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Respiratory Sleep Disorders

Tîrgu Mureș, Romania
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BOOK OF ABSTRACTS

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Respiratory Sleep Disorders

25-26 May 2018, Tîrgu Mureș

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CASE PRESENTATION - ROLE OF BRONCHOSCOPY IN OBSTRUCTED BRONCHI CLEARING

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Introduction: Bronchoscopy has a decisive role in the diagnosis and treatment of respiratory diseases. It allows endobronchial morphological evaluation, sampling of different specimens and histopathological, bacteriological or cytological examination (by biopsy, bronchial aspirate, transbronchial biopsy, bronco-pulmonary lavage) and various endobronchial treatment techniques - laser/cryo/electro/brachytherapy of tumors, hemoptysis, aspiration of the viscous bronchial secretions, dilatation of stenosis, extraction of foreign bodies, etc.

Aim of the paper: Presentation of endoscopic reduction of a total atelectasis (by endobronchial secretions).

Method: Case report for educational purpose

Results: An 80-year-old patient with a history of left hemiplegia (by stroke 7 years ago) and surgery for a colon cancer (2 month ago) is hospitalized in the Pulmonology Clinic with severe rest dyspnea, absence of the left vesicular murmur, and cough with mucopurulent sputum. Chest – x ray examination reports a completely white lung. The thoracic ultrasound noted a pleural collection. The pleural fluid examination (2.5 l thoracentesis) revealed an exudate, negative in microscopy for the Koch bacillus and non speciphic flora. Thoracic CT did not reveal secondary neoplastic process. Bronchoscopy was a good indication to achieve the cause of atelectasis: mucopurulent secretions that completely blocked the left primitive bronchus. The local toilets with saline solution revealed an inflamed but completely permeable bronchus and no secondary neoplastic lesions. The treatment was completed with complex antibiotic therapy (third generation cephalosporin III, aminoglycosides, fluoroquinolones) and mucolytic, intravenous and oral hydration, inhaled bronchodilators. Evolution was rapidly favorable with remission of radiological opacity and lack of recovery of the pleural fluid.

Conclusions: Bronchoscopy is mandatory in monitoring a patient with a history of cancer to exclude secondary bronho-pulmonary lesions. Bronchoscopy was salutary in alleviation of the long-lasting pleuro-pneumonia and atelectasis through viscous mucopurulent secretions. The local toilets alongside with anti-inflammatory drug and antibiotics remitted inflammation and the obstructive factor.

Keywords: bronchoscopy, atelectasis

POST-TUBERCULOUS CAVITY SUPERINFECTED WITH ASPERGILLUS AND KLEBSIELLA PNEUMONIA (CASE PRESENTATION)

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Introduction: Post-tuberculous syndromes (postTB) are tuberculosis (TB) defective forms of healing. Intracavitary aspergillosis (ICA) may over-infect remaining cavities after TB. The treatment of ICA is mixed: surgical (lobectomy) and long-lasting antibiotics (antimycotics).

Case description: A 69-year-old patient was hospitalized in the Pneumology Clinic with dyspnea, persistent hemoptysis, mucopurulent sputum, variable fever (37-38.1°C), dyspnea, and thoracalgia. The patient presented pleural and pulmonary TB 20 years ago with complete antituberculous treatment and cure with defect (remained cavity). Multiple sputum specimens for the Koch bacillus were negative in microscopy + culture. Complex treatment was initiated with non-specific antibiotic, hemostatics, inhaled bronchodilators. CT chest raised suspicion of ICA (opacity inside the cavity - fungus mass surrounded by the air “the air crescent sign”). Lobectomy was performed in the thoracic surgery section and the histopathological examination confirms ICA. Antimycotics therapy with voriconazole was initiated. Two weeks after discharge, the patient developed septic fever, muco-purulent expectoration and purulent secretion in the postoperative wound (bacteriology positive with Klebsiella pneumonia). General antibiotics were administered according to antibiogram alongside with antimycotics. The patient’s condition was stationary under treatment and a CT chest was repeated (it revealed an open pneumothorax, a fistula to the skin and pleural effusion). The patient was referred to the thoracic surgery and it was performed drainage for the remaining pio-pneumothorax. Evolution was favorable with continued antimycotics treatment for 3 months.

Conclusions: Cavitary TB cured with “defect” (with a sclerotic walls of the cavity) rises the risk of late post-TB complications (overinfection, TB reactivation, carcinogenesis, hemorrhage and ICA). Investigation for an aspergillosis in former TB patients with remaining cavities is always required especially in the presence of hemoptysis. ICA treatment is complex (long-term antimycotics, surgical auxiliary approach) with possible postoperative complication.

Keywords: TB healed with defect, intracavitary aspergilloma, mycological examination

DEVICES WITH POSITIVE AIRWAY PRESSUSE USED IN THE PNEUMOLOGY CLINIC TG. MURES

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Introduction: The treatment with Positive Airways Pressure PAP is the choice in sleep apnea (SA) and several sleep disorders

Purpose: Presentation of PAP devices used in Pulmonology Clinic Tg. Mures for educational purposes

Results: Devices widely used: 1). CPAP with fixed pressures (continuous positive pressures), 2). AutoPAP automatically adjusts the patient's pressure according to the appeared apnea; 3). BilevelPAP shows two values pressure applied on the upper airways (UAW): inspiratory positive airways pressure (IPAP) and expiratory positive airways pressure (EPAP), which increases tolerance for use. IPAP has a role in eliminating severe apneas; EPAP (usually lower) addresses the hypopnea, diminishes air trapping, and ensures UAW permeability during expiration. A large difference IPAP - EPAP provides the support of pressure for increased ventilation. Devices are indicated depending on the type of SA discovered or upon the underlying pathology: a). Simple SA: CPAP or AutoCPAP; b). SA + chronic obstructive pulmonary disease (COPD) or hypercapnic respiratory insufficiency or hypoventilation recommends non-invasive mechanical ventilation (NIMV) or BPAP; c). Central apnea: CPAP or adaptive servo-ventilation. PAP devices ensure that UAW remains open during sleep and so they cause regression or disappearance of apnea, hypopnea, snoring, improve sleep duration and quality, diminish excessive diurnal drowsiness, relieve SA complications (hypertension, heart rhythm disorders, prevents accidents at work and traffic), decreases metabolic disorders and cognitive decline, and improves quality of life. Choosing one or the other device type is made on medical criteria but also upon technical characteristics (silent device, material from which the mask and tubes are made, and easiness in device use and maintenance). Oxygen therapy, if appropriate, is given in conjunction with CPAP and is beneficial in coexisting COPD or fibrosis or severe respiratory insuficiency, improves desaturations, prevents arrhythmias induced by desaturation, increase survival.

Keywords: CPAP, BPAP.

IS THE ASSOCIATION BETWEEN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND OBESITY AN OVERLAP WITH AGGRAVATING CHARACTERS?

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Background: Chronic obstructive pulmonary disease (COPD) and obesity are widely spread in the general population, each other with severe consequences on health and quality of life. Both diseases are systemic inflammatory disorders with repercussions upon respiration, cardiovascular system, metabolism and sleep.

Purpose: Analyze of the association between COPD and obesity in educational purpose

Result: COPD and obesity are largely extended in population especially over the age of 50. When they occur together they determine severe complications: extreme breathlessness, cardiovascular morbidity, respiratory sleep disorders (RSD), daily activities limitation, difficulty in respiratory rehabilitation implementation, depression, large consumption of medical resources, disability, and shortness of life expectancy. Obesity brings to COPD patients a restrictive component of ventilation (by reducing the chest wall and lung compliance). Obesity associates a huge risk for obstructive sleep apnea (OSA) and increases the risk of hypercapnia by hypoventilation (HH). Obesity can bring a worsening factor for comorbidities/complications of severe COPD (ischemic heart disease, hypertension, heart failure, dyslipidemia, diabetes, depression, risk of infections). COPD associated with obesity will benefit from extended additional investigation: cardiac examination, metabolism evaluation, psychological consult, polysomnography and blood gases. Treatment of patients with "overlap" (COPD and obesity) must be performed by a multidisciplinary team: bronchodilators, treatment of cardiac/metabolic comorbidities, pulmonary rehabilitation, weight loss, psychological counseling, and smoking cessation. Association of SA recommends CPAP treatment and HH will include the noninvasive mechanical ventilation (NMV). Morbid obesity could benefit from bariatric surgery after an exhaustive respiratory assessment and correct CPAP/NMV treatment.

Conclusion: Association of COPD and obesity are frequent and increase the risk for cardiovascular complication, diabetes and severe RSD. It needs complex evaluation and sustained treatment by a multidisciplinary team in different specialty (pulmonology, cardiology, sleep medicine, nutrition, respiratory rehabilitation, psychiatric support).

Keywords: COPD, obesity, obstructive sleep apnea.

SLEEP QUALITY IN COPD AND ASTHMA

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Background: It is well-known that chronic obstructive pulmonary disease (COPD) and asthma have important symptoms associated with sleep or even sleep disorders.

Purpose: reviewing of sleep disorders existing in obstructive diseases, investigation and general principles of treatment in educational purpose

Results: The quality of sleep is decreased in COPD and asthma by several mechanisms: insomnia (delay in sleep initialization by dyspnea, orthopnea, and anxiety), awakenings (by cough and accumulated secretion; dyspnea, hypoxemia, sleep apnea, hypoventilation, and effects of medication – xanthines, beta-adrenergics) or nocturia. The nocturnal vagal tone increase obstruction that why in many patients nocturnal dyspnea is more present. The supine position increases the vascular retour and in the same time it is a risk factor for sleep apnea. Sleep fragmentation and nocturnal hypoxemia are risk factors for apparition of pulmonary hypertension and core pulmonale. After the sleep fragmentation the patients will have diurnal somnolence, decrease in physical activities, disabilities and decrease on quality of life with more dyspnea. Medical history, objective exam, sleep diary and nocturnal pulse-oximetry, morning gasometry and cardiac ultrasound will be included in the investigations. Polysomnography is recommended in the suspicion of SA association (snoring, obesity, and excessive diurnal somnolence), severe early pulmonary hypertension or polycythemia. Treatment in sleep disturbancies in COPD or asthma will be indicated upon the determined cause but correct treatment with long acting bronchodilators (anticholinergics or/and beta2 adrenergics), inhaled cortisteroids in asthma, and oxygen in nocturnal hypoxemia will bring benefit. Continuous Positive Airways Pressure CPAP or Bilevel PAP will be indicated in the overlap with SA or hypoventilation. Hypoventilation has to be early diagnosed by gasometry as oxygen therapy itself can acutely worsen hypoventilation. In these cases, the associated long-term noninvasive mechanical ventilation could be the best solution. Respiratory rehabilitation, weight loss, smoking and alcohol cessation, elimination of diurnal and nocturnal allergens and irritants/ambient pollutants will complete the general treatment.

Keywords: sleep disorders, COPD, asthma.

LATE DIAGNOSIS IN VERTEBRAL TUBERCULOSIS (POTT'S DISEASE) COMPLICATED WITH ABSCESSES AND CUTANEOUS FISTULA

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Introduction: Tuberculosis (TB) of the spine continues to be present in osteoarticular pathology despite the decrease of the TB endemic in Romania. The incidence of osteoarticular TB (with spine location on top) represents 13.3% of extrapulmonary TB. Increased chemo resistant TB, poor socio-cultural conditions and patient noncompliance are the most important risk factors.

Purpose of the paper: Presentation of a complicated case of lumbosacral TB and the impact of late diagnosis.

Results: A male patient (21 years old) was hospitalized in Pulmonology Clinic Tg. Mureş for vague lumbar pain, nocturnal sweating and fever and a lumbar fistula with permanent purulent secretions. The patient was treated 5 months by surgery and nonspeciphic antibiotics for abscesses in the pelvic and lumbar zones. The CT scan revealed suggestive signs of lumbosacral TB with bony cavities and paravertebral abscesses. No pulmonary damage was found. TB confirmation was possible by positive culture at 45 days for the Koch bacillus from the fistulized abscess. Antibiotic therapy strictly supervised, category I WHO was initialized, the 3-4 months attack dose with the recommendation to extend to 9-12 months the total medical treatment. The surgical and orthopedic examinations have been asked and the recommendation was the continuation of conservative antibiotic treatment, orthesis, and surgical re-evaluation over 2 months. The patient has an "ongoing treatment" with very good evolution.

Conclusions: The poor clinical symptoms and the absence of pulmonary TB delayed the correct diagnosis. The late diagnosis in a Pott's disease predisposed to complication: osteolysis, formation of ossifluent abscesses and delay of antituberculous therapy initialization. Patients with pelvic abscesses have to be investigated by vertebral CT scan or RMI for a possible vertebral pathology and a TB very probable etiology. Treatment in Pott's disease is very often a complex one: long time medical treatment with associated antibiotics and surgical/orthopedic auxiliary treatment.

Keywords: lumbosacral TB, paravertebral abscess, early antituberculous treatment.

ELECTRONIC DATABASE FOR PATIENTS WITH SLEEP APNEA

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Objective: Proposal for a data-base for patients with respiratory sleep disorders (RSD) created by the sleep lab team, Clinic of Pulmonology Tg. Mures.

Methods: Interactive software creation that will allow access to an electronic database for SA and RSD patients by the pulmonologists and sleep technicians

Results: The electronic data-base for RSD patients will be an interdisciplinary work created by the pulmonologist of the Pulmonology Discipline University of Medicine and Pharmacy together with IT specialists from Petru Maior University. The database will permit registration of all patients with RSD (sleep apnea SA, snoring, restless legs syndrome, obesity hypoventilation, hypersomnia, etc.). The eligible patients will have a large observation file which will include all case particularities and issues: 1). Risk factors (often intricated): micrognatia, retrognatia, syndrome Pierre-Robin, Down or Marfan, obesity, ENT disorders with narrowed airway – tonsilitis, chronic or allergic rhinitis, hypothyroidism, alcohol abuse, sedatives, hipnotics, drugs consumption, smoking, subjects with hypotonic muscles or muscles dystrophy, cardiac insufficiency or neurologic stroke or intracranial processes;. 2).Suggestive symptoms: snoring, episodes of breathing cessation during sleep, excessive daytime sleepiness, non-restorative sleep, fatigue, headaches, concentration difficulties, memory loss; 3). Frequent SA complication: hypertension, coronary artery disease, stroke (especially in young people), congestive heart failure, atrial fibrillation, type 2 diabetes or dyslipidemia; 4). Investigation: sleep diary, Epworth scale, BMI, ECG, poligraphy or polysomnography and different interdisciplinary consults for diagnostic the cause or complication - cardiac exam, metabolic disease exam, neurologic exam, respiratory function tests, ENT; 5). Recommended treatment - hygiene of the sleep, CPAP, weight loss, etc. The position in the database will be created for each patient at the time of initial suspicion and will be further completed with new data and periodically it could be accessed with the occasion of the controls under treatment or for scientific reasons by the pulmonologists (based on a password) or sleep technician.

Conclusion: A solid monitoring of a chronic severe disease like RSD need an accurate subjects registration, complete data storing and offer the choice to improved access to information, patient monitoring and compliance.

Keywords: electronic data base, sleep apnea.

THE ADVANTAGES AND DISADVANTAGES OF CARDIO-RESPIRATORY POLIGRAPHY FOR SLEEP DISORDERS DETECTION IN THE CLINIC OF PULMONOLOGY TG. MURES

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Introduction: Sleep investigation can be performed by poligraphy (PG) or by polysomnography (PSG). PG is currently approved for the diagnosis of obstructive sleep apnea OSA (mild/moderate) in patients with high clinical suspicion and on positive specific questionnaires (Epworth - assessment of diurnal somnolence, Berlin questionnaire evaluating sleepiness, risk factors and complications suggestive of OSA).

Objective: Presentation of the arguments for cardiorespiratory PG option in Pulmonology Clinic Tg. Mures.

Results: In our clinic we currently use a cardiorespiratory PG with 5 study lines during sleep: evaluation of nose air flow (with a pressure cannula), assessment of thoracic and abdominal movements and the patient's position during sleep, the cardiovascular variability, snoring and nighttime pulse oximetry. The benefits of PG are multiple: absolute free of charge (PG is covered by the insurances) comparing with the PSG system (existent only in the private system), it allows investigation of 3 patients in parallel in the same night (under the supervision of 1 physician/technician) because our clinic has 3 PG machines, rapid diagnosis of different types of AS (obstructive, central, mixed), comfort for the patient and for the care staff, rapid validation of the curve by the physician (20 minutes). PG allows in simple way a repeated investigation as needed, allows registration with the Continuous Positive Airways Pressures CPAP device, the PAP titration and the tolerance/efficacy under the CPAP treatment during the home compliance monitoring.

Conclusions: The benefits of PG (efficient, non-expensive, quickly to perform and validate, convenient, reliable, repeatable) ensure an accurate diagnosis of SA (predominantly of the uncomplicated OSA). In the same time, pressures titration and treatment is establish quickly during a 3-day hospitalization, which increases the patient's compliance and confidence and eliminates the risk of long-term complications and AS awaiting waiting for programming to the more complex, expensive and rare PSG existent in other services.

Keywords: poligraphy during sleep, obstructive sleep apnea.

CHRONIC TOBACCO SMOKE AS A MAIN RISK FACTOR FOR SLEEP DISORDERS

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Objective: Highlighting that chronic tobacco smoke is a dangerous but avoidable risk factor for sleep disorders (SD)

Method: Presentation the hazardous effects of smoking on SD for educational purpose.

Results: The harmful association between smoking and SD has been confirmed by numerous studies. The pathogenic implication of smoking in SD particularly in sleep apnea (SA), includes many mechanisms: central nervous stimulation (by nicotine), increased airway inflammation (AW) and SA risk, increased nighttime secretions (by AW irritation, nocturnal awakenings), constriction of smooth muscles and increased AW collapsibility, sleep deprivation, cardiovascular dysfunction and nocturnal arrhythmias. Smokers show more often than non-smokers insomnia, frequent nocturnal awakening, altered sleep architecture, obstructive SA, restless sleep, daytime somnolence, cognitive decline and complicated chronic obstructive pulmonary disease (COPD). In children, passive smoking “second and third smoking” (through maternal or parents smoking after birth) is associated with delayed sleep initiation, nocturnal awakening, reluctant sleep (with neurological and behavioral rebounds), snoring, more severe AS, parasomnias (somnambulism, bruxism), attention deficit, hyper reactivity, hypersomnia, or daytime somnolence. At the same time, passive smoking leads to asthma exacerbation and respiratory infections.

Conclusion: Combating smoking (stop smoking or education for no starting smoking) is recommended as a general measure of SD prevention, COPD or asthma attacks prophylaxis. Smoking cessation is an integral part of the rehabilitation program for patients with SD, SA or COPD. Prohibition of smoking in public places supported by legislation as well as increase of anti-smoking mass-media campaigns can lead to lower smoking exposure of the general population and reducing the consequences of smoking in the SD field.

Keywords: smoking, risk factors, sleep apnea.

HABITUAL SNORING – PREDICTIVE ELEMENT FOR SLEEP APNEA

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Introduction: Snoring is due to the vibration of soft tissues from the upper airways (UAW) in inspiration or expiration. Snoring is an indicator of increasing resistance of the UAW and a high predictor for obstructive sleep apnea (OSA).

Method: Presentation the harmful effects of snoring and the clinical significance of snoring for educational purpose.

Result: Several studies show a high frequency of snoring (9-50% in males, 4-17% in females, 5.6% in children). Risk factors for snoring are multiples and often intricated: obesity, male gender (B: F - 2:1), supine position, retrognathia/micrognathia, macroglossia, ENT disorders (uvular hypertrophy, chronic/allergic rhinitis, nasal polyps, smoking, exposure to respiratory pollution by chronic inflammation of the UAW), alcohol consumption, abuse of sedatives and sleeping pills. Consequences of snoring can be severe: night-time awakenings with sleep fragmentation, headache, drowsiness, irritability, decreased concentration, and decreased libido. Chronic snoring increases the risk of atherosclerosis, hypertension, cardiac or cerebral attacks and lowers the quality of life. Among the conservative snoring treatments we mention: weight loss, sleeping on one side, ensuring nose permeability, and preventing excessive muscle hypotonia by avoiding alcohol, quitting smoking, sleeping pills and sedatives use. Positional therapy with devices that prevent sleeping on the back can be helpful to some people. Other treatments may be devices that fix or advance the mandible. Obstructive disorders in the ENT may have surgical cure. Continuous Positive Airway Pressure (CPAP) treatment was successful with the marked reduction in snoring and complications related to sleep deprivation and drowsiness. The disadvantage of CPAP is the lack of acceptance from many subjects and lack of financial coverage through the insurance system. Among the cheap and non-invasive methods to combat snoring, we mention the exercises to increase the tonicity of UAW muscles, soft palate and facial muscles.

Conclusion: Snoring is a very frequent and suggestive/predictor symptom of SA so that polygraphy or polysomnography investigation is required for the great snorers to exclude an AS and its complications. Habitual snoring is not a normal state that why, it will benefit from different treatments depending on etiology.

Keywords: snoring, sleep apnea.

MODEL OF COMPLEX MONITORING FORM FOR THE PATIENT UNDER TREATMENT WITH CPAP

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Introduction: Sleep apnea (SA) treatment has the main goal the rapid restoration of upper airway permeability with Continuous Positive Airway Pressure (CPAP) along with lifelong education and lifestyle changing for SA risk factors reducing.

Purpose: Presentation of a model of assessment/monitoring form about patient's evolution under CPAP implemented in Pulmonology Clinic Tg. Mures.

Results: To analyze the efficacy of CPAP treatment and the patient's compliance, we have developed a "patient monitoring form under CPAP treatment" with multiple combined clinical and laboratory parameters. CPAP efficacy and compliance monitoring criteria will be obtained from the clinical exam and from the device's memory card or download from cloud data/internet (at 1day, 7, 30 and 90 days after the treatment initialization). The followed parameters are: 1). Adherence to CPAP (use over 4h/night, over 70% of nights) (mandatory criteria for driving license); 2). Persistence/compliance - number of days with CPAP usage; 3). Residual IAH (ideal <5/h); 4). Leakage at the mask level; 5). Patient perception of well-being, diminishing of the diurnal drowsiness, enhancing daily activities; 6). Epworth scale (ideal <8); 7). Physical activity level (30 minutes daily sports activity, gymnastics) + 5km walk on flat area (around 6000 steps/day; 8). Compliance to the monitoring controls; 9). BMI; 10). Normal blood pressure under treatment at the time of consultation; 11) Waist and neck circumference); 12). Evolution of comorbidities; 13) Balance of diabetes; 14). Compliance in medication administration for associated diseases (COPD, cardiovascular comorbidities); 15). Sleep evaluation (by the patient and by the bed partner; 16). Quality of life; 17). Patient's knowledge about the disease and the need of the sleep device; 18). Adverse effects of the device; 19). Solid knowledge about device maintenance (sterilization, changing headgear at 6 months, filters at 1 month, humidifier at 6 months, tubing at 3 months); 20). CPAP pressures reassessment; 21). Patient's knowledge about the emergency service and technician/pulmonologist phone numbers.

Conclusions: The 21 required criteria form is a simple tool which allows the complex picture of the patient's disease and evolution under CPAP treatment. In the same time our form monitories the compliance under treatment. The monitoring form is a useful instrument for the pulmonologist in the sleep lab that allows patient's follow-up optimization and increase of patient's compliance.

Keywords: monitoring form, CPAP, sleep apnea.

CENTRAL SLEEP APNEA - DIAGNOSIS AND TREATMENT

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Background: Central sleep apnea (CSA) is the lack or airflow at the nose and mouth over 10 seconds while sleeping in the adult caused by the absence of the neurologic impulses, without breathing effort in the chest or abdomen. CSA is associated with nocturnal arousal and hypoxemia with secondary complication. CSA is found in about 5% of all cases of SA.

Objective: Characterization of CSA, reviewing investigation and treatment for educational purpose

Results: CSA includes several syndromes associated frequently with systolic cardiac failure, opioid abuse, neurologic disorders, exposure to altitude or severe obstructive sleep apnea/hypoxemia. Cheyne-Stokes breathing (CSB) is a particular CSA characterized by central respiratory events during day or night sleep (clustered at least 3 consecutive CSA separated by crescendo-decrescendo breathing cycles with a cycle length from onset to onset ≥40 seconds. CSB is periodic ventilation that associates periods of hyperventilation alternating with central apnea/hypopnea. CSA has diurnal and nocturnal symptoms like: diurnal excessive somnolence, lack of energy, insomnia or awakenings, no resting sleep, snoring, apnea proved by the sleep partners and frequent association of cardiovascular disorders (atrial fibrillation, flutter, heart failure), neurological disease (stroke, tumors, Parkinson disease, encephalitis), neuromuscular disorders, muscular dystrophy, myasthenia gravis, chronic renal diseases, altitude, drug abuse (methadone, opioids). Polysomnography is mandatory alongside with investigation for different etiologies and comorbidities (MRI, cerebral CT, neurologic exam, cardiologic exam, heart ultrasound, ECG, gasometry, glycosylated Hb, anti-acetylcholine receptors antibodies). Treatment depends upon the etiology but CPAP/BiPAP improves CSA and heart performance and the quality of life. Adaptive servo-ventilation (ASV) is a particular type of device of ventilation especially recommended in CSB. ASV performs central apnea detection and offers an IPAP that compensates the lack of nerve triggering and a backup respiratory frequency. ASV is also recommended in patients with long-term opioid treatment. Supplemental oxygen is indicated in severe hypoxemic patients and in altitude.

Keywords: Central sleep apnea, CPAP, BIPAP, Adaptive servo-ventilation

ADVANTAGES AND DISADVANTAGES OF POLYSOMNOGRAPHY IN THE DIAGNOSIS OF RESPIRATORY DISORDERS DURING SLEEP AND SLEEP DISORDERS

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Introduction: According to the recommendations of the specialists forums polysomnography (PSG) is the investigation indicated for the complex sleep assessment, sleep architecture characterization and for an accurate diagnosis of the sleep pathology.

Results: PSG performs simultaneous recording of several physiologic parameters with multiples study lines: 1). Electroencephalography (3-6 channels) for brain activity, total sleep time measurement, sleep stages and arousals description; 2). Electrooculogram for eye movements; 3).Nasal/oral sensors for air flow study; 4) Sensors for analyze of the chest and abdomen movements; 5). Pulseoximetry; 6). Electrocardiogram; 7). Electromyogram for chin/limb movements and muscle tone analysis; 8). Microphone for snoring and oral sounds; 9). Blood pressure; 10). Transcutaneous CO2; 11) Video camera for body movement and body behaviors during sleep. PSG has to be performed by a sleep physician or technologist with competence. Indication of PSD: sleep apnea (especially central/mixed apnea and severe obstructive SA), narcolepsy, periodic legs movements, sleep disorders in children (including parasomnia or bad dreams), alveolar hypoventilation syndrome including obesity or neuromuscular causes, overlap syndrome (COPD and SA), disorders without etiology after poligraphy, excessive diurnal somnolence, lack of favorable result after CPAP and before bariatric surgery. PSG is not indicated in the first step for insomnia, headache, circadian rhythm disorders, somnambulism, COPD alone, bruxism, degenerative brain disorders or epilepsy alone. Disadvantages of PSG are: low access to care, very expensive cost for the health system and for patients; time consuming for installation and final result analyze (about 2 hours); difficult to be repeated, it does not reproduce the natural condition during sleep (produce stress and anxiety). PSG helps for diagnostic, positive airways pressure titration study or both “Split night study” (half-night diagnosis and half-night titration).

Conclusion: Because of the expensive price and laborious technique, the indications for PSG will be very well established by a physician with experience. In the same time the patients will get large instructions about the need of the investigation and the way to perform it. PSG remains the gold standard sleep investigation method because of the large panel of information received by this investigation concerning the sleep.

Keywords: polysomnography, sleep stages

INTERSTITIAL FIBROSIS ASSOCIATED WITH SYSTEMIC SCLERODERMA (CASE PRESENTATION)

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Introduction: Scleroderma is an autoimmune systemic disease, affecting predominantly the skin, subcutaneous tissue, muscles, digestive system, vessels, and kidneys. Interstitial pulmonary fibrosis secondary to scleroderma is associated with severe complications: infections, hypertension and pulmonary cord, chronic respiratory failure.

Case presentation: A 51-year-old patient (with scleroderma from 2007) was hospitalized for rest dyspnea, chest pain, dry cough and fever 39.5°C. Patient presented exposure to respiratory noxious: domestic pollution and occupational exposure. The clinical examination revealed “facial masquerade”, Raynaud’s syndrome, hippocratic fingers, polyarthritis, cutaneous scarring after necrotizing vasculitis, tachycardia, “velcro” diffuse crackles. Spirometry notifies severe mixed ventilatory dysfunction with partial reversibility (FVC-56.6%, FEV1-49.8%, IT-71%, and post-bronchodilator 57%, 60.6%, 86.4%), and low SaO2 (88%). Chest X-ray/CT corresponds to important interstitial fibrosis with “honeycomb images” and bronchiectasis. The treatment was maximized by a combination of inhaled bronchodilators, inhaled and systemic corticosteroids, antibiotics, peripheral vasodilators and antagonists of the endothelin-receptors, proton pump inhibitors with favorable evolution. In order to prevent further infections we recommended influenza and anti-pneumococcal vaccination. Respiratory rehabilitation and oxygen therapy was indicated.

Conclusions: Management of systemic sclerosis requires a multidisciplinary approach. It is necessary to associate an early pulmonological consult for evaluating the respiratory status and monitoring in all cases for the best control of lung disease. Advanced systemic sclerosis increases the risk of respiratory infections. Associated treatment for respiratory complications was complex with bronchodilators, corticosteroids and respiratory rehabilitation to relieve symptoms, increase exercise capacity and improve quality of life.

Keywords: Interstitial fibrosis, scleroderma, infection risk, pneumological monitoring

HYPOVENTILATION SYNDROMES DURING SLEEP

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Backround: Hypoventilation syndromes (HVS) during sleep are characterized by the increase of the PaCO2 >55mmHg (hypercapnia) at least 10minutes during sleep or increase PaCO2 with 10mmHg over 50mmHg at least 10 minutes during awake and supine position. Sleep agravates HVS by hypotonia of muscles (especialy during REM sleep).

Objecvtive: HVS description with causes, complications and treatment for educational purpose.

Results: Causes of HV are multiples and often intricated. Obstructive HVS is noticed in advanced COPD. Nonobstructive HVS could apear in neurologic disorders (tumor, stroke, trauma, poliomyelitis, amyotrophic lateral sclerosis), respiratory disease (fibrosis, cyphoscoliosis), myasthenia gravis, diaphragmatic paralysis, muscular dystrophy, obesity, substance and drugs abuse. Symptoms commonly found in HVS are diurnal hypersomnolence, fatigue, headache, poor sleep quality, sleep apnea (SA). Obstructive SA associates obesity-hypoventilation syndrome in 90%. Obesity is a very frequent cause especially when BMI >40 kg/m^2. HVS associate severe complications (hypercapnia and hypoxemia): pulmonary hypertension, difficult intubation or detubation, hypercapnic encephalopathy, polycythemia, endothelial dysfunction, ischemic disease, heart failure, arrhythmia, diurnal somnolence, sedentary, cognitive deficit and metabolic syndromes. Morbidity and mortality due to HVS are frequently underestimated, underestimated, and underdiagnosed. When suspicion exists for HVS we have to perform extended investigations: polysomnography, diurnal gasometry, transcutaneous PaCO2, respiratory functional tests, ECG, heart ultrasound, neurologic exam. Treatment of HVS depends upon the cause but it has be done in a multidisciplinary approach (by pneumologist, nutritionist, cardiologist, psychiatrist, physical therapist, surgeon, general practitioner). Respiratory rehabilitation and weight loss (by diet and increased physical activity), drug, smoking and alcohol cessation are the main general measures. The main treatment is represented by the CPAP or better by the noninvasive mechanical ventilation (especially in the neuromuscular diseases).

Keyword: obesity-hypoventilation, noninvasive mechanical ventilation

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COMPLICATED TUBERCULOUS PLEURAL EFFUSION (CASE PRESENTATION)

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Introduction: Neglected pleural tuberculosis (TB) may turn into encysted pleural effusion and pleural empyema.

Case description: A 78-year-old (smoker 30pack/year) was admitted in the Pneumology Clinic with rest dyspnea, asthenia, low fever, weight loss (13kg in 6 months), and thoracalgia. Medical history revealed a right thoracotomy (for a pleural effusion 6 months ago with non-specific antibiotic treatment), gonarthrosis, hypertension stage II under treatment, type 2 diabetes under oral medication. The chest radiography revealed a basal right homogeneous opacity. CT thoracic described a pleural effusion in the organizational phase. Thoracic ultrasound described an extended condensation zone with alveologram surrounded by an extended transonic area with multiple fibrous septa (pneumonia and encysted pleural effusion). Repeated pleural aspiration for diagnostic and therapeutic purposes was performed. Bronchoscopy revealed a right extrinsic compression. Examination of bronchial aspiration did not reveal the presence of the Koch bacillus (KB). The pleural fluid was an empyema without positive non-specific flora. The KB examination in the pleural fluid was negative at microscopy. Treatment was initiated with nonspecific antibiotics, bronchodilators, anti-inflammatory drugs and treatment for comorbidities. Evolution was stationary. It was decided to take the case in the active TB recording and to introduce the antituberculous antibiotic treatment. Patient evolution has rapidly become favorable under the antituberculous treatment. The thoracic surgery consults recommended pleural surgery with pleural decortication after a 2-month attack phase with antituberculous medication regime.

Conclusions: Inadequately untreated TB pleural effusion leads to complications such as encystation and pleural empyema. Anti-tuberculosis antibiotics have rapidly led to the improvement of the patient's condition. In neglected forms of TB pleurisy, medical treatment requires association with surgery and respiratory rehabilitation (kinesitherapy) for an optimal recovery of the disease.

Keywords: Pleural tuberculosis, pleural empyema.

OBSTRUCTIVE SLEEP APNEA-CASE REPORT

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Background: Sleep apnea is a serious sleep disorder. The breathing stops and starts while asleep. It can increase the risk for stroke, heart attack, heart failure, high blood pressure, obesity, diabetes. It may also increase the risk for accidents while working or driving.You may have sleep apnea if you have loud snoring, you feel tired even after a full sleep, excessive daytime sleepiness, morning headache, difficulty concentrating during the day. The main risk factors for sleep apnea are male gender, being overweight, and being over 40 years of age. Obstructive sleep apnea is the more common form.

Case: A 70-year old man, smoker 49PA, was presented with cough, dyspnea, chest pain, decrease appetite. Chest radiography:pulmonary emphysema. Spirometry: FVC: 38.7%, FEV1: 33%, FVC/FEV1: 66.32%. EKG: major right branch block. Epworth scale: 13points. Polygraphy: AHI: 26, DI: 46.2

Conclusions: A patient who present on emergency room for the first time with multiple and serious diseases, in a very serious condition. His evolution under treatment was good. The patient had quit smoking.

Keywords: obstructive sleep apnea, polygraphy,obesity

LANGERHANS CELL HISTIOCYTOSIS-CASE REPORT

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Background: Langerhans cell histiocytosis is a rare disease involving clonal proliferation of Langerhans cells in lung interstitium and airspaces resulting in the formation of nodular inflammatory lesions. Pulmonary Langerhans cell histiocytosis is suspected when we have a patient between 20 and 40 years of age, cigarette smoker, with dyspnea, fatigue, nonproductive cough, fever, weight loss or pleuritic chest pain. The Chest X-ray classically shows bilaterally micronodular and interstitial infiltrate in the middle and upper lung fields. HRCT is superior to chest X-ray and identify the reticulonodular opacities and cysts. Distribution is the key in differentiating PLCH from other cystic lung diseases with predilection for the middle and upper lung fields.

Case: A 27-year old man, smoker 10PA, was presented with cough, dyspnea, fever, chills, fatigue. Chest radiography: difusse interstitial infiltrate. Spirometry: FVC: 51%, FEV1: 25.8%, FVC/FEV1: 42%. HR-CT: suggestive for Langerhans cell histiocytosis. Fibrobronhoscopy with bronhiolo-alveolar lavage is in progress. Recommendations: quit smoking, bronchodilator treatment.

Conclusions: A very rare disease at a smoker young patient with a severe decline of lung function. The further investigations are in progress.

Keywords: pulmonary Langerhans cell histiocytosis,smoker

CENTRAL SLEEP APNEA

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Background:Central sleep apneea describes a group of conditions when breathing is disrupted regularly during sleep because the brain functions, typically for 10 to 30 seconds intermittently or in cycles. Usually is associated with a reduction in blood oxygen saturation. Basically the brain does not tell your muscles to breathe. This type of sleep apnea is usually associated with serious illness, especially an illness in which the lower brainstem, that controls breathing, is affected.Common signs and symptoms of central sleep apnea include: episodes of stopped breathing or abnormal breathing patterns during sleep, chronic fatigue, difficulty staying asleep (insomnia), going to the bathroom often during the night, daytime sleepiness, morning headaches, chest pain at night, mood problems, difficulty concentrating, poor memory.

Conclusions: Risk factors includes: sex, age, heart disorders, stroke, brain tumor or a structural brainstem lesions, high altitude, opioid use, CPAP. Treatment: Treating existing conditions that are causing CSA is often the first line in treatment options for the disorder, CPAP, or Continuous Positive Airway Pressure, BiPAP refers to Bilevel Positive Airway Pressure, Adaptive Servo Ventilation (ASV) the best option for central apnea.

Keywords: central sleep apnea,adaptive servo-ventilation.

ADVERSE EFFECTS OF CPAP TREATMENT IN PATIENTS WITH SLEEP APNEA – EXPERIENCE OF THE PULMONOLOGY CLINIC TG. MURES

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Introduction: There are not many side effects of Continuous Positive Airway Pressure CPAP/Bilevel PAP treatment (including masque wearing). Firstly we have to consider the huge benefit of the CPAP: dicrease of symptoms, increase the sleep quality, decrease in diurnal somnolence and sustaining the job performance/diurnal alertness, increase quality of life and survival, diminishing the risk of complication (cardiovascular, metabolic comorbidities, cognitive decline, erectile dysfunction, and traffic/work accidents). The ratio between benefits and adverse effect is strongly in favor of the benefits.

Method: Characterization of the side effects of CPAP treatment and the methods by which they can be overcome.

Results: To be effective, CPAP use should cover at least 4 hours per night and during the afternoon sleep. Treatment is long-lasting, probably all of the life (which should be explained gently to the patients). The most frequent complications are determined by the mask: claustrophobia,

drying of the mouth, skin lesions due to mask and sweating, epistaxis, runny nose, nasal congestion, gastric distention, dry eyes. Adverse effects can be easily corrected by recommending appropriate masks (currently made of high quality materials - silicon masks) by educating the patient and personalizing the mask in some cases. There is now a wide range of masks of which the patient can choose the most comfortable. Sometime it could appear accumulation of water in a the CPAP tube "rainout". The explanation is the condensing of the moist air in the interior of the mask (especially when an humidifier is used). "CPAP devices are provided with air humidifying and heating devices and an oxygen delivery adapter. Humidification and heating of the air increase local comfort and decrease mucosal resistance by 50%. Using a BiPAP device (a higher inspiratory pressure IPAP and a lower expiratory pressure EPAP) to the patients who need high positive pressures increases adherence and comfort. A well-suited mask to the needs of the patient, without leakages ensures the release of adequate target pressures and promotes adherence and persistence of treatment with high benefits.

Keywords: CPAP, mask, humidifier, side effects

EXPERIENCE OF THE PNEUMOLOGY CLINIC IN MONITORING PATIENTS WITH SLEEP APNEA AND TREATMENT WITH CPAP 2017/2018

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Introduction: Sleep apnea (SA) is a frequent, much underdiagnosed condition that causes annoying symptoms, severe complications and decreased quality of life. "Gold standard" SA treatment is "Continuous Positive Airway Pressure" (CPAP) to restore airway permeability. The large risk factors exclusion is mandatory to reduce SA severity.

Aim of the paper: Evaluation of the group of patients with SA and treatment with CPAP in Pulmonology Clinic Tg. Mures.

Method: Characterization of 135 patients monitored in our clinic sleep laboratory in 2017/2018.

Results: The patients with clinical suspicion of SA were hospitalized in Pulmonology Clinic for 3-4 days for diagnosis and treatment. Cardio-respiratory poligraphy was performed in all patients. 130 patients had SA with 92.5% pre-test prediction based on clinical examination, body mass index and positive Epworth somnolence scale. 97.7% of the cases were obstructive sleep apnea (OSA) (90.9% severe forms with a high apnea – hypopnea index AHI=55/h), 2 patients had central/mixed apnea and 14.6% had also obesity-hypoventilation syndrome. 118 titrations were performed with AutoPAP to determine the necessary pressures to eliminate apnea events or hypoventilation. 88 patients (67.8%) were compliant and accepted treatment with CPAP. The mean AHI after titration was 7/ h. The mean desaturation <90% prior titration was 38% and after titration 21%. The rest of patients either refused titration and treatment initiation (23%), or refused the start of CPAP treatment (9.2%) after titration. Inside the 88 patients group 76 was men, 12 women, most of them have medium ages (31.8% ≥50 years, 63.6% ≥60 years). Patients with SA had several complications: cardiovascular (63.6% HTA, 48.8% ischemic cardiopathy, 34% heart failure, 10.2% arrhythmias, 38.6% diabetes, 29% dyslipidemia), 68.1% COPD/asthma, 27% fibrosis, 7% bronchiectasis. We monitored the patients every 1 month (at the beginning) than every 3 months. Compliance in CPAP use was 87% with a favorable evolution under treatment.

Conclusions: We noticed a strong men prevalence of SA (M:F - 6.3:1) and a medium ages under 60 predominance. Treatment recommendation was performed after titration with CPAP (in the second night). The percentage of non-adherent patients on CPAP treatment is still high 32% despite the numerous complications presented by the patients and in the face of the repeated recommendations of pneumologists, cardiologists, and diabetes experts. Continuing active patient monitoring and education can improve treatment compliance and persistence.

Keywords: Sleep apnea, CPAP treatment

FAVORABLE EVOLUTION UNDER BI-LEVEL CONTINUOUS POSITIVE PRESSURE BIPAP OF AN OVERLAP (SLEEP APNEA AND HYPOVENTILATION SYNDROME) IN A PATIENT WITH OBESITY AND PULMONARY THROMBOEMBOLISM

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Introduction: Oxidative stress occurring during sleep apnea and hypoventilation contribute to the development of pulmonary thromboembolism especially in a patient with associated risk factors - obesity and asthma.

Method and Purpose: Case presentation of a treatment in a patient with multiple severe comorbidities (obesity, asthma, chronic rhinitis, sleep apnea, obesity-hypoventilation, chronic smoking and pulmonary thromboembolism) for educational purpose.

Result: A 49 year-old patient was hospitalized in Pulmonology Clinic with snoring, dyspnea, wheezing, and asthenia. The medical history noticed recent pulmonary embolism under treatment with oral anticoagulants, a mild asthma, allergic rhinitis, dyslipidemia and chronic

smoking. We found a BMI 42 kg/m^2.We performed cardio-respiratory poligraphy and we found a severe sleep apnea (apnea-hypopnea index AHI=80.2/h), desaturation index DI=93.5/h, the minimum desaturation at 50% of normal oxygen saturation (SaO_2) and the longest desaturation = 1minute and 19seconds, total time with SaO_2 90% = 3h (77%) and the mean desaturation during sleep 70%. The pulse variability was between minimum pulse 23beats/minute and maximum pulse 189beats/minute, the pulse variance/h 72.3%. We introduced immediately a Bi-level Positive Airways Pressure (BiPAP) device and after several night titration we obtain success with IPAP 20 cmH_2O and EPAP 8cmH_2O – residual AHI=12.3/h and DI=27 with 4% <90%. We completed the treatment with nocturnal oxygen, weight loss, diet, smoking cessation, nose clearing (by antileukotrienes permeabilization and antihistamines), inhaled corticosteroids, and asthma trigger eviction. The patient had a favorable evolution with mild weight loss (actual BMI=39 kg/m^2), increase in physical activity and life change, continuation of treatment for all comorbidities.

Conclusion: Rapid introduction of BiPAP was the crucial solution for the patient with very severe sleep apnea and obesity-hypoventilation syndrome for other complication prevention. The pulmonary embolism in the recent history was linked with the pulmonary and systemic inflammation within comorbidities (obesity, asthma, chronic rhinitis and smoking). Pulmonary rehabilitation and complex accurate treatment of all comorbidities ensured the favorable evolution.

Keywords: Sleep apnea, obesity-hypoventilation syndrome, bi-level PAP

LUNG TUMOR CONFIRMED HISTOPATOLOGICALLY BY PLEURAL BIOPSY UNDER THORACIC ECHOGRAPHY (CASE PRESENTATION)

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Introduction: Case presentation of a patient diagnosed with lung tumor by pleural biopsy made under thoracic ultrasound guidance.

Case description: A 58-year-old patient, non-smoker, without occupational exposure was admitted in Pneumology Clinic Tg. Mures with thoracic pain, fever, asthenia. The past medical history was not relevant, and as comorbidities, the patient has hypertension and type 2 diabetes on oral medication. At the admission, the patient presented a Magnetic Resonance Imaging MRI (done on his own initiative) with the following description: large quantity of pleural effusion, multiple solid masses in contact with the left side plexus. The CT scan with contrast substance described left pleurisy, hilar adenopathies. Bronchoscopy was negative (peripheral location of the masses). The pleural punction revealed a clear, citrine pleural fluid, negative in bacteriology, exudate, indecisive in cytology. The patient performed an ultrasound-guided left pleural biopsy. The histopathological examination from the pleural biopsy evidenced an intensely desmoplastic tissue with the appearance of a well-differentiated adenocarcinoma or mesothelioma. Immunohistochemistry with several positive markers CK7, CK5, TTF1,CDX2 confirmed the result of adenocarcinoma. The patient is now under oncological treatment with a good evolution.

Conclusions: The case highlighted the importance of the pleural biopsy made under ultrasound guidance for the positive diagnosis of a pleural mass and also the role of immunohistochemistry in differential diagnosis between mesothelioma and adenocarcinoma.

Keywords: Ultrasound guided biopsy, histopathological examination, immunohistochemistry.

DIFFUSE INTERSTITIAL FIBROSIS POST-EXPOSURE TO NOXES (CASE PRESENTATION)

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Introduction: Case presentation of a patient with pulmonary fibrosis caused by exposure to occupational noxes and passive smoking.

Case description: A 74-year-old patient, passive smoker with 40 years occupational exposure (construction industry) was hospitalized in the Pulmonology Clinic Tg. Mures for moderate dyspnea, cough with mucopurulent sputum, chest pain, and fever. The past medical history revealed grade II hypertension and chronic core pulmonale. The physical examination evidenced: altered general status, emphysematous thorax, bilateral crackles, SpO2 = 86% in ambient air. Chest x-ray highlighted a diffuse bilateral nodules and reticular interstitial pattern. High resolution computed tomography HRCT emphasized the diffuse fibrosis but without the absolute pattern of “idiopathic pulmonary fibrosis” (usual interstitial pneumonia, basal honey combing, under-pleural lesions without ground glass or nodules). Functional respiratory test revealed a mixed ventilatory dysfunction. In the clinical context we established the diagnosis of occupational post exposure pulmonary fibrosis occasionally exacerbated by an infection. Patient evolution was favorable under treatment with antibiotics, inhaled bronchodilators, inhaled and systemic corticosteroids, diuretics, oxygen 2-3l/min 18h from 24h, pulmonary rehabilitation. In the present the patient is under treatment with inhaled bronchodilators and corticosteroids, and long term home oxygen therapy and infection prophylaxis by vaccination.

Conclusions: Long time exposure to occupational noxes and passive smoking can lead to pulmonary fibrosis. HRCT can make the difference between different patterns of fibrosis and exclude the idiopathic fibrosis. Bronchodilators, corticosteroids, oxygen therapy, core pulmonale treatment and prevention of the respiratory infections and pulmonary rehabilitation (including exercise to increase the lung capacity) slow the post-exposure occupational fibrosis progression.

Keywords: pulmonary fibrosis, occupational noxes, HRCT.

SLEEP APNEA RISK FACTORS HIGHLIGHTED IN THE SLEEP LAB OF THE PULMONOLOGY CLINIC TG. MURES

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Introduction: Analyze of the risk factors in sleep apnea (SA) is an essential condition for their elimination and an accurate treatment (Continuous Positive Airways Pressure – CPAP). SA may recognize several causes: obesity, smoking, chronic alcoholism, hypothyroidism, sedentary, upper airway obstructions (UAO), advanced age, heart failure, muscular hypotonia, etc.

Method: Evaluation of risk factors in a group of 88 patients with SA and obesity- hypoventilation hospitalised in the Pulmonology Clinic Tg. Mures (2017/2018).

Results: Men predominated (M:F ratio 6.3:1). 34% of the patients were smokers (the percentage is greater than the national average of smokers in the general population - 26%). The vast majority of patients had obesity with an average body mass index BMI 37 kg/m^2 (with a maximum 61 kg/m^2 and a minimum 22 kg/m^2), overweight 9%, obesity gr.I 27.2%, obesity gr. II 30.9%, morbid obesity 32.9%. 22.7% of patients had chronic alcoholism and 28.4% environment noxious exposure. We found an androgenic model of obesity and a menopausal status in 91.6% of women. Advanced age was met in 36% (16% >70 years and 20.4% between 60-70 years). Obesity (91%) was commonly associated with sedentary, chronic smoking, chronic alcohol abuse, 26% UAO, 9% hypothyroidism (all in women). Factors associated with both obstructive and central apnea: 13% neurological disorders (stroke, advanced atherosclerosis, epilepsy), 44.4% heart disease (arrhythmias, heart failure), neuromuscular causes (myasthenia gravis, paresis). We do not encountered hereditary/congenital disorders with visceral anatomic features or cranio-cerebral syndromes. Diabetes was frequently met 38.6% (in the same time it is a risk factor and a metabolic complication of SA).

Conclusions: The study group encountered a large number of risk factors for SA. Obesity was the most important and severe risk factor. Knowing the risk factors for SA by physician from different specialties would contribute to SA prophylaxis and early detection. Rapid guidance of those with SA suspicion in the sleep lab alongside with the sleep investigation would allow a rapid diagnosis, CPAP initialization, elimination of predisposing conditions, changing lifestyle and prevention of worsening of the disease.

Keywords: Sleep apnea, risk factors, obesity

THE IMPORTANCE, TECHNIQUE AND INDICATION OF THE 6-MINUTES WALK TEST (6MWT)

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Technique description: The 6 minutes' walk test (6MWT) is a simple test that measures the exercise capacity in patients with chronic respiratory disorders. In fact walking is a daily activity performed by all the people. It counts the distance covered over a time of 6 minutes, the oxygen saturation, and the possible symptoms during exercise. Indication: functional diagnosis in COPD, asthma, cystic fibrosis, idiopathic fibrosis, bronchiectasis and the measurement of the exercise capacity before starting a pulmonary rehabilitation program, assessment of effort tolerance before and after surgical treatment (pulmonary resection; lung transplant; pulmonary emphysema reduction surgery), cardiovascular diseases (after cardiovascular surgery or assessment in peripheral arteriopathies). We have to respect some contraindication: unstable angina and myocardial infarction, resting heart rate >120 beats/minute, systolic blood pressure >188 mmHg, diastolic blood pressure >100 mmHg, pulmonary hypertension or respiratory failure with acidosis, pulmonary embolism, thrombophlebitis, epilepsy, acute pericarditis. The average theoretical distance traveled in 6 minute by the healthy elderly is 400 meters. The lower limit of normal is the theoretical distance minus 100 meters. 6MWT also depends on physical condition (training degree) and comorbidities. The test will be interpreted in a clinical context. The distance traveled in 6MWT decreases in: obstructive or restrictive lung diseases, neuromuscular, articular diseases and in patients with heart failure. A low 6MWT is nonspecific and we have to find the cause of an inability for the test. The 6MWT will be associated with spirometry, cardiac consult or other interdisciplinary exams to enlarge the diagnostic investigation of the low effort capacity. The test is inexpensive and accessible to any medical service. It requires a solid walking track, a pulse-oximetry, blood pressure device and a portable oxygen source. The patient is urged to go as long as possible for 6 minutes, running at his own pace under control of a physician/nurse/kinetotherapist. The patient may stop or slow down to rest, and then resume walking for 6 minutes. The test will stop if the patient experiences chest or joint pain,

dyspnea, legs cramps, dizziness, sweating, any discomfort or decreased oxygen saturation <90%.The supervisors need to know the incidents that may occur during the test and be able to give first aid.

Keywords: 6 minutes walk test,indication,clinical interpretation.

EXCESSIVE DIURNAL SLEEPINESS - DIAGNOSIS AND CONSEQUENCES

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Excessive diurnal sleepiness (EDS) may arise from a variety of conditions: sleep deprivation, sleep disturbances in sleep central/obstructive apnea), hypoventilation syndromes, central hypersomnias (narcolepsy), circadian rhythm disorders (Jet lag and “shift work”), neurological/ psychiatric diseases (Parkinson’s disease, multiple sclerosis, cranial trauma, stroke, dementia, depression), morbid obesity, hypothyroidism; other chronic diseases: renal, hepatic failure, severe COPD (especially with hypercapnic encephalopathy); excess sedatives, hypnotics; chronic alcoholism, drug use. The diagnosis of etiology in EDS is important for the remedy of the cause but also as a marker of a serious illness from the ones listed above. EDS is often neglected by doctors. Several tools are used for evaluation - the sleep journal, anamnesis and the Epworth Sleepiness Scale (ESS). In ESS, the tendency of falling asleep is appreciated under various conditions: standing and reading, watching TV, sitting in the car as a passenger or as a driver, lying asleep as a participant in a public meeting. ESS is a useful tool for the clinician as it allows the subjective evaluation of the predisposition to fall asleep during the day (from 0 to 24 points): a). ESS score >9-10 points allows identifying suspects with sleeping disorders; b). ESS score >12 points requires sleep pathology tests (poligraphy, polysomnography). EDS impacts on cognitive, physical, social, professional patient’s activities and decreases quality of life. Sleep apnea and hypoventilation syndromes are the main disorders that produce large EDS by the poor sleep with desaturation and arousals. Continuous Positive Airways Pressure CPAP improves sleep and decreases EDS and their consequences in sleep apnea.

Keyword: Excessive diurnal sleepiness, Epworth scale, CPAP for sleep apnea

INDEX OF AUTHORS