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Short Review **Published Date:- 2024-11-25**

Efficiency of Artificial Intelligence for Interpretation of Chest Radiograms in the Republic of Tajikistan

The article presents data from recent publications and own data on screening studies with interpretation of chest radiographs using artificial intelligence CAD (Computer-Assisted Diagnosis), which, according to WHO recommendations, provides more accurate clinical thresholds for deciding who needs to take a sputum test. Another aspect of the WHO recommendations is the cost-effectiveness of CAD as a tool for triaging patients with tuberculosis symptoms in low-income countries with a high incidence of tuberculosis. Compared with smear microscopy and GeneXpert, without preliminary sorting, the use of mobile digital X-ray machines equipped with a CAD tool reduces costs, allowing sorting of individuals suspected of having tuberculosis for testing on GeneXpert, while reducing the time to start tuberculosis treatment.
Thus, conducting a study using portable X-ray machines using a CAD program is a low-cost and easy-to-implement method, does not require large funds, does not require separate rooms, is highly effective, has good image quality, allows you to quickly clarify individuals suspected of having tuberculosis, differentiating it from other pathological changes in the lungs.
Our experience shows that machine analysis of chest computed tomography data, due to the higher resolution capabilities of the method and the absence of fundamental disadvantages of radiography, including the effect of shadow summation, the presence of “blind” zones, etc., is finding increasing application in both diagnostics and screening of respiratory diseases. Our use of this tool allowed us to identify additional new cases of phthisio-onco-pulmonary diseases in field conditions.

Short Review **Published Date:- 2024-10-25**

The Pores of Kohn, an Overlooked Pulmonary Structure: A Review

Many studies from the early 20th century on the significance of the pores of Kohn were assessed based on the pathogenesis and pathology of pneumococci pneumonia occurring in man. The pneumococci were carried in the edema fluid directly from alveolus to alveolus through the pores of Kohn and from bronchiole to bronchiole as a result of repeated aspirations, aided by breathing, coughing, and gravity. With the emerging minimally invasive and non-invasive techniques experimentations and the current medications; tackling exacerbations and improving the pulmonary function in various lung diseases remains a dilemma for clinicians and researchers. In this article, we aim to review specifically the pores of Kohn as this is the portal for the spread of infection but also lung recruitment during breathing.

Case Report **Published Date:- 2024-10-22**

Occult Pneumomediastinum - An Atypical Presentation of Chest Discomfort in a Patient with Depression

Pneumomediastinum (mediastinal emphysema) is an uncommon condition characterized by the accumulation of air or gas in the mediastinum. Here is a case of a 16-year-old female known to have depression who presented to the emergency department with complaints of shortness of breath, restlessness, chest discomfort, and hoarseness of voice for 2 days. She was initially diagnosed with panic attack, and later on clinical examination, surgical emphysema over the right supraclavicular area was noticed. Chest X-ray was found to be normal, and further imaging with high-resolution computed tomography (HRCT) of the thorax showed pneumomediastinum. In this report, the clinical presentations, radiological features, and management of pneumomediastinum will be discussed.

Research Article **Published Date:- 2024-10-01**

Influence of COPD on the Diaphragm and Muscles of the Lower Limbs

Chronic obstructive pulmonary disease (COPD) is associated with numerous comorbidities, including muscle involvement which consists of changes in the structure and function of peripheral and respiratory muscles. Ultrasound can provide a non-invasive assessment of muscle damage. Ultrasound assessment of the quadriceps contractility index (Qci) is feasible, rapid, simple, and reliable. Numerous studies have demonstrated that Qci is linked to the severity of COPD, clinical symptoms, and respiratory muscle activity. Furthermore, ultrasound makes it possible to observe the dynamics of the diaphragm by measuring its amplitude, its contraction speed, and the duration of each contraction phase. Ultrasound examination of muscle damage in COPD could constitute a promising new tool to assess the severity of the disease.

Mini Review **Published Date:- 2024-09-19**

Obesity in Patients with Chronic Obstructive Pulmonary Disease as a Separate Clinical Phenotype

Chronic obstructive pulmonary disease (COPD) is a heterogeneous, progressive disease characterized not only by pathological changes in the lungs but also by significant extrapulmonary manifestations and serious concomitant diseases. The current problem for the study is the features of the relationship between COPD and adipose tissue since there are contradictory data in the literature. This review presents studies that claim that obesity aggravates the course of COPD, as well as the results of studies that describe the “obesity paradox” in patients with COPD. Due to the lack of unambiguous data, it is necessary to continue studying this problem to optimize the tactics of managing this group of patients and draw up clear recommendations for patients with COPD.

Review Article **Published Date:- 2024-09-13**

Effectiveness of Intercostal Stretch Technique on Pulmonary Conditions: A Narrative Review

Background: The Intercostal Stretch Technique is one of the physiotherapy techniques that is used to solve different respiratory problems. It is used for increasing chest expansion and diaphragm excursion improvement and also intra-thoracic lung volume.
Aim: The study aims to evaluate the effectiveness of the intercostal stretch technique.
Methodology: A narrative review. In this study, an RCT study was used to review the intervention.
Results: Several articles are used to discuss the effectiveness of the intercostal stretch technique. In stable COPD, diaphragmatic breathing and the intercostal stretch technique both work equally well to improve chest expansion and functional capacity while lowering dyspnea. Research has shown that IC stretch outperforms the anterior basal lift technique in lowering heart and respiratory rates while increasing oxygen saturation. According to this study, IC stretching in conjunction with breathing control may improve dynamic lung parameters, particularly FEV1/FVC%, more than breathing control alone. Patients with COPD have an increased functional exercise capacity and reduced dyspnea when aerobic training and respiratory muscle stretching are combined.
Conclusion: Different articles demonstrated that IC stretch improved lung function, expired tidal volume, decreased dyspnea, and increased chest expansion.

Mini Review **Published Date:- 2024-07-26**

Current Practices for Severe Alpha-1 Antitrypsin Deficiency Associated COPD and Emphysema

Alpha-1 antitrypsin deficiency is a genetic disorder that can lead to chronic obstructive pulmonary disease and emphysema. Although it is the most well-studied genetic risk factor for emphysema, data is still scarce. Traditionally, medical therapy is similar to standard chronic obstructive pulmonary disease patients. Over the past several decades, enzyme augmentation therapy has emerged as a highly utilized alpha-1 antitrypsin-specific therapy. It has become the standard of care for severe alpha-1 antitrypsin deficiency despite unclear effects on a multitude of clinical outcomes. Significant data supports interventional therapies, including lung volume reduction surgery and bronchoscopic lung volume reduction, for chronic obstructive pulmonary disease patients without alpha-1 antitrypsin deficiency. These interventions have less robust data in the treatment of alpha-1 antitrypsin-induced chronic obstructive pulmonary disease. This review will explore the data regarding various treatment options for severe alpha-1 antitrypsin deficiency associated with chronic obstructive pulmonary disease and emphysema.

Case Study **Published Date:- 2024-07-18**

Effect of Pulmonary Rehabilitation on Non-obstructive Disease Congenital Kyphoscoliosis Patient in Kuwait

A case study of a non-COPD (Chronic Obstructive Pulmonary Disease) patient with congenital kyphoscoliosis to see the effect of pulmonary rehabilitation after 36 sessions given for chest disease in Kuwait with signs and symptoms, physical capacity, functional level, and Quality of life.

Case Study **Published Date:- 2024-07-02**

An Interesting Case of COPD Exacerbation Presenting with Mixed Features of Intracranial Hypertension and Hypercapnic Encephalopathy

Background: Idiopathic intracranial hypertension (IIH or pseudotumor cerebri) has two major morbidities: papilledema with visual loss and disabling headache. Intracranial Venous Hypertension (IVH) is a fundamental mechanism of IIH. Although traditionally considered limiting to the central nervous system, evidence suggests IIH as a systemic disease associated with cardiorespiratory disorders, which has been far less comprehended.
Case Report: A 60-year-old female with Chronic Obstructive Pulmonary Disease (COPD) was admitted for dyspnea and developed a coma with a pH of 7.01 and pCO2 of 158 mmHg. She was intubated and had persistent nuchal rigidity, a brief myoclonus episode with a negative electroencephalogram, and negative CT head studies. A Lumbar Puncture (LP) revealed elevated opening pressure (35 cmH2O) with normal Cerebral Spinal Fluid (CSF) studies. Her nuchal rigidity improved after the removal of 40 mL CSF. The ophthalmology examination the next day after her the large volume LP didn't show visual loss or papilledema. The patient improved clinically and was extubated two days later. Her echocardiogram showed a dilated right ventricle with pulmonary hypertension. The patient was discharged home.
Discussion: IIH is different from hypercapnic encephalopathy and characterized by increased intracranial pressure with papilledema, vision loss, and debilitating headache. Hypercapnia-induced increased intracranial venous flow and pulmonary hypertension-caused elevated central venous pressure with consequent outflow resistance lead to IVH. In hypercapnic encephalopathy, the presentation is mostly cognitive changes. In this case, nuchal rigidity with a negative CT head scan triggered the investigation of IIH.
Conclusion: A deep understanding of the relationship between COPD and IIH is vital. There is insufficient evidence to recommend routine eye examinations in COPD patients for papilledema and to conduct a pulmonary function test for a newly diagnosed IIH patient. However, we highly suggest a timely ophthalmology exam prior to performing an LP in COPD patients with suspecting IIH to avoid unnecessary procedures and meanwhile improve clinical outcomes.
