Alzheimer's disease patients of the 1st group could be the changes were there, and we just could not been seen them yet. Or maybe the functional connections were altered earlier in the process. However there is clear evidence of Alzheimer's disease treatment to fairly normal level in 1st group of patients through CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood boost to the brain. This suggests ability of brain to respond to CAS and the involved conditions and blood boost to the brain.

PPC of CAS in -4^0 to -50^0 counteracting stress of extra blood volume to the brain the severity of extra blood volume on the brain reduced. Reduced extra blood volume stress on the brain via PPC of CAS enables adaptation of brain to extra blood volume. Extra blood volume to the brain via PPC of CAS is not sensed as extra blood volume but as simple blood volume redistribution that helps adaptation of brain to extra blood volume. Some studies [7-13] have shown that extra blood volume to the head through reduced blood volume stress on the head is not sensed as extra blood volume but rather as simple blood volume redistribution and the excretion mechanisms are not activated contributing to blood volume. Reduced extra blood volume stress on the brain through PPC of CAS behaved more as stimulus [17-19] than as stressor. It is generally believed that reduced extra blood volume stress on the brain through PPC of CAS triggers a chain of events which facilitates adaptation of brain to extra blood volume. Hence, PPC of CAS pays a significant part in adaptation safety of brain to excessive blood volume.

SMG of CAS places patients under mechanical unloading which enables brain adapt to extra blood volume and the ability of brain to function freely. It is adaptation of brain to extra blood volume and ability of brain to function freely via SMG of CAS that plays vital part in blood flow to the brain and circulation. Adaptation of brain to extra blood volume and ability of brain to function freely via SMG of CAS has a profound effect on the brain and blood flow to the brain and circulation. SMG of CAS promotes arterial elasticity which determines arteries and veins widening thereby increasing blood flow to the brain and circulation. SMG of CAS promotes relaxation of arteries supplying blood to the brain as they no longer fighting the familiar pull of earth gravity so they widening allowing blood to flow freely to the brain. SMG of CAS in -4^0 to -50^0 increases blood flow to the brain and circulation thereby enable blood to flow freely which is critical to blood volume to the brain and circulation. This shows that SMG of CAS in -4^0 to -50^0 plays a significant part in blood flow to the brain and circulation. Hence, SMG of CAS helps brain adapt to extra blood volume which is vital to long-term of blood flow to the brain and circulation.

‾CAS in -4^0 to -50^0 and PPC, BSH and SMG promote blood volume pull on the brain and blood flow increase in the brain. Blood volume pull on the brain and blood flow increase in the brain through CAS and the involved conditions enables brain to change to extra blood volume. Blood volume pull on the brain and blood flow increase in the brain through CAS in -4^0 to -50^0 and PPC, BSH and SMG exerts a powerful effect on ability of brain to change to blood volume. CAS in -4^0 to -50^0 and PPC, BSH and SMG via blood volume pull on the brain and blood flow increase in the brain facilitates ability of brain to function in Alzheimer's disease. Blood volume pull on the brain and blood flow increase in the brain via CAS and the involved conditions determines ability of brain to function in Alzheimer's disease. Some studies have shown Alzheimer's disease treatment via CAS and the involved conditions [14,15]. Blood volume pull on the brain and blood flow increase in the brain via CAS and PPC, BSH and SMG determines the ability of brain to change in Alzheimer's disease. The ability of brain to change in Alzheimer's disease determined by the ability of brain to respond to blood volume pull on the brain and blood flow increase in the brain through CAS and PPC, BSH and SMG. This shows that CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood volume pull on the brain and blood flow increase in the brain is vital to ability of brain to change in Alzheimer's disease. It is clear that CAS and PPC, BSH, and SMG and blood volume pull on the brain and blood flow increase in the brain determines the ability brain to change in Alzheimer's disease.

As blood volume pull on the brain and as blood flow increase in the brain through CAS in -4^0 to -50^0 and PPC, BSH and SMG brain responds to extra blood volume by changing. This suggests communication between blood and brain. Communication of blood and brain achieved via CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood volume pull on the brain and blood flow increase in the brain. Blood and brain communication via CAS and the involved conditions enables brain to change to this physical pull. This shows that CAS and the involved conditions and blood and brain communication determines the ability of brain to change to extra blood volume. CAS and the involved conditions and blood and brain communication add significant contribution to the ability brain to change to blood volume. Blood and brain communication via CAS in -4^0 to -50^0 and the involved conditions determines functional ability of brain in Alzheimer's disease. Functional ability of brain in Alzheimer's disease determined via CAS in -4^0 to -50^0 and involved conditions and blood and brain communication. Blood and brain communication through CAS in -4^0 to -50^0 and the involved conditions is a powerful stimulus on the change ability of brain to extra blood volume. CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood and brain communication is more powerful than any other treatments and/or prevention strategies which have been assed so far for the prevention and therapy of Alzheimer's disease. That CAS in -4^0 to -50^0 and the involved conditions, may be one of the mechanisms which determines functional ability of brain in Alzheimer's disease.

Evidently, CAS in -4^0 to -50^0 and the involved conditions determines the ability of brain to change to blood volume. The ability of brain to change to blood volume via CAS and the involved conditions determines brains' ability to become stronger. Or maybe something in blood transduced. That led to a critical question: what is in blood transduced? The ability of brain to change to blood volume through CAS and the involved conditions is a sign of great achievement that the human brain has ever before achieved. The ability of brain to change to blood volume via CAS and involved conditions achieved Alzheimer's disease treatment. However, Alzheimer's disease therapy achieved after brain's ability to change to blood volume reached a new norm analogous to that of CAS and the involved conditions. It is the new norm of ability of brain to change to blood volume through CAS and the involved conditions that determines Alzheimer's disease treatment. It is clear that the ability of brain to change to blood volume through CAS in -4^0 to -50^0 and PPC, BSH and SMG provide conditions of treatment to Alzheimer's disease.

Conclusion

In the context of cautious interpretation of results we found clear evidence of treatment of Alzheimer's disease via CAS in -4^0 to -50^0 and PPC, BSH and SMG and blood boost to the brain, and reduced brain's stress, brain's relaxation, brain's change ability, brain's blood volume pull, brain's blood flow increase and blood and brain communication. In conclusion Alzheimer's disease patients were treated to fairly normal level through CAS in -4^0 to -50^0 and the involved conditions and blood boost to the brain. The treatment of Alzheimer's disease through CAS and PPC, BSH and SMG and blood boost to the brain suggests a potential prevention and clinical therapy for Alzheimer's disease.

A review of benefits of chronic antiorthostatic sleeping in -4^0 to -50^0, periodic and progressive conditions, blood shift to the head and simulated microgravity

Fedorov EA, Zorbas YG, Yaroshenko YN, Deogenov VA et al., have studied over -40 years the effect of CAS in -4^0 to -50^0 and PPC, BSH and SMG on healthy and diseased humans and they have found that this technical method provides a prevention and treatment of major diseases and longevity. CAS maintains organs and organ systems homeostasis, promotes resistance to a disease or infection; regulates endocrine, digestive and metabolic systems; prevents and/or improves chronic obstructive pulmonary disease, prevents or improves lower back pain; prevents and/or improves arthritis and osteoarthritis; helps immune system rejuvenate, become permanently active and recognition mechanisms become efficient and the ability of body to defend itself against autoimmune diseases. Infections and cancer become stronger and provokes stronger immune response to viruses; promotes damaged kidney cells regeneration reversing impaired kidney function due to a disease or injury, increases muscle heart and heart size; prevents and/or reverses cardiac insufficiency; prevents myocardial infarction, increases venous return and cardiac output and left ventricular volume and coronary artery size; attains optimal arterial blood pressure; promotes arterial elasticity; prevents cerebrovascular disease (strokes) and dementia, reduces viral and bacterial infection in the lung; increases gas exchange in the lung; prevents and/or reverses diabetes mellitus, promotes regeneration of tissues or some organs lost by a disease or injury or partial regeneration that involve closing up the injury site with some scar tissues degradation or scar tissue disappearance and establishes a new set point weight.

Highlights

Chronic Antiorthostatic Sleeping (CAS) in -40 to -500 is a new technical method/ principle. CAS in -40 to -500 involves Periodic and Progressive Conditions (PPC), Blood Shift to the Head (BSH) and Simulated Microgravity (SMG).

We sought to find out the extent to which CAS in -40 to -500 and the involved conditions could achieve a treatment of mild Alzheimer's disease patients. Effect sizes differences were significant between mild Alzheimer's disease patients of the 1st group who have been treated with CAS in -40 to -500 and mild Alzheimer's disease patients of the 2nd group who have been treated with prescribed medication.

Findings provide clear evidence of response to CAS in -40 to -500 and the involved conditions of mild Alzheimer's disease patients of the 1st group.

Findings provide clear evidence of treatment with CAS in -40 to -500 and the involved conditions of mild Alzheimer's disease patients of the 1st group.

A review presents some benefits of the method of CAS in -4^o to -50^o and periodic and progressive conditions, blood shift to the head and simulated microgravity.

Declarations

Acknowledgements: The authors would like to thank the members of the different clinics of dementia who have been worked very hard over the years for the accomplishment of these studies.

Conflict of interest statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

1. Smith JJ. Circulatory response to the upright posture: A review volume, CRC Press, Boca Raton, Florida, USA, 1990: 4-6.
2. Y G Zorbas, Y Y Yaroshenko, N K Kuznetsov, V G Andreyev, Y F Federenko. Bone histomorphometric changes in trained subjects during prolonged restriction of muscular activity and chronic hyperhydration, Panminerva Medica. 1997; 39: 265-274.
3. Zorbas YG, Deogenov VA, Merkov PL, Federenko YF. Chronic periodic fluid redistribution effect on muscle calcium in healthy subjects during prolonged hypokinesia, Journal of Physiological Sciences. 2012; 62: 233-239.
4. Federenko YF, Charapakhin KP, Yaroshenko YN, Denogratov SK. Bone density benefits with periodic fluid redistribution during diminished muscular activity in humans, Indian. J. Physiol. Pharmacol. 2015; 59: 100-108.
5. Kakuris KK, Yaroshenko YN, Charapakhin KP, Neofitov NH. Chronic Head down tilt sleeping as a physiological regulator of bone remodelling during diminished muscular activity in humans, Clinical Physiology and Functional Imaging. 2015; 40: 222-230.
6. Pana RCM-Du, Bonoit R, Girardier L. The role of body position and gravity in the symptoms and treatment of various medical diseases, Swiss Med Wkly. 2004; 134: 543-551.
7. Zorbas YG, Federenko YF, Naexu KA. Fluid electrolyte and hormonal changes in conditioned and unconditioned men under hypokinesia, Acta Astronautica, 1988; 17: 1123-1126.
8. Zorbas YG, Naexu KA, Federenko YF. Fluid-electrolyte excretion during different hypokinetic body positions of trained subjects, Acta Astronautica. 1994; 32: 393-398.
9. Zorbas YG, Federenko YF, Charapakhin KP, Kuznetsov NA, Yarullin VL, et al. Fluid electrolyte changes during prolonged restriction of motor activity, J. Physiol. Biochem., 1998; 54: 33-40.
10. Zorbas YG, Kakurin VJ, Kuznetsov NA, Yarullin VL, Andreyev ID, et al. Measurements in potassium supplemented athletes during and after hypokinetic and ambulatory conditions, Biological Trace Element Research. 2002; 85: 1-22.
11. Zorbas YG, Yarullin VL, Denogradov SD, Afonin VB, Kakurin VK. Phosphate determination during hypokinesia and ambulation in establishing phosphate changes in trained and untrained subjects, Biological Trace Element Research. 2002; 88: 125-138.
12. Deogenov VA, Luzhkov AG, Kakuris KK, Federenko YF. Muscle calcium metabolic effects of hypokinesia in physically healthy subjects, Biological Trace Element Research. 2010; 138: 116-124.

13. Federenko YF, Deogenov VA, Kakuris KK, Yerullis KB. Muscle potassium and potassium losses during hypokinesia in healthy subjects, Biological Trace Element Research. 2011; 143: 668-676.

14. Zorbas YG, Deogenov VA, Fedorov AK, Denogradov SD. Alzheimer's disease treatment through chronic antiorthostatic sleeping in -40 to -500 via progressive: and periodic conditions, blood flow to the head and simulated microgravity: in Proceedings of Regional Conference of Neurologists, Yekaterinburg, Meditsina Publisher, Moscow, USSR. 1983; 231-239.

15. Neofitov NC, Neonov YS, Denogratov SK, Merkov PL. Brain capability recovery in Alzheimer's patients through chronically applied periodic blood boost to the brain and reduced gravity effects, Current Trend in Neurology. 2019; 13: 1-8.

16. Peterson RC. Mild cognitive impairment as a diagnostic entry, J. Inter.Med. 2004; 22: 224-229.

17. Huiskes Rik, Ronald Ruimerman, G Harry Van Lenthe, Jan D. Janssen. Effects of mechanical forces on maintenance and adaptation of form in trabecular bone. Nature. 2000; 405: 6787- 704.

18. Lekszycki T, dell'Isola FA. Mixture model with evolving mass densities for describing synthesis and resorption phenomena in bones reconstructed with bio-resorbable materials. ZAMM-Journal of Applied Mathematics and Mechanics/Zeitschrift für Angewandte Mathematik und Mechanik. 2012; 92(6): 426-444.

19. Giorgio I, Andreaus U, Scerrato D, dell'Isola FA. Visco-poroelastic model of functional adaptation in bones reconstructed with bio-resorbable materials. Biomechanics and modeling in Mechanobiology. 2016; 15(5): 1325-1343.