A NEW APPROACH TO THE TREATMENT OF JET LAG - RESEARCH PROJECT

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Abstract: *Brain research, or - in a broader sense - neuroscience, has an essential role in the improvement of health and quality of life. Among the many diseases affecting human health, sleep disorders are significant causes of morbidity, mortality and impaired quality of life. According to estimates by the World Health Organization (World Health Report 2011), more than one billion people suffer from sleep disorders. In Europe, disorders of the brain account for approximately one-third of the total burden of all diseases. Because of the effect on affected individuals and due to the enormous healthcare costs, these disorders present a significant health problem; they can substantially worsen people's economic circumstances because of the cost of medical or traditional treatments.*

Not only are such illnesses distressing for sufferers and their families, but they also have an impact on the broader society. Among the sleep disorders, the disorders of the circadian rhythm occupy an essential place in the concerns of the specialists from the somnology department of the National Institute of Aeronautical and Spatial Medicine. This study aims to offer a new approach to the treatment of jet lag.

Keywords: *Jet lag, ENT (ear, nose and throat), sleep disorders, circadian rhythm*

CASE STUDY: OBSTRUCTIVE SLEEP APNEA MANAGEMENT IN AERONAUTICAL PERSONNEL WITH EXCESSIVE DAYTIME SLEEPINESS.

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Abstract: *According to EASA (European Union Aviation Safety Agency) regulation - the latest edition named "Easy Access Rules for Medical Requirements", pilots with unsatisfactorily treated sleep apnea syndrome should be assessed as unfit. In order to maintain the flight fitness of civilian pilots, at the National Institute of Aeronautical and Spatial Medicine Sleep Department, we intend to offer personalized treatment to each aeronautical personnel with sleep apnea. The primary purpose of the paper was to demonstrate the extreme difficulties of managing a patient (civil pilot) with sleep apnea and excessive daytime sleepiness. The role of drug-induced sleep endoscopy (DISE) on operational decisions in obstructive sleep apnea was emphasized.*

Keywords: *sleep-related breathing disorders, pilots, ENT (ear, nose and throat), sleep surgery*

CLINICAL SIGNIFICANCE OF THE RESPIRATORY FUNCTION TESTS IN AEROMEDICAL EXAMINATION

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Abstract: *The joint American Thoracic Society/European Respiratory Society guidelines provide a beneficial method for the interpretation of pulmonary function tests that if performed correctly, should be very important in diagnosis and management of patients with respiratory diseases and the design of research protocols. The most common parameters measured in spirometry are: Vital capacity (VC), Forced vital capacity (FVC), Forced expiratory volume (FEV) at timed*

intervals of 0.5, 1.0 , 2.0, and 3.0 seconds, forced expiratory flow 25–75% (FEF 25–75) and maximal voluntary ventilation (MVV). This review offers data on physiology, interpretative caveats, and the evidence supporting the use of the most common parameters. Some spirometry measurements like inspiratory fraction, inspiratory capacity/total lung capacity (IC/TLC), may bring us prognostic information, while others, such as residual volume (RV)/ TLC and forced expiratory volume in 3 s/forced vital capacity (FEV3/FVC), can help connect the patient symptoms and more traditional indices of pulmonary function. Although most studies of non-traditional indices focus on airflow limiting disorders, many can be applied in other settings. Understanding the physiology that catalyzed these investigations will help improve the practising clinician and researcher.

At the same time, from ENT (ear, nose and throat) specialist point of view, rhinitis and asthma present similar immunopathological characteristics. We tried to clarify the existence of a possible correlation between rhinomanometry measurements and spirometric measurements in pilots.

In aeronautic personnel, the importance of performing and interpreting spirometry for early detection a pulmonary dysfunction is extremely important not only for the patient's health but also for his or her safety and also the safety of the aircraft and the passenger. In May 2019 the European Union Aviation Safety Agency introduced new rules regarding the medical examination of pilots and cabin crew. In order to assist in the implementation of the relevant EU legislation, EASA has provided useful and essential documentation referred to as Agency Rules like Certification Specifications (CS, including the general AMC-20) and Acceptable Means of Compliance (AMC) & Guidance Material (GM).

Keywords: *aeronautic personnel, spirometry, respiratory tract, ENT.*

EXCESSIVE DAYTIME SLEEPINESS IN ROMANIAN AVIATION PERSONNEL

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Abstract: *Excessive daytime sleepiness (EDS) represents an important public health subject. Although non-specific it is an extremely prevalent symptom in sleep disorders. The aims of this study are to establish the prevalence of EDS in civil aviation personnel and its' causes. A number of 224 aviation personnel (pilots and cabin crew members) was included in a prospective and retrospective randomized study. This was conducted by the authors in the National Institute of Aviation and Space Medicine, from Bucharest, Romania. EDS was found in 27% of the participants to the study, having a higher prevalence than general population. Prevalence in overweight subjects was higher than in normal or underweight ones. No significant correlation was found between age or gender and EDS. EDS represents a incapacitating sleep impairment and should be addressed accordingly because the high prevalence among aviation personnel represent a general issue.*

Keywords: *excessive daytime sleepiness, aviation, ENT (ear, nose and throat), somnology*

HEARING LOSS AND FITNESS TO FLY

GHERGHICEANU Florentina, ŞTEFĂNESCU Cristian-Dragoş, HAINĂROŞIE Răzvan

Abstract: *We are familiar with the image of the young pilots promoted by the aeronautical companies. They seem to be the holders of a perfect state of health. Instead, a synthesis of research on requirements for pilot medical certificates shows that the candidates with different medical conditions can also become pilots. In the context of the latest ENT (ear, nose and throat) requirements for class 1 and class 2 medical certificates, the present paper is intended to produce*

an algorithm capable of delivering the highest quality of aeromedical decisions for the candidates with hypoacusis. In this regard, they have been interpreted the Implementing Rules (IRs), the Acceptable Means of Compliance (AMCs) and the Guidance Material (GM) on this specific ENT condition. The algorithm mentioned above can be a useful tool for aero-medical examiners.

Keywords: *hypoacusis, hearing aids, pilots, ENT*

IS THE BARANY CHAIR TEST TRULY A PREDICTOR OF AIRSICKNESS?

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Abstract: *Since the beginning of the aeronautical medicine, the vestibular evaluation of the pilot candidates (during the ENT examination) has been a very important concern. This was conditioned by the particularities of the professional tasks in aviation. Unfortunately, as a result of the pressure imposed by the continuous increase of the air transport and implicitly of the increased number of pilots, there are differences between the vestibular tests chosen for the selection of the military pilots compared to the civilian ones. The predictive role of the Barany test for military pilot selection was presented. For the first time in Romania, an Anti-Airsickness-Training-Program was proposed for both military and civilian pilot students. By its application, significant savings will be obtained, because it will reduce the abandonment of pilot schools due to airsickness.*

Keywords: *Barany chair test, student pilots, Anti-Airsickness-Training-Program, ENT*

PREOPERATIVE PSYCHOLOGICAL ASSESSMENT OF SEPTORHINOPLASTY CANDIDATES

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Abstract: *The success of reconstructive surgery is determined by the mastery of the surgical team but also by the patient's subjective perception of the changes obtained. Because the nose is located in the centre of the face, any technique imperfections are easily observed by the patient. If we add to the aforementioned fact that septorhinoplasty is pursuing at the same time both the remodelling of the nose and the regaining of its functional permeability, we have the overall image of this surgery. The ENT (ear, nose and throat) surgeon seems to be the best doctor to practice this kind of complex intervention, but his experience with patients named "consumers of plastic surgery" is generally reduced. The aim of this paper is to present our experience in this surgery and to offer an algorithm for the selection of septorhinoplasty candidates.*

Keywords: *septorhinoplasty candidates, reconstructive surgery, ENT.*

PROTOCOL FOR PILOT CANDIDATES WITH SIGNIFICANT RESTRICTION OF THE NASAL PASSAGES

GHERGHICEANU Florentina, ŞTEFĂNESCU Cristian-Dragoş, HAINĂROŞIE Răzvan

Abstract: *Since May 2019, according to the latest EASA (European Union Aviation Safety Agency) regulations - "Easy Access Rules for Medical Requirements", an applicant for a class 1 medical certificate (civilian pilot) with a significant restriction of the nasal passages shall*

undergo further examination to establish that the nasal obstruction does not interfere with the safe exercise of the privileges of the applicable licence. Unfortunately, the criteria followed in the subsequent examination are not specified. It only indicates that the ENT (ear, nose and throat) final evaluation must be satisfactory. The aim of this paper was to develop a specific ENT protocol for the mentioned medical condition. This protocol can be used later by any aeromedical examinator involved in the aeromedical decision process.

Keywords: *pilot candidates, ENT, significant restriction of the nasal passages, EASA regulations*

QUALITY OF LIFE ASSESSMENT IN PATIENTS WITH TOTAL LARYNGECTOMY – A RESEARCH PROJECT

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Abstract: *The problem of life quality for patients suffering of radical surgical interventions is a very important issue of public health, and a subject for interdisciplinary research - medical, psychological, social, socio-economical. The multidimendional evaluation of quality of life for the patients assisted for surgical interventions represents a high level of interest for these fields of research. The success of the treatment is closely related to the quality of life of the patients, and the determination of the factors that influence the quality of life for these persons is a very useful tool for a complete recovery. The objective of the present paper is to present a method of analyze quality of life in patients with total laryngectomy. In this stage of research we present the arguments regarding the evaluation of the quality of life as well as the structure of the questionnaire we have elaborated for this purpose. Subjects: patients with total laryngectomy. Material and method: a 40 items-questionnaire developed by us, pencil-paper applied in several stages of treatment. Conclusions: this type of investment is useful for the ENT (ear, nose and throat) physician (in establishing and evaluating the treatment) as well as for the patient and the medical institution in which the intervention is performed.*

Keywords: *laryngectomy, quality of life, ENT,, interdisciplinary research*

SPATIAL DISORIENTATION AND NUTRITIONAL SUPPLEMENTS IN AIRCREW

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Abstract: *Dietary supplements are generally believed to be safe, leading to a majority of the world's population to trust and use them (more than 4 billion people, according to the World Health Organization) in detriment of drugs prescribed by doctors and health care professionals. However, as the supplements industry has largely expanded during the last few decades, many concerns began to arise regarding their safety and potential adverse effects, not to mention their real efficacity, which in many cases have been proved to be no greater than that of placebo treatments. This paper discusses the adverse effects and toxicity of some of the most important dietary supplements and herbal medicines, like St. John's Wort (Hipericum perforatum), Ginkgo Biloba, Ginseng or vitamins supplements, directly related to the activity of the aeronautical staff, especially pilots. Thus, to the aeronautical personnel some authors have even indicated the possibility of spatial disorientation appearance. From the perspective of the latest aeronautical regulations, this study aims at investigating the effect of dietary supplements on aviators professional performances and flight safety.*

Keywords: *dietary supplements, spatial disorientation, flight safety, pilots*