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Review Article

COVID-19 Origin, Symptoms, Transmission and Increased the Risk in Elderly People

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Abstract

In late December 2019, the strange sources of pneumonia situation were assigned in Wuhan/China. A pathogenic agent has been determined as a novel "enveloped RNA" betacorona virus, which named as sever acute respiratory syndrome coronavirus 2 "SARS-CoV2". That issued a disease named COVID-19 in human, the acute respiratory disease that remarkable as a second prelude of highly pathogenic coronavirus in human, mostly be deadly the older people as well as implied health conditions. Until now, the death rate is still unclear, unfortunately the estimates were seventh folded higher than rating of seasonal influenza. More than 7000 person involved living at or visiting Wuhan after Jan 26,2020 have been confirmed infected with coronavirus, the risk to become sever ill while die increased with age as a fatality aged 65+. The immune responses and immune tolerances for infection with COVID-19 are not recognized well, it is a challenge to global public health and the infected patients whom recovered just to positive-tested for the coronavirus later again.

Keywords

Coronavirus, COVID-19, Elderly people, SARS-CoV-2

Introduction

Coronavirus the single strand positive/sense RNA genome from Corona viridae virus family with size ranging from 26 to 32 kilo base in length. It could be available in different mammals such as (camels, bats, mice, and cats) [1]. In November 2002, a novel betacoronavirus originated from Guangdong, southern China with coronavirus (SARS-CoV) [2]. Today, mammalian uncommon virus is assigned with pathogenic action in humans, some related to mild clinical symptoms [3].

In December 2019, several unknown viral pneumonia that concerned to local Seafood Market in Wuhan, China [4]. Novel Coronavirus susceptible for humans infecting on January 2020 and called COVID-19, when within two months only, in February 2020, this virus was spread from Wuhan city to whole China and then reached more than 100 countries around the world [5,6].

Lately (WHO) pronounced disease for coronavirus 2019 (COVID-19) international concern like common healthy emergencies [7], when more than 80,000 corona positive confirmed cases were documented internationally [8,9]. Lately studies reported that the Covid-19 in most cases copyist SARS-CoV which presented the speedy spread of Covid-19 [10,11]. Recent literature recorded a radiologic image for COVID-19 pneumonias elucidated an obvious over throw a pulmonary-parenchymal containing interstitially inflammations while immense unification, just like the previous recorded of coronavirus infection [12,13].

By the progressive confession, COVID-19 "pneumonia; consensus; guidelines; while criteria" are steady confirmed targeting on blocking transition as well as expediting diagnostic or therapeutic [14,15].

With non-attendance of particular vaccines or treatment drugs for novel (COVID-19), it's necessary of reveal diseases in precocious stages or directly isolated infection people of healthful. Regarding the recent guideline of 2019-nCoV Pneumonitis Diagnosis and Treatment, which is declared by China government [16]. COVID-19 diagnostic should be assured by RT-PCR (real time polymerase chain reaction) or chest CT scan for infected persons. Sensitive from CT-COVID-19 infections is 96%

compared with RT-PCR sensitive on 70% at $p < 0.001$ [17], or by gene-sequence of respiratory-blood-specimen, with determination and transportation of samples as well as the performance of kit, RT-PCR the positivity ratio for throat smear set down around 35% to 65% at primary display [18]. Motives of lower efficiencies for viral-nucleic-acid detectable maybe including: a) Immature developed the nucleic-acid detector technologies; b) Difference of detecting ratio of variety manufacturing; c) Lower infected people virus loading; d) Incorrect clinically samples. So that lower sensitive in RT-PCR meaning the most COVID-19 patients aren't specified as well as they aren't receive suitable medication on time, at such case it remains very risky to infecting more population and give a high contagious nature of virus there for The routine imaging tool for pneumonia diagnosis is chest CT which is easy to permeate and make rapid diagnosis and it may supply the advantage to diagnosis COVID-19 especially if RT-PCR test negatively [12]. The last update data from WHO the accounts of infectious people and death related increased to 63,922,000 and 1,481,000 respectively from december 2019 until november 2020 [19].

Name of Virus and Discovery

According to the behaviourism of a particular disease which spreading through humans in similar hosts kind, infective is bigger command power to discover firstly viruses at "plants", thereafter on numerous life types, included individuals. Previously, domain in disease as well as host permit specifically virus association to, there are two keys particularity using for determine virus [20]. Phenotypic features of virus, involved viruses like a disease, victoriously shaped by (virus- host interactions) inclusive the transmission average and protection of immune correlation. Others large viruses-specific, with architecture particles of virus, that's properties are very important to control and repulse to medicine, as well as controlling the general aspects of viruses. The host presenting virus may be occult, so, the viral pathogen remains unknown, for viral quickly-grows characteristic, as in much corona-virus discovering on metagenomics researches that using "next-generation" of sequencing technology [21]. The genome sequences is only the common feature for wide majority of viruses and necessary to use for recognizing specific viruses, in this way the virus is determined via genomic sequencing competent at independent replicating insides the cell as well as spreadable among organisms and cell-under convenient conditioning , that could not be harmful to its original host.

COVID-19 Origin

COVID-19 correlation with coronavirus on bat, while it interfere animals then course into human but isn't clear yet. A multitude estimated of interfere host may be pangolins, but it is not assured. When the SARS-CoV-2 interfere host it stay occult. Some studies suspected the secret animals were ready in animals live shops at Wuhan/China, which there sold a variety of live animals and seafood. Most infected people with COVID-19 linked with that's markets and mainly the initial cases comes from shops workers (Figure 1).

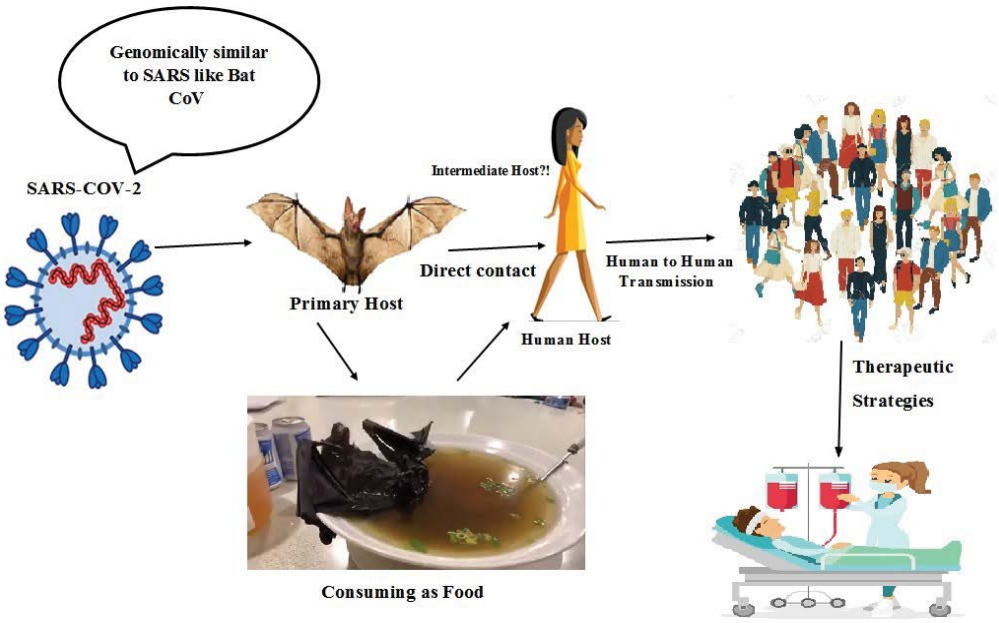

Figure 1: The mode of corona viruses transmission and ability to infect humans, the exhaustion of infected animal as provenience of food as a major reason of virus transmission from animal to human, regarding to close contacts with infected human, the virus can be transmitted to healthy persons.

Public health pundit doubt the untidiness of that markets to spread the virus and helps of preface newly infection. That resort for thrust both of individuals and live animals which hold the pathogens together. The poor hygienic conditions can presenting viruses overstated occasions for recombine, transformation as well as leaping to new hosts involving humans. Significance of that and extreme origin of the outbreak stay unknown. Chinese officials closed that markets on Jan 1st 2020 so outbreak begin pulls round [22].

Principles of COVID-19

Wide spectrum of symptomatic and severity of COVID-19, the full spectrum is still learning today. It appears to extent from mild or potency asymptomatic to moderately pneumonias, severity pneumonias, respiratory-distress, organs defeat then lately dead .Most patients begin fevered, fatiguing with moderate respiratory-symptomes, such as dry-coughing . Many patients do not getting worst, and few evolutions to dangerous sickness [23]. Due to positive results of COVID-19 confirmed-cases from China, commonest symptom shows systemic and respiratory disorders as follows and as shown in (Figure 2):

Fevers: 90%

Dry-cough: 70%

Fatiguing: 40%

Cough-up-sputum for lungs: 35%

Short breathing: 20%

Bonepainful: 16%

Sore-throat: 15%

Headaches: 15%

Chillness: 10%

Vomit: 6%

Stifling-nose: 6%

Diarrhoea: 5%

Internationally, clinical image in infected SARS-CoV-2 patient is ranged between mild to severe signs/symptoms and death. Previously, one example for COVID-19 relation pneumonias patients, which was linking into Huanan-Seafood-Marketing, that occur in December 2019 [5] (Table 1). This data is published in via bond on

Table 1: Staging of severity among COVID-19 patients.

Phase of riskiness	Outrage percentage of humans with COVID-19
Mild disease from people which can recover	More than 80%
Severe disease with breathlessness and pneumonia	About 14%
Critical disease with septic shock and respiratory failure, may be failure in more organs	Around 5%
Fatal disease	2%

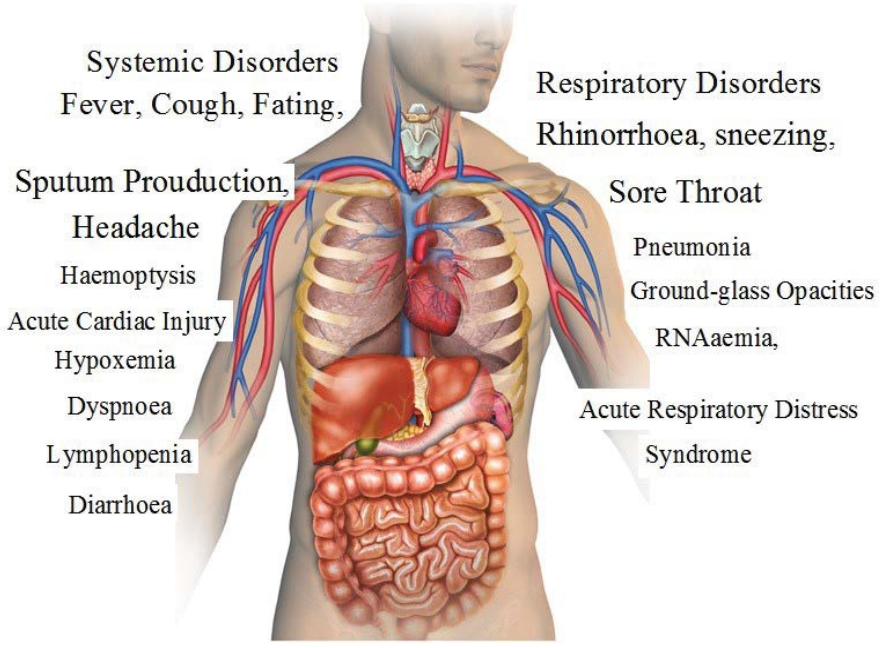

Figure 2: COVID-19 infection caused systemic and respiratory disorders. It shows a unique clinical characteristic, including of target the lower airway as clear by upper respiratory tract symptoms like sneezing, and sore throat. COVID-19 patients developed intestinal symptoms like diarrhea.

global healthily proficient via WHO as well as WHO-China-Joint-mission, whom visit that city in February to value the outbreak and response potential.

The three groups of patients can be obtained as we mentioned above, mild, sever as well as the critical ill regarding to the clinical features of basic COVID19 diagnostic and therapies. Most of previous studies have shown the mild COVID-19 infected people is the majority. Whereas, the severe cases represented in small proportion of all cases. In china more than 80% of infected patients on mild disease, however, 14% with severe cases and less than 5% had a critical ill [5,24], the mortality rated in china was 2.5%, while in Italia and Newyork the studies reported 15% and 20% respectively [25,26].

The Most Risk of Getting Ill and Dying

Coronavirus infects all ages of people and affected many systems inside the human body especially the lungs, it is commonly in men more than the women with different ages 14-50 years-old. [27], today, it suggests that the risk of roughly ill and dying from COVID-19 disease increases with two groups of people aged people and implied medical conditions like cardiovascular disease, cancers, and diabetes. The danger of acute disease gradually increases with age, among all infected people, the highest fatality ratio were fell in age 65 and above. So, that's very important that people at this range of age protect themselves. WHO published information for both of those groups as well as for community backup to make sure they protected from coronavirus without isolated. WHO confirm that all people should protect themselves from coronavirus, which then also protect others.

First data comes from China where the detonation started there, it suggested that older people are the most exposure to the effects of disease. To date, among emerging reported from Italy which is the second most affected country, showed the dangerous coronavirus infected older people whom suffering from heart, lung, and immunological disorders. On current march, in Italy the country of oldest populations of the world. The national health institute recorded 105 cases were died from the virus, the age average 81-years-old, this made of 20 years gap between that average age of patients who tested COVID-19 positive, the institute said. Whereas, the ICU physician in Lombardy/Italy reported there were only two cases died under 50 years of age [5].

Mechanism of Spread and Defense

Respiration virus is transmitting firstly over two techniques: a) Inspiration infecting drops as well as; b) Contacting to contamination objects. Aerosolized transmitting is commonly way to the infectious disease. Large

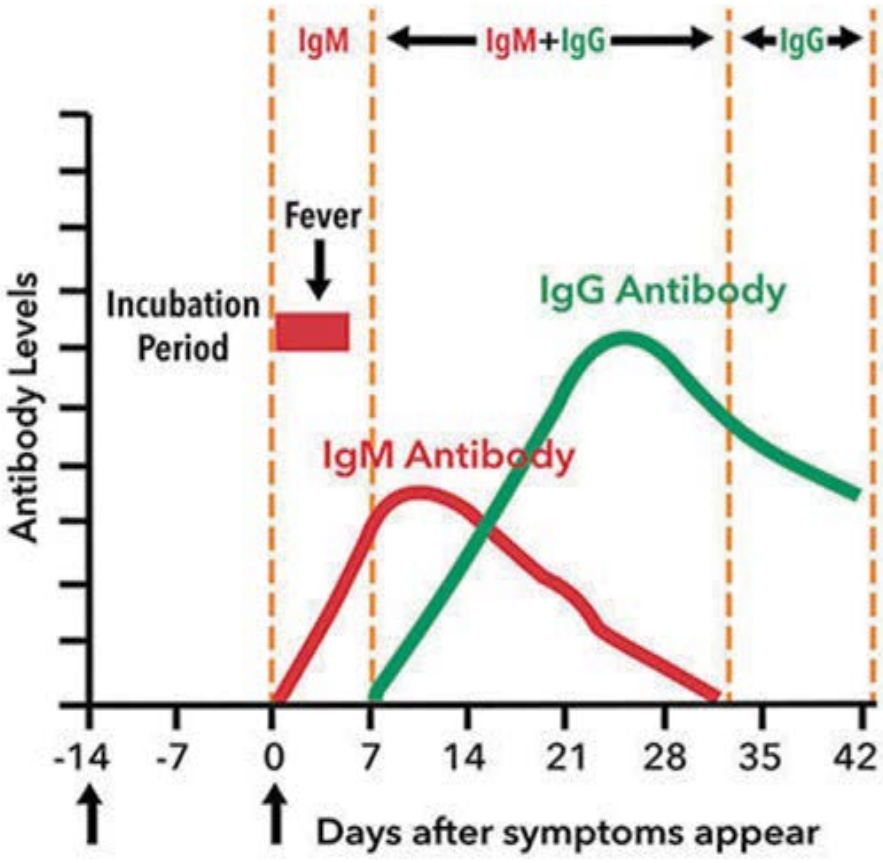

Figure 3: The period of identified immune system on viruse in-patient.

10-100 µm/diameter. Aerosol drops may transmission virus among indicator cases for new hosts on about ≤ 0.9 m, whereas small < 10 µm/diameter an aerosolized drops, producing through cough and sneeze as well as among aerosolized generates procedures, may carrying virus flakes in newly host different meters way ≥ 1.8 m. Transmission by objects for self-inoculating on respirator-tracts mucosal as second commonly way for infectious [28].

The hosts responses to viral infectious rely in elementary for each innate-immunity as well as adaptive-immunity. Epithelium cells covers mucosa surfaces in airways constituting primary physically barriers encounter via respirator-virus. Tightly cross connection of cells as well as providing closed environments, prevented virus transmission out-side respirator-tracts. Stratum of mucosal cover an epithelium flatten, the upward directionally motion ciliate effective belt while clearing viral particle for an airways epithelial [29,30]. Bound or phagocytosis of virus effect on produced many pro-inflammatory-molecule, included interleukins (IL-1β), (IL-18), α/β defensin, collectin, type I INF α/β, and (IgA), attracted NK cells. Up-regulated for innate-immune responses limited locally spreads for respirator-viruses as well as serving like a front line defenses previous activated for adaptive-immune-system [31] **(**Figure 3).

Control the Spread of COVID-19

Reduce COVID-19 transmission from human-to-human is desired to control the flow outbreak. The specific interest to protect and decrease transmitted may use at liable people involving (kids, health-care-provider, old person), [32]. The COVID-19 death cases occurred initially in older people. Probably those with weak immune system that declaration rapid ascertainment of viral infection [5]. In both of acute or severe menace incoming by SARS-CoV-2, social-distance is better prospect for decrease silence spreading of SARS-CoV-2, in thus strategies apparently work at China, whereas, like measurement keeps for decreed or progressively prolong, “medium and long-term” second damaged cause during isolated must rated at a risk estimated. Many status discussed application in buckler measurement of highly risk group like old people also after finish the currently regulating [33]. The nation services should supplied decontaminating the reagent with washing hands as a routine basis, any physical contact with wetness as well as contaminated things should be rated in transaction with virus, such as (fecal, urine) samples which serve as sub stitutional way of transmission [34]. Epidemiological alteration of COVID-19 infected must-be monitoring and takes through accounts possibility ways for transmitting, besides the evolution or adaptation while spreading the virus through peoples and probability to intermediate the animals.

Lots of factors can be served to avoid the progress of disease in COVID-19 infectious people, including the early usage of hydroxyl-chloroquine either with any suspected case. Also the early usage of favipravir as well as tocilizumab and highly flow oxygen with patients at prone-position. Some-times combination with (NIMV) noninvasive mechanical ventilation. In patients with macrophage activation syndrome, immunoregulatory the rapies like to cilizumab may-have a role on decrease the complications occurrence and the mortalities in ICU. So, the early administrating of anticoagulants treatment, highly flow oxygen combined NIMV and avoid IMV being more pronounce on the next weeks [35].

Socially Isolating of Old People

According to SARS-CoV-2 spreading, many countries progressively suppress socially interactions of population. In Italy and other states, mortality rates on old persons increased with age as a highest (90 yrs, 80-89 and 70-79 yrs) consequently, the residential and nursing house are isolation like guests are firstly reduce, after that banning together [36]. Social isolation correlated with the increase prevalent of vascular as well as neurologic illness or premature death [37]. In addition, the socially exclusive is highly significant association to risk of Alzheimer’s disease [29]. The Emotional distress, the other dangerous of prematurely mortality, since concern that known of prophesy the whole reasons of mortality particularly detriment for individual 75 years and above [30]. Covid-19 pandemics actuality increasing dangerous over year scoped in 20s degree, whereas its stay over thus illegitimate extremely at Southern half-globe, within the lowest numbers on passing. Researchers in addition showing the nutritious-D assume the jobs on adjusted RAS or at decreasing lungs damage. In spite which might-be expecting, ceaselessly hypovitamin-D incite pneumonitis fibrosis among an initiations at RAS. Hypovitaminosis-D which unequivocal co-related on written-ARDS, same like the pejoratively indispensably guessed at revivals so far additionally to geriatrics one, while within difference comorbidities relation with passings among SARS-Cov-2 illness [30,37]. In addition, nutrient-D supplemental which accounted with regard to expanded.

Fatality Rate Increased in Elderly People

According to the latest studies in April 2020, the COVID-19 death risk is 1.38% overall, while, the fatality rate increased with age as a clear as, 2% through kids whom 9-years-old and below about 9% of elderly people with age 70 yrs and above. These estimates can be give the indicated foe fatal rate through COVID19 spectrum diseases and display the tight-age tendency on mortality risk. Among SARS-CoV-2 infected people, which a viruses causing COVID-19, risk of hospitalisation

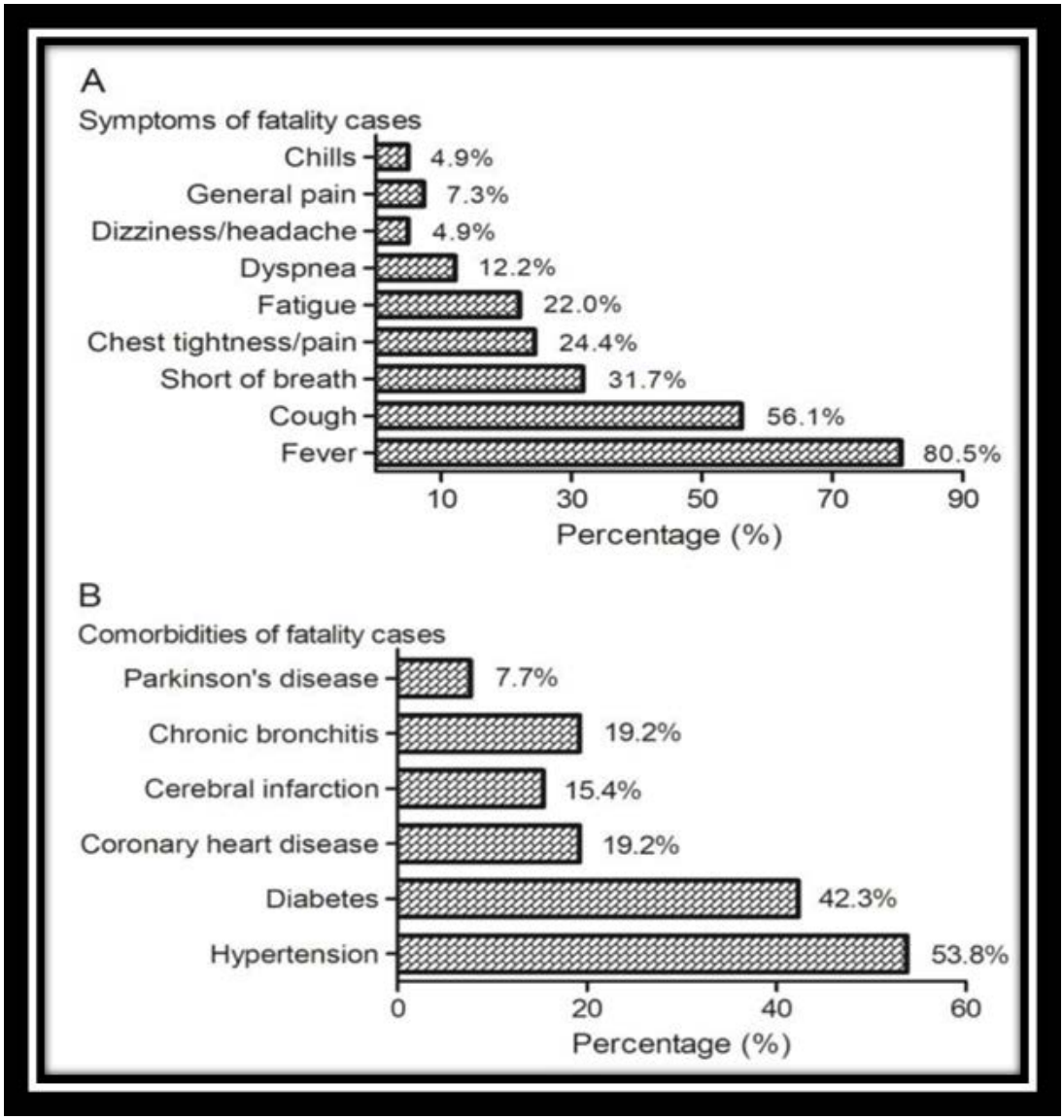

Figure 4: (a) The percentage of symptoms; (b) The percentage of accidents among other disease.

increased with aging. 12% of individual at 60s years required approval, as well as 16.5% of individual at them 70s, whereas, 19% of them at 80s and above. However, death estimating is based in results related person whom died by COVID-19 in China, and whom died in Hong-Kong, as well as more than 41 countries [38] (Figure 4).

References

1. Su S, Wong G, Shi W, et al. (2016) Epidemiology, genetic recombination, and pathogenesis of coronaviruses. Trends Microbiol 24: 490-502.
2. Peiris JS, Guan Y, Yuen KY (2004) Severe acute respiratory syndrome. Nat Med 10: S88-S97.
3. Zhou P, Fan H, Lan T, et al. (2018) Fatal swine acute diarrhoea syndrome caused by an HKU2-related coronavirus of bat origin. Nature 556: 255-258.
4. Huang C, Wang Y, Li X, et al. (2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 395: 497-506.
5. Li Q, Guan X, Wu P, et al. (2020) Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. The New England Journal of Medicine 382: 1199-1207.
6. Zhu N, Zhang D, Wang W, et al. (2020) China Novel Coronavirus I, Research T. A Novel Coronavirus from Patients with Pneumonia in China, 2019. The New England journal of medicine 382: 727-733.
7. World Health Organization. Coronavirus disease (COVID-19) outbreak.
8. Rothe C, Schunk M, Sothmann P, et al. (2020) Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med 382: 970-971.
9. Phan LT, Nguyen TV, Luong QC, et al. (2020) Importation and human-to-human transmission of a novel coronavirus in Vietnam. NEngl J Med 382: 872-874.
10. Chen N, Zhou M, Dong X, et al. (2020) Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptivestudy. Lancet 395: 507-513.

11. Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA 323: 1061-1069.

12. Chung M, Bernheim A, Mei X, et al. (2020) CT Imaging Features of 2019 Novel Coronavirus (2019-nCoV). Radiology 295: 202-207.

13. Fang Y, Zhang H, Xu Y, et al. (2020) CT Manifestations of Two Cases of 2019 Novel Coronavirus (2019-nCoV) Pneumonia. Radiology 295: 208-209.

14. National Health Commission of the People's Republic of China. Diagnosis and treatment protocols of pneumonia caused by a novel coronavirus.

15. World Health Organization. Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: Interim guidance 2020.

16. (2020) General Office of National Health Committee. Notice on the issuance of a program for the diagnosis and treatment of novel Coronavirus (2019-nCoV) infected pneumonia 9th trial, (6th edn).

17. Fang Y, Zhang H, Xie J, et al. (2020) Sensitivity of Chest CT for COVID-19: Comparison to RT-PCR. Radiology Journal 296: E115-E117.

18. Yang Y, Yang M, Shen C, et al. (2020) Evaluating the accuracy of different respiratory specimens in the laboratory diagnosis and monitoring the viral shedding of 2019-nCoV infections.

19. https://www.who.int/dg/speeches/detail/who-director-general-s-opining

20. Rivers TM (1927) Filterable viruses: A critical review. J. Bacteriol 14: 217-258.

21. Zhang YZ, Chen YM, Wang W, et al. (2019) Expanding the RNA virosphere by unbiased metagenomics. Annu Rev Virol 6: 119-139.

22. de Groot RJ, Baker SC, Baric RS, et al. (2013) Middle East respiratory syndrome coronavirus (MERS-CoV): Announcement of the Coronavirus Study Group. J Virol 87: 7790-7792.

23. Wang W, Tang J, Wei F (2020) Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China, J Med Virol 92: 441-447.

24. Wu Z, McGoogan JM (2020) Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in china, summary of aa report of 72314 cases from chinese center for disese control and prevention. JAMA 323: 1239-1242.

25. Luigi Palmieri XA, Bella A, Bellino S, et al. (2020) Characteristics of Ovid-19 Patients dying in Italy report based on available data.

26. Richardson S, Hirsch JS, Narasimhan M, et al. (2020) Presenting characteristics, Comorbidities, and outcoms among 5700 patients hospitalized with CIVID-19 in the New Yorkj city Area. JAMA 323: 2052-2059.

27. Zhu N, Zhang D, Wang W, et al. (2020) China novel coronavirus, T research, a novel coronavirus from patients with pneumonia in china. N Engl J Med 382: 727-733.

28. Hall CB (2007) The spread of influenza and other respiratory viruses: complexities and conjectures. Clin Infect 45: 353-359.

29. Friedler B, Crapser J, McCullough L (2015) One is the deadliest number: The detrimental effects of social isolation on cerebrovascular diseases and cognition. Acta Neuropathologica 129: 493-509.

30. Van Hout HP, Beekman AT, De Beurs, et al. (2004) Anxiety and the risk of death in older men and women. The British Journal of Psychiatry 185: 399-404.

31. Boyton RJ, Openshaw PJ (2002) Pulmonary defences to acute respiratory infection. Br Med Bull 61: 1-12.

32. Jin YH, Cai L, Cheng ZS, et al. (2020) A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version), Mil Med Res 7: 4.

33. Sun K, Chen J, Viboud C (2020) Early epidemiological analysis of the coronavirusdisease 2019 outbreak based on crowdsourced data: A population-level observational study. The Lancet Digital Health 2: e201-e208.

34. Lee N, Hui D, Wu A, et al. (2003) A major outbreak of severe acute respiratory syndrome in Hong Kong. N Engl J Med 348: 1986-1994.

35. Cil B, Kabak M (2020) The possible factors that affect the clinical severity and mortality of COVID pneumonia. Acta Medica Mediterranea 36: 3655.

36. https://www.epicentro.iss.it/coronavirus/bollettino/Infografica_20aprile%20ITA.pdf

37. Holt-Lunstad J, Smith TB, Baker M, et al. (2015) Loneliness and social isolation as risk factors for mortality: A meta-analytic review. Perspectives on Psychological Science 10: 227-237.

38. Verity R, Okell LC, Dorigatti I, et al. (2020) Estimates of the severity of coronavirus disease 2019: A model-based analysis. Lancet Infect Dis 20: 669-677.