SECTION OF PATHOLOGY
СЕКЦІЯ ПАТОЛОГІЇ

HISTOPATHOLOGICAL CHARACTERISTICS OF LUNG LESIONS IN COVID-19 ASSOCIATED PNEUMONIA: SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction. The gold standard to discover the pathogenesis and further form treatment strategy for new diseases remains autopsies. Inevitable truth, humanity encountered a pandemic, so medical science is in need to study the pathology of COVID-19. That's why we need further researches and here is the representation of research conclusions by the start of 2022 year.

Aim. The aim of the article was to analyze and summarize the available scientific literature regarding COVID-19 postmortem cases. The intent was to conduct a meta-analysis to compare previously published autopsy findings in patients with COVID-19 to findings in other lung tissue damage associated deaths.

Materials and methods. An electronic search was performed in PubMed database. Key-words used for search were: "COVID-19", "SARS-COV-2", "Histopathology", "Morphology", "Alveolar Damage", "Autopsy". The search inclueded 17,142 articles using mentioned search terms. After a careful review by two independent researchers, 72 articles were considered relevant and 30 articles was used for full analysis and extraction of information for analysis. Total count of mentioned COVID-19 autopsies used is 71. Every patient included in analysis in researches had COVID-19 associated pneumonia confirmed by a PCR-test. Search was finished on January 20, 2022. Research included studies in English language. Statistical significance calculated at P-value <0.05. Analyses were performed using Review Manager 5 and IBM SPSS Statistics 22.

Results. COVID-19 patients in majority showed signs of diffuse alveolar damage (DAD), with most cases manifesting early acute DAD. Combined prelevance was stated 80.89 (58.21-97.34)% (P<0,01) for COVID-19 cases, calculated by the results of 21 researches, which heterogeneity is 75%. Histologic features indicating different phases of alveolar damage reported in autopsies included acute, proliferative, mixed acute/proliferative and fibro-chronic damage. Pulmonary embolism, either with associated thrombosis of deep veins either without, was present in COVID-19 associated cases and control group of patients in a ratio of 8 to 1. The thrombi were consisting of fibrin and/or platelets located in small peripheral vessels, with few cases (<9%) showing thrombi that was found in peripheral medium-sized vessels and the pulmonary artery. In the study both lungs from COVID-19 infected showed thrombi dislocated in more than fourth part of the lung tissue associated with elevation of D-dimer in 56,4% of patients. Alveolar capillary microthrombi were 10 times as prevalent in COVID-19 infected samples as in patients with other disease. Due to those changes, the weight of the lung samples on autopsy was very various, more than 3,5 times heavier compared to average normal lung weight on autopsy (1260g to 350g).

Conclusion. Research on the pathogenesis of covid-associated pneumonia has not yet reached its peak, and although we have an idea of the histopathological changes in patients compared with the data at the beginning of the pandemic, it remains difficult to accurately predict the course of the disease for a successful treatment. Atopsy findings and biopsies could play an essential role in understanding the pathophysiology of SARS-CoV-2 infection.

MORPHOLOGICAL MANIFESTATIONS OF SIDE EFFECTS CAUSED BY THE RADIOCONTRAST AGENT TOMOHEXOL IN THE FORM OF TYPE I HYPERSENSITIVITY REACTION IN A PATIENT WITH ARTERIOSCLEROSIS OBLITERANS OF THE LOWER EXTREMITIES (CASE REPORT)

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Introduction: Today radiocontrast agents are widely used for their ability to contrast and visualise the vascular bed in most human tissues and organs. The agents can be grouped according to their chemical structure into monomers and dimers, as well as ionic and non-ionic compounds. The active agent in Tomohexol 350 is iohexol – a non-ionic monomeric iodinated and water soluble radiocontrast agent. Hypersensitivity reactions are rare with the use of these type of compounds, however they can in some instances cause anaphylactic shock.