Hot Articles

“March|2020”

Health Science

[Health Science]

Title: CT Features of Coronavirus Disease 2019 (COVID-19) Pneumonia in 62 Patients in Wuhan, China

Author: Shuchang Zhou, Yujin Wang, Tingting Zhu and Liming Xia

Journal: American Journal of Roentgenology

Volume: Ahead of Print (Mar 5, 2020) **Page:** 1-8

Doi: 10.2214/AJR.20.22975

Abstract

OBJECTIVE. The purpose of this study was to investigate 62 subjects in Wuhan, China, with laboratory-confirmed coronavirus disease (COVID-19) pneumonia and describe the CT features of this epidemic disease.

MATERIALS AND METHODS. A retrospective study of 62 consecutive patients with laboratory-confirmed COVID-19 pneumonia was performed. CT images and clinical data were reviewed. Two thoracic radiologists evaluated the distribution and CT signs of the lesions and also scored the extent of involvement of the CT signs. The Mann-Whitney U test was used to compare lesion distribution and CT scores. The chi-square test was used to compare the CT signs of early-phase versus advanced-phase COVID-19 pneumonia.

RESULTS. A total of 62 patients (39 men and 23 women; mean [± SD] age, 52.8 ± 12.2 years; range, 30–77 years) with COVID-19 pneumonia were evaluated. Twenty-four of 30 patients who underwent routine blood tests (80.0%) had a decreased lymphocyte count. Of 27 patients who had their erythrocyte sedimentation rate and high-sensitivity C-reactive protein level assessed, 18 (66.7%) had an increased erythrocyte sedimentation rate, and all 27 (100.0%) had an elevated high-sensitivity C-reactive protein level. Multiple lesions were seen on the initial CT scan of 52 of 62 patients (83.9%). Forty-eight of 62 patients (77.4%) had predominantly peripheral distribution of lesions. The mean CT score for the upper zone (3.0 ± 3.4) was significantly lower than that for the middle (4.5 ± 3.8) and lower (4.5 ± 3.7) zones ($p = 0.022$ and $p = 0.020$, respectively), and there was no significant difference in the mean CT score of the middle and lower zones ($p = 1.00$). The mean CT score for the anterior area (4.4 ± 4.1) was significantly lower than that for the posterior area (7.7 ± 6.3) ($p = 0.003$). CT findings for the patients were as follows: 25 patients (40.3%) had ground-glass opacities (GGO), 21 (33.9%), consolidation; 39 (62.9%), GGO plus a reticular pattern; 34 (54.8%), vacuolar sign; 28 (45.2%), microvascular dilation sign; 35 (56.5%), fibrotic streaks; 21 (33.9%), a subpleural line; and 33 (53.2%), a subpleural transparent line. With regard to bronchial changes seen on CT, 45 patients (72.6%) had air bronchogram, and 11 (17.7%) had bronchus distortion. In terms of pleural changes, CT showed that 30 patients (48.4%) had pleural thickening, 35 (56.5%) had pleural retraction sign, and six (9.7%) had pleural effusion. Compared with early-phase disease (≤ 7 days after the onset of symptoms), advanced-phase disease (8–14 days after the onset of symptoms) was characterized by significantly increased frequencies of GGO plus a reticular pattern, vacuolar sign, fibrotic streaks, a subpleural line, a subpleural transparent line, air bronchogram, bronchus distortion, and pleural effusion; however, GGO significantly decreased in advanced-phase disease.

CONCLUSION. CT examination of patients with COVID-19 pneumonia showed a mixed and diverse pattern with both lung parenchyma and the interstitium involved. Identification of GGO and a single lesion on the initial CT

scan suggested early-phase disease. CT signs of aggravation and repair coexisted in advanced-phase disease. Lesions presented with a characteristic multifocal distribution in the middle and lower lung regions and in the posterior lung area. A decreased lymphocyte count and an increased high-sensitivity C-reactive protein level were the most common laboratory findings.

Database

American Roentgen Ray Society

[Health Science]

Title: Coronavirus Disease 2019 (COVID-19): Role of Chest CT in Diagnosis and Management

Author: Yan Li and Liming Xia

Journal: American Journal of Roentgenology | Mar 4, 2020

Volume: Ahead of Print (Mar 4, 2020) **Page:** 1-7

Doi: 10.2214/AJR.20.22954

Abstract

OBJECTIVE. The objective of our study was to determine the misdiagnosis rate of radiologists for coronavirus disease 2019 (COVID-19) and evaluate the performance of chest CT in the diagnosis and management of COVID-19. The CT features of COVID-19 are reported and compared with the CT features of other viruses to familiarize radiologists with possible CT patterns.

MATERIALS AND METHODS. This study included the first 51 patients with a diagnosis of COVID-19 infection confirmed by nucleic acid testing (23 women and 28 men; age range, 26–83 years) and two patients with adenovirus (one woman and one man; ages, 58 and 66 years). We reviewed the clinical information, CT images, and corresponding image reports of these 53 patients. The CT images included images from 99 chest CT examinations, including initial and follow-up CT studies. We compared the image reports of the initial CT study with the laboratory test results and identified CT patterns suggestive of viral infection.

RESULTS. COVID-19 was misdiagnosed as a common infection at the initial CT study in two inpatients with underlying disease and COVID-19. Viral pneumonia was correctly diagnosed at the initial CT study in the remaining 49 patients with COVID-19 and two patients with adenovirus. These patients were isolated and obtained treatment. Ground-glass opacities (GGOs) and consolidation with or without vascular enlargement, interlobular septal thickening, and air bronchogram sign are common CT features of COVID-19. The The “reversed halo” sign and pulmonary nodules with a halo sign are uncommon CT features. The CT findings of COVID-19 overlap with the CT findings of adenovirus infection. There are differences as well as similarities in the CT features of COVID-19 compared with those of the severe acute respiratory syndrome.

CONCLUSION. We found that chest CT had a low rate of missed diagnosis of COVID-19 (3.9%, 2/51) and may be useful as a standard method for the rapid diagnosis of COVID-19 to optimize the management of patients. However, CT is still limited for identifying specific viruses and distinguishing between viruses.

Database

American Roentgen Ray Society

[Health Science]

Title: Asymptomatic carrier state, acute respiratory disease, and pneumonia due to severe acute respiratory syndrome coronavirus 2 (SARSCoV-2): Facts and myths

Author: Chih-Cheng Lai, Yen Hung Liu, Cheng-Yi Wang, Ya-Hui Wang, Po-Ren Hsueh

Journal: Journal of Microbiology, Immunology and Infection

Volume: Available online 4 March 2020

Doi: https://doi.org/10.1016/j.jmii.2020.02.012

Abstract

Since the emergence of coronavirus disease 2019 (COVID-19) (formerly known as the 2019 novel coronavirus [2019-nCoV]) in Wuhan, China in December 2019, which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), more than 75,000 cases have been reported in 32 countries/regions, resulting in more than 2,000 deaths worldwide. Despite the fact that most COVID-19 cases and mortalities were reported in China, the WHO has declared this outbreak as the sixth public health emergency of international concern. The COVID-19 can present as an asymptomatic carrier state, acute respiratory disease, and pneumonia. Adults represent the population with the highest infection rate; however, neonates, children, and elderly patients can also be infected by SARS-CoV-2. In addition, nosocomial infection of hospitalized patients and healthcare workers, and viral transmission from asymptomatic carriers are possible. The most common finding on chest imaging among patients with pneumonia was ground-glass opacity with bilateral involvement. Severe cases are more likely to be older patients with underlying comorbidities compared to mild cases. Indeed, age and disease severity may be correlated with the outcomes of COVID-19. To date, effective treatment is lacking; however, clinical trials investigating the efficacy of several agents, including remdesivir and chloroquine, are underway in China. Currently, effective infection control intervention is the only way to prevent the spread of SARS-CoV-2.

Database

ScienceDirect

[Health Science]

Title: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges

Author: Chih-Cheng Lai, Tzu-Ping Shih, Wen-Chien Ko, Hung-Jen Tang, Po-Ren Hsueh

Journal: International Journal of Antimicrobial Agents

Volume: Available online 17 February 2020

Doi: https://doi.org/10.1016/j.ijantimicag.2020.105924

Abstract

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; previously provisionally named 2019 novel coronavirus or 2019-nCoV) disease (COVID-19) in China at the end of 2019 has caused a large global outbreak and is a major public health issue. As of 11 February 2020, data from the World Health Organization (WHO) have shown that more than 43 000 confirmed cases have been identified in 28 countries/regions, with >99% of cases being detected in China. On 30 January 2020, the WHO declared COVID-19 as the sixth public health emergency of international concern. SARS-CoV-2 is closely related to two bat-derived severe acute respiratory syndrome-like coronaviruses, bat-SL-CoVZC45 and bat-SL-CoVZXC21. It is spread by human-to-human transmission via droplets or direct contact, and infection has been estimated to have mean incubation period of 6.4 days and a basic reproduction number of 2.24–3.58. Among patients with pneumonia caused by SARS-CoV-2 (novel coronavirus pneumonia or Wuhan pneumonia), fever was the most common symptom, followed by cough. Bilateral lung involvement with ground-glass opacity was the most common finding from computed tomography images of the chest. The one case of SARS-CoV-2 pneumonia in the USA is responding well to remdesivir, which is now undergoing a clinical trial in China. Currently, controlling infection to prevent the spread of SARS-CoV-2 is the primary intervention being used. However, public health authorities should keep monitoring the situation closely, as the more we can learn about this novel virus and its associated outbreak, the better we can respond.

Database

ScienceDirect

[Health Science]

Title: Molecular immune pathogenesis and diagnosis of COVID-19

Author: Xiaowei Li, Manman Geng, Yizhao Peng, Liesu Meng, Shemin Lu

Journal: Journal of Pharmaceutical Analysis

Volume: Available online 5 March 2020

Doi: https://doi.org/10.1016/j.jpha.2020.03.001

Abstract

Coronavirus disease 2019 (COVID-19) is a kind of viral pneumonia with an unusual outbreak in Wuhan, China, in December 2019, which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The emergence of SARS-CoV-2 has been marked as the third introduction of a highly pathogenic coronavirus into the human population after the severe acute respiratory syndrome coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus (MERS-CoV) in the twenty-first century. In this minireview, we provide a brief introduction of the general features of SARS-CoV-2 and discuss current knowledge of molecular immune pathogenesis, diagnosis and treatment of COVID-19 on the base of the present understanding of SARS-CoV and MERS-CoV infections, which may be helpful in offering novel insights and potential therapeutic targets for combating the SARS-CoV-2 infection.

Database

ScienceDirect

[Health Science]

Title: Coronavirus disinfection in histopathology

Author: Anthony F. Henwood

Journal: Journal of Histotechnology

Volume: Published online: 01 Mar 2020

Doi: https://doi.org/10.1080/01478885.2020.1734718

Abstract

The 2019 Coronavirus epidemic, provisionally called 2019-nCoV, was first identified in Wuhan, China, in persons exposed to a seafood or wet market. There is an international push to contain the virus and prevent its spread. It is feasible that potentially infectious samples may be received in histopathology laboratories for diagnosis. This technical note presents disinfection procedures and histotechnology processes that should alleviate the risk of infection to laboratory staff. Using data obtained from similar coronaviruses, e.g. severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), experts are confident that 70% ethanol and 0.1% sodium hypochlorite should inactivate the virus. Formalin fixation and heating samples to 56oC, as used in routine tissue processing, were found to inactivate several coronaviruses and it is believed that 2019-nCoV would be similarly affected.

Database

Taylor & Francis Online Journals

[Health Science]

Title: Medically Assisted Dying and Suicide: How Are They Different, and How Are They Similar?

Author: Phoebe Friesen

Journal: Hastings Center Report

Volume: 50 **Issue:** 1 **Page:** 32-43

Doi: https://doi.org/10.1002/hast.1083

Abstract

The practice of medically assisted dying has long been contentious, and the question of what to call it has become increasingly contentious as well. Particularly among U.S. proponents of legalizing the practice, there has been a growing push away from calling it "physician-assisted suicide," with assertions that medically assisted dying is fundamentally different from suicide. Digging deeper into this claim about difference leads to an examination of the difference between two kinds of suffering—suffering from physical conditions and suffering from psychological conditions—and therefore leads also toward an examination of whether requests for medical assistance in dying by those suffering from psychological conditions and those suffering from physical conditions should be painted with the same brush.

In this article, I aim both to illuminate some of the considerations that ought to be included in discussions related to medically assisted dying and to shed light on what the indirect effects of such discussions can be. I consider some of the reasons commonly given for holding that suicide and medically assisted dying differ fundamentally and then whether the conclusion that medically assisted dying should not be called "suicide" follows from the premises. I ask what else might justify the conclusion that the two acts ought to be called by different names, and I examine possible justifications for accepting this premise, as well as what justifications might exist for emphasizing how the acts are alike. Finally, I argue that we should be cautious before concluding that medically assisted dying should not be called "suicide." We need more evidence either that the two acts are fundamentally different or that emphasizing differences between them is not likely to do more harm than good.

Database

Wiley Online Library

[Health Science]

Title: Increased risk of dizziness in human immunodeficiency virus-infected patients taking zidovudine and efavirenz combination: a Brazilian cohort study

Author: Josué Jeyzon de Lima Soares Valeriano, Wlisses Henrique Veloso Carvalho-Silva, Antônio Victor Campos Coelho, Ronald Rodrigues Moura, Luiz Cláudio Arraes, Lucas André Cavalcanti Brandão, Sergio Crovella, Rafael Lima Guimarães

Journal: Journal of Pharmacy and Pharmacology

Volume: Version of Record online:11 February 2020

Doi: https://doi.org/10.1111/jphp.13237

Abstract

Objectives: Neuropsychiatric adverse effects (NPAE) related to efavirenz, mainly dizziness, is detrimental to human immunodeficiency virus (HIV) treatment. Our study aims at evaluating if zidovudine use potentiates the risk of dizziness related to efavirenz when used together and whether there are significant differences in over time distribution of this NPAE and others relatively frequents regarding efavirenz regimen without zidovudine.

Methods: Human immunodeficiency virus-infected patients under efavirenz-containing different therapy were enrolled. A retrospective analysis of official medical records was accomplished to collect clinical data regarding NPAE occurrence and severity. Univariate statistic and statistical model based on survival analyses were performed.

Key findings: One hundred sixty-two patients were included, of these seventy-seven (47.5%) had NPAE reported, such as dizziness (more frequent), depression and insomnia. Univariate statistical analysis demonstrated that the combined use of efavirenz with zidovudine increased the NPAE risk (OR: 2.5; P-value: 0.008), mainly dizziness risk (OR: 3.5; P-value: 0.009) and survival analysis showed that such combination is associated with dizziness occurrence faster (HR: 2.9; P-value: 0.02).

Conclusions: The results may contribute to clarify the dizziness occurrence dynamics in therapy with efavirenz and zidovudine by identifying susceptibilities and assisting in the choice of combined antiretroviral therapy.

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[Health Science]

Title: The Effect of Renal Impairment on the Pharmacokinetics and Safety of Itacitinib

Author: Nithya Srinivas, April M. Barbour, Noam Epstein, Gongfu Zhou, Susan Petusky, Zhinyin Xun, Brad Yuska,Thomas Marbury, Xuejun Chen, Swamy Yeleswaram, Naresh Punwani

Journal: The Journal of Clinical Pharmacology

Volume: Version of Record online:09 March 2020

Doi: https://doi.org/10.1002/jcph.1601

Abstract

Itacitinib is a novel, selective, Janus kinase 1 inhibitor in development for treatment of graft-versus-host disease. The objective of this study was to assess pharmacokinetics and safety of 300-mg itacitinib dosed in participants with normal renal function (n = 10), severe renal impairment (n = 8), and end-stage renal disease (ESRD) on hemodialysis (n = 8). Serial plasma and urine samples (urine from normal and severe groups only) were collected before dosing until 72 hours after dosing. In the ESRD group, itacitinib was evaluated in 2 periods, when dosed before (period 1) and after (period 2) a hemodialysis session. Geometric mean ratios (90% confidence interval) in participants with severe renal impairment, ESRD period 1 and ESRD period 2 relative to participants with normal renal function were 1.65 (1.13-2.39), 0.71 (0.49-1.03), and 0.83 (0.57-1.20) for maximum plasma drug concentration and 2.23 (1.56-3.18), 0.81 (0.57-1.16), and 0.95 (0.66-1.35) for area under the plasma concentration–time curve from time zero to infinity. Itacitinib was well tolerated, and 3 grade 1 treatment-emergent adverse events were reported over the course of the study. Given the magnitude of exposure changes in participants with severe renal impairment or ESRD and the historic risk-benefit profile, no dose adjustment is recommended for itacitinib in patients with impaired renal function, although the final dosage recommendation will be based on cumulative pharmacokinetics and safety from this study and from the pivotal graft-versus-host disease trial. Additionally, itacitinib may be administered to patients undergoing dialysis regardless of the time of dialysis.

Database

Wiley Online Library

[Health Science]

Title: Loss of p62 impairs bone turnover and inhibits PTH-induced osteogenesis

Author: Dimitrios Agas, Andrea Amaroli, Giovanna Lacava, Toru Yanagawa, Maria Giovanna Sabbieti

Journal: Journal of Cellular Physiology

Volume: Version of Record online: 26 February 2020

Doi: https://doi.org/10.1002/jcp.29654

Abstract

The p62 (also named sequestosome1/SQSTM1) is multidomain and multifunctional protein associated with several physiological and pathological conditions. A number of studies evidenced an involvement of p62 on the disruptive bone scenarios due to its participation in the inflammatory/osteoclastogenic pathways. However, so far, information regarding the function of p62 in the fine-tuned processes underpinning the bone physiology are not well-defined and are sometime discordant. We, previously, demonstrated that the intramuscular administration of a plasmid coding for p62 was able to contrast bone loss in a mouse model of osteopenia. Here, in vitro findings showed that the p62 overexpression in murine osteoblasts precursors enhanced their maturation while the p62 depletion by a specific siRNA, decreased osteoblasts differentiation. Consistently, the activity of osteoblasts from p62−/− mice was reduced compared with wild-type. Also, morphometric analyses of bone from p62 knockout mice revealed a pathological phenotype characterized by a lower turnover that could be explained by the poor Runx2 protein synthesis in absence of p62. Furthermore, we demonstrated that the parathyroid hormone (PTH) regulates p62 expression and that the osteogenic effects of this hormone were totally abrogated in osteoblasts from p62-deficient mice. Therefore, these findings, for the first time, highlight the important role of p62 both for the basal and for PTH-stimulated bone remodeling.

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