


COVID-19 Impact on Medical Practice in Sub-Saharan Africa; The Need to Guard Against Medical Negligence: A Case Report in a Health Care Facility in Kumasi, Ghana

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ABSTRACT: With the novel coronavirus disease 2019 (COVID-19) still in pandemic mode, according to the World Health Organization (WHO), the African continent has experienced continued growth in the total tally. According to the Africa Centers for Disease Control and Prevention (CDC), the virus has spread to almost all 54 recognized African countries. Figures from the CDC indicate that the highly affected countries include South Africa, Egypt, Nigeria, Algeria, Morocco, and Ghana (with more than 55 000 cases and 400 deaths as of the time of writing). The WHO and the United Nations have projected the ongoing pandemic could push medical practitioners toward high rates of clinical misdiagnosis. So far, the coronavirus pandemic has been more devastating and life-threatening than the usual seasonal flu. As of the time of writing, there is presently no proven vaccine or treatment for the disease, with the vaccines still under development; hence, a timely and accurate diagnosis could prove critical. Patients can also receive supportive care earlier if they are diagnosed early. Considering the fact that the coronavirus infection mimics the signs and symptoms of normal flu and other respiratory infections, a problem now emerges, where these symptoms are treated as manifestations of the deadly virus. This has caused a diagnostic dilemma in the absence of laboratory tests with new cases adding to the pool daily. In Ghana, many patients on suspicion of flu-like symptoms are sometimes denied the care so deserved due to the stigma associated with the disease, often in cases where laboratory tests are absent. This study is a postmortem report of a client who died while on admission at a private medical facility. It was an unconfirmed case of COVID-19, and the client was left unattended to and died, having spent 8 days on the ward. His test report was not done initially, but the diagnosis was purely based on suspicion. Nasopharyngeal swabs conducted on the fifth day of admission proved negative. Results became available on the day of the client's demise. Postmortem findings established the actual cause of death, and it was not COVID-19 related.

KEYWORDS: Coronavirus, COVID-19, cardiopulmonary failure, interstitial pneumonia, medical negligence, cardiomegaly, autopsy, bilateral lung congestion, subcapsular granulation, liver cirrhosis

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Introduction

Coronavirus disease 2019 (COVID-19), which is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is an emerging infection that has spread to several countries,¹ and Ghana is no exception to the fatalities associated with the pandemic.

The coronavirus, which has caused the deadly pandemic, has so far proven to be more transmissible and fatal than the usual seasonal flu.²

Study estimates prove that the virus shows a global fatality rate of 2.26%, which is more than the fatality rate of the seasonal flu (estimated to be less than 0.2%).³

The commonest clinical signs of COVID-19 include fever, dry cough, dyspnea, muscle pain, confusion, headache, sore throat, rhinorrhea, chest pain, diarrhea, nausea, and vomiting.⁴ There is presently no known vaccine to the disease; so a timely, accurate diagnosis could prove critical. Some patients have

responded well to some unproven therapies. Patients can also receive supportive care earlier if they are diagnosed accurately. This has also created another diagnostic dilemma, where previously normal symptoms are now treated as manifestations of the deadly viral disease and the virus is known to manifest in different people in diverse ways.

The pandemic has so far had a massive impact on even top medical systems of the world like that of the United States⁵ and other already unstable health systems in Latin America.⁶

In most African countries, the pandemic has revealed major weaknesses in the already poor health and sanitation systems; the pandemic has significantly amplified the risk of medical negligence in our clinical setting.

Sub-Saharan Africa has received some training and resources in the fight against HIV, tuberculosis, and in the dispensation of primary health care policies, usually through Global Health Initiatives.⁷ The same, however, cannot be said



of the novel COVID-19, which took even developed economies with substantial health budgets unaware.

What then happens if someone is diagnosed based largely on presenting symptoms without diagnostic tests? This eventually denies the affected individual of the needed medical care and may eventually lead to loss of life.

As a reference, conversely, seasonal influenza attracted 30- to 60-fold less attention compared with COVID-19 in a Google search, although this season it has caused so far more deaths globally than coronavirus.⁸

Many studies on COVID-19 epidemiology and clinical characteristics have been published since the genesis of the pandemic,⁹⁻¹³ but pathological data, as well as postmortem reports, for this disease, are still scanty.

Symptoms of COVID-19 certainly overlap those of the seasonal flu as well as other related medical conditions. This notwithstanding, clinicians are expected to ask for necessary tests to help identify whether a patient has contracted the novel coronavirus. Approved tests are available, especially nasopharyngeal swabs, blood chemistry tests, and patients might have a scan or chest X-ray of the lungs. Fever, dry cough, dyspnea, and pneumonia are common complications that have been identified to be contributory factors to many coronavirus-related deaths.

This study is a postmortem report of a client who died while on admission at a private medical center. Clinicians' negligence based on mere suspicion and the associated stigma led to his death. An autopsy was performed to establish the actual cause of death.

Case Presentation

This case report concerns a client who presented at a private medical facility in Kumasi, Ashanti region of Ghana. Data on demographics, clinical summary, and autopsy findings were recorded. The autopsy findings and complications leading to death were based on the criteria of the WHO's International Classification of Diseases version 10.¹⁴

The Committee on Human Research Publication and Ethics of the School of Medical Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, gave approval for the study.

Case summary of the late RMO, 65 years

Deceased RMO was taken ill on March 3, 2014. He was sent to the Tamale Teaching Hospital on the same day at 9:00 am. He was a known hypertensive for more than 24 years. He complained of severe chest pain, which radiates to the back for a duration of 3 days.

Some medications were prescribed for the client, which included aludrox gel, amoxiclav tablets, and omeprazole tablets. The pain did not subside even on medication and especially worsened at night while sleeping. Client had a social history of no smoking, alcohol abuse, or illicit drug abuse.

On examination, client's blood pressure (BP) was 160/100 mmHg and a weight of 91.2 kg. Diagnoses of

retrosternal pain due to angina pectoris, gastroesophageal reflux disease, and hypertension were made. Ancillary tests such as electrocardiogram (ECG), full blood count, aspartate aminotransferase, lactate dehydrogenase, and fasting blood sugar were requested.

The client was again reviewed on March 5, 2014, when he complained of dry cough and chest pain of 4-day duration. Ancillary test results became available and showed that on ECG, there was sinus tachycardia, normal axis; left ventricular hypertrophy with repolarization abnormality (asymmetrical); T-wave inversion at I, II, AV_L, V₄ to V₆; and no ST segment elevation. Fasting blood sugar recorded 5.4 mmol/L, and liver function tests revealed normal results. Chest X-ray showed a CT ratio of 0.55.

Based on these results, diagnoses of hypertensive heart disease and a non-ST elevation myocardial infarction were made.

The client was given losartan, carvedilol, aspirin, atorvastatin, cardiac troponin, and clopidogrel medications. Further review revealed a BP of 160/110 mmHg. Client then complained of breathlessness of exertion, easy fatigability, and dry cough, and his condition worsened despite the medication.

He visited the hospital again on October 13, 2018, and renal function test was conducted and revealed the following—urea: 9.60 (high), creatinine: 159.3 (high), potassium (K⁺): 3.78 (normal), sodium (Na⁺): 139.5 (normal), and chloride (Cl⁻): 102 (normal), and HIV and hepatitis C virus were negative.

Client's medical condition however kept escalating with a BP check recording 203/145 mmHg, pulse of 94 bpm, and a weight of 101 kg.

The client was discharged on September 9, 2019, with his condition deteriorating. He had a BP of 176/111 mmHg.

He was again admitted to a private medical facility in Kumasi, Ghana, on May 8, 2020, for further management. Client presented with breathlessness associated with dizziness and easy fatigability. On examination, it was established that he was afebrile, well hydrated with a pulse rate of 120 bpm, and a BP of 229/136 mmHg. Air entry reduced bilaterally. His breath sound was bronchial with crackles, the central nervous system was fully conscious and alert, and had a temperature of 37.3°C.

The Client was managed with antihypertensive, diuretic, and anticholesterol drugs.

Ancillary and other laboratory tests including nasopharyngeal swab test were requested. A provisional diagnosis of systemic hypertension with severe pulmonary hypertension, aortic dissection, aortic aneurysm, and COVID-19 was made.

Further reviews of the client were performed by ward nurses from May 9, 2020, until May 11, 2020, when he was seen again on suspicion of COVID-19.

The cardiology specialist did not review client's condition due to his suspicion of COVID-19. A nasopharyngeal swab was performed on May 11, 2020, and the polymerase chain reaction (PCR) test result became available on May 15, 2020, at 2:00 pm and was *negative*.

Client, however, died the same day on May 15, 2020, at 11:35 am.

The cause of death according to the physician was as a result of the following:

1. Systemic hypertension with severe pulmonary hypertension??;
2. Aortic dissection??;
3. Aortic aneurysm??;
4. COVID-19??.

The cause of death therefore could not be ascertained, hence the request for postmortem examination by the coroner.

Postmortem examination was conducted on May 16, 2020, and the results summarized were as follows.

General condition. The body is of a well-built man. The body weight is not taken. He is dark in complexion. There is evidence of peripheral cyanosis, especially in the nail beds (Figure 1J). There is evidence of petechiae on the conjunctiva.

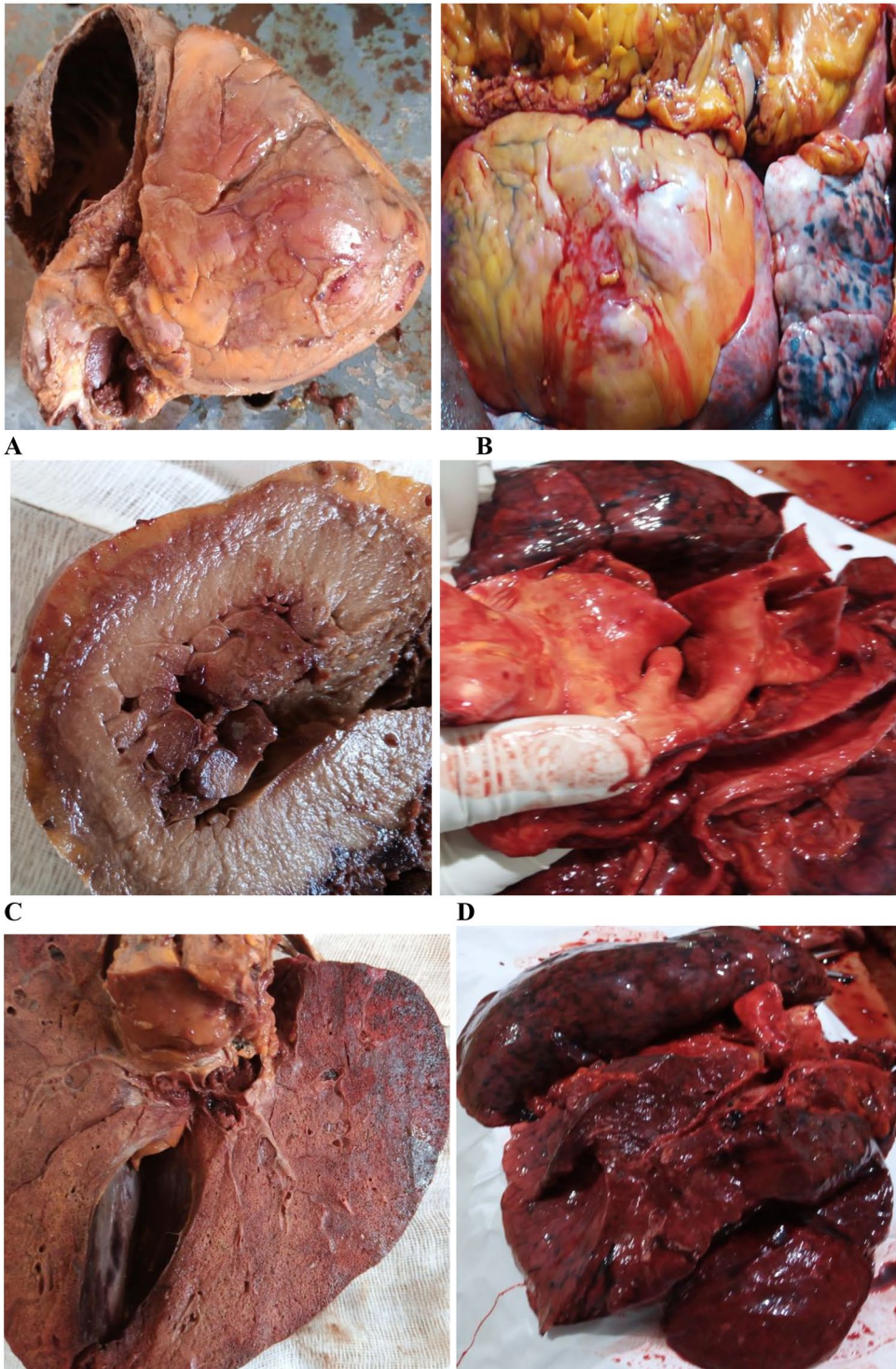


Figure 1. (Continued)

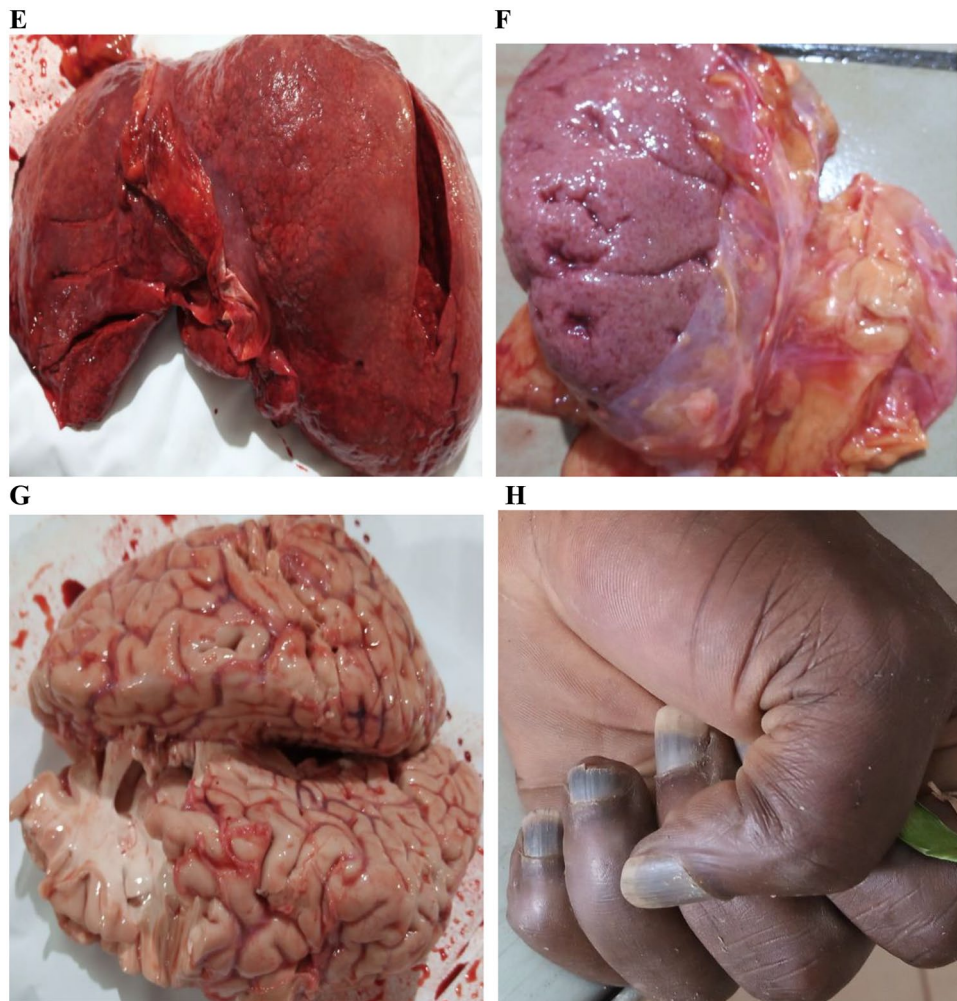


Figure 1. Gross appearance of vital organs at autopsy. Postmortem findings of vital organs include (A) the heart with biventricular cardiomyopathy with significant lipofuscin around the epicardium; (B) the heart with cardiomyopathy with significant lipofuscin in situ, attached is the right lung; (C) cut surface of the left ventricle, showing an old myocardial infarction; (D) the opening surface of the aorta descensens, depicting a significant elevation (>2mm) atheromatous atherosclerotic plaque, attached is a markedly congested left lung; (E) the lungs with cut surface showing beefy appearance; (F) the lungs with marked congestion, friable lobes; (G) the liver with multiple micronodular surface of the hepatic parenchyma and subcapsular surface; (H) the kidney decorticated, depicting extensive subcapsular granulation, lobulation, and cystic formation, and capsular surfaces appear markedly fatty; (I) the brain depicting fattening of the gyri-sulci depression (indication of cerebral edema); and (J) nail beds show evidence of severe peripheral cyanosis.

Internal examination. The heart is significantly enlarged (Figure 1A and B). It weighs 2.0 kg. The left wall is concentrically thickened (4 cm) and the right is 1.5 cm. There is evidence of extensive and severe atheromatous plaques in the intima of major arteries (Figure 1D). No evidence of pericarditis. The intima of the trachea appears hyperemic. The lungs are markedly friable, frothy fluid in its parenchyma (Figure 1F). There is no evidence of lung consolidation and pulmonary edema. The right and left lungs were congested. Cut surfaces appear beefy (Figure 1E). The left lung is 1.5 kg and the right is 2.3 kg. The liver weighs 1.0 kg. It is cirrhotic (micronodular) (Figure 1G). The kidneys appear granular at its subcapsular surface. There is evidence of multiple microcystic formations in both kidneys (Figure 1H). The brain is edematous (Figure 1I).

Status localis. In summary, there was massive cardiomegaly, liver cirrhosis (micronodular), lung congestion, cerebral edema, biventricular cardiac hypertrophy, and peripheral cyanosis.

It was therefore established that the cause of death was due to massive pulmonary congestion and cerebral hypoxia with bilateral ventricular hypertrophy and cardiomegaly due to systemic hypertension.

Discussion

Medical negligence is inexcusable in this 21st century, where advanced diagnostic aids are very much available, especially in this pandemic era. This novel coronavirus definitely caught many top governments and medical professionals unaware in the early weeks and months of the pandemic. However, by mid-April 2020, all professionals should be following proper protocols to diagnose the disease and stop its spread in communities, hospitals, and other care facilities.

Unfortunately, however, evidence has shown that almost on a daily basis, medical negligence is a common practice and sadly results in the loss of precious lives.

A typical example is a recent report from some health facilities in Ghana which indicates that health professionals were diagnosing patients of COVID-19 merely by presenting flu-like symptoms despite the availability of testing in the country (ghanaportal.net, 2020)¹⁵. The error rate may seem low, but that suggests that hundreds of lives are not getting the care and treatment they deserve in a timely manner due to wrong and unconfirmed diagnoses by health professionals and the ensuing stigmatization.

It is evident that this pandemic has led to tremendous changes in the lives of individuals and health care professionals and has also highlighted weaknesses in even the more developed health services.¹⁶ Due to the overwhelming and devastating nature of the pandemic in some countries including France, the United States, and Italy, liability and negligence cannot be excluded in the health institutions and other care centers. Because such problems were envisaged, some countries including the United States and Italy even have regulations and laws granting immunity and shield to health care professionals in the wake of negligence and other related liabilities on the part of their “frontline heroes” depending on the cause.^{17,18} In the United Kingdom, the subject of negligence by health professionals and the context thereof hangs on issues such as whether the unit was busy, the time of day, the nature of staff’s post, staff compliment, and availability of resources.^{19,20}

The situation in Ghana during the first wave of the pandemic however cannot be compared with that of these nations because the burden was less severe and so the issue of negligence cannot be overlooked.

The issue of under-resourcing of sub-Saharan African hospitals, usually with 1 doctor to 10 hospital beds, available for 10 000 inhabitants,^{21,22} misdiagnosis, and negligence, is very common. According to the Global Health Security Index of John Hopkins Center for Health Security, which appraises the diagnostic capabilities of countries, African states are either in red or in orange, which is a frightening situation.

Health, notably in sub-Saharan Africa, has been underfunded for a long time. For example, in Ghana, the health budget over the years has varied between 3.5% and 4.9% of the total national budget, falling below the Abuja target of 15%.^{23,24} This situation in Ghana limits the capability for admission in state-owned hospitals. The practical option left for Ghanaians is private clinics and other health facilities, where, unfortunately, medical negligence is a common practice.

While the major manifestation of COVID-19 is in the respiratory tract, the general extent of organ involvement and macroscopic changes in the lungs remain insufficiently characterized. Autopsies are essential to elucidate COVID-19-associated organ alterations.

Even though information concerning the pathological findings of COVID-19 is limited, some case reports have been published recently.^{13,25} The few autopsies performed on COVID-19 victims show evidence of disseminated intravascular coagulopathy and thrombosis, among others,²⁶ and therefore, antibiotics

treatment, antivirals among others, should be part of the treatment of even unconfirmed COVID-19 cases.

Autopsy findings, grossly, of COVID-19, are likely to be in the chest and may include pleurisy, pericarditis, lung consolidation, and pulmonary edema, usually inflammation,²⁷ and not congestion as seen in long-term cough or other lung disorders. In this report, from the victim’s medical history, there was evidence to suggest that he had a long-term cough for close to 6 years duration before the emergence of COVID-19.

Our postmortem examination did not support the diagnosis of COVID-19, as its manifestation was absent. Rather, the heart was markedly enlarged (left ventricular hypertrophy), as depicted by Figure 1A and C, resulting in compression of the lungs. The lungs became congested (depicted by the beefy appearance at autopsy in Figure 1E), leading to the long-term cough experienced by the patient. It is true that victims who die of SARS-CoV-2 have comorbidities that include hypertension and several other long-term disorders, but these are compounded by the viral infection leading to failure of vital organs and ultimately death.

This victim clearly had other conditions that contributed to his death, with vital organs such as the liver becoming cirrhotic, with the appearance of micronodules on its surface (Figure 1G); the heart showing ventricular hypertrophy resulting from hypertension (Figure 1C) due to the buildup of atheromatous plaques in the intima of the major arteries like the aorta (Figure 1D); cystic kidneys (Figure 1H) as well as edema in the brain (Figure 1I). The victim has been a regular patient in the hospital, and his condition was not previously suspicious of a viral infection, but the emergence of the novel virus changed clinicians’ diagnostic views despite knowing his medical history. There is no concrete evidence, except a diagnostic test, to suggest that he had the infection coupled with physicians’ inability to request the right diagnostic test to establish a definite diagnosis. It is true from the clinical notes that the victim presented with breathlessness associated with dizziness and easy fatigability. Even with that, tests are required to fully make a diagnosis of COVID-19 and not merely judging by the presenting symptoms, thereby denying the individual the care so deserved. The victim in 2014 presented with similar symptoms as he presented with before his death, when COVID-19 had not yet emerged. Back then, ECG confirmed ventricular hypertrophy as was seen at autopsy after he died. It is, therefore, sound to suggest that COVID-19 has come to expose the already poor health systems and clinicians’ negligence in our part of the world coupled with the conspiracy theory claims by some citizens. It is also a concern that individuals suspected of coronavirus who died eventually have death certificates stating COVID-19 as the immediate cause of death. COVID-19 is only an underlying cause of death or mechanism of death but not an immediate cause because the disease triggers a host of physiological disorders and compounds existing medical conditions that eventually lead to death.

This, among other diagnostic issues, seeks to confirm that the COVID-19 pandemic, especially deaths in most health care facilities in Africa, is overemphasized and largely preventable.

The findings from this study, therefore, seek to underscore the importance of proper diagnostic procedures, diligence of health professionals, and audit of unconfirmed diagnoses to alleviate the panic and severity of the pandemic.

Conclusions

We want to redress the issue of medical negligence in an era where an accurate diagnosis is boosted by the availability of improved diagnostic technology coupled with the fact that accurate diagnosis is key to giving patients the required supportive care to help alleviate the ancillary burden this pandemic has brought on the world. This is a difficult time, and medical negligence and incidences involving the virus are an emerging field of medico-legal concern in a time where postmortem examination has not been given the needed attention and boost to help the audit of coronavirus cases.

Recommendations

It is recommended that improvements be made in the diagnosis of diseases using modern diagnostic technologies.

Physicians should be made to appreciate new and novel diseases to keep abreast with current diagnostic trends.

Physicians are again advised to be circumspect in the discharge of care to patients and eschew negligence to save the lives of many patients in their care.

Author Contributions

Paul Poku Sampene Ossei, William Gilbert Ayibor and John Taylor conceived the study idea, designed the study, drafted the manuscript and made significant edits to the manuscript text. Kwabena Owusu Aninkora, Lawrence Agyemang and Bright Opoku Asante drafted the manuscript and made significant edits to the manuscript text.

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