

Knowledge, Attitude and Perception Regarding the Procedure of Autopsy in COVID-19 Cases among Doctors Doing Post Mortem Examination

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Abstract

The COVID-19 pandemic has raised challenges in dealing with the dead body of deceases who have been a suspected case or a confirmed case of Covid-19, considering the extreme shortage of trained and experienced manpower in dealing with various duties and responsibilities in the COVID-19 scenario it is very important to ensure safety of the health care workers. All the guidelines issued from time to time for control of spread and treatment of Covid-19 are speculations depending on the current trends and none are based on robust research due to lack of scientific literature and work as the Covid-19 virus is new to the human race. The main driver of transmission of COVID-19 is through droplets. There is unlikely to be an increased risk of COVID-19 infection from a dead body to health workers or family members who follow standard precautions while handling body. Only the lungs of dead COVID-19 patients, if handled during an autopsy, can be infectious.¹ and there is no evidence so far of transmission of virus through the handling of corpses.² There are a lot of speculations in the mind of forensic medicine experts regarding the ongoing mortuary work and dead body management in the Covid-19 scenario considering the risk of acquiring the infection during handling of bodies or while conducting a medico legal post mortem examination.

Key words: Autopsy, COVID-19 Infection, Dead body management, COVID-19-19 Guidelines

Introduction

Aims and Objectives

To assess the Knowledge, attitude, and perception regarding the procedure of autopsy in COVID-19 cases among doctors doing post mortem examination

Materials and Methods

The study was carried out with help of a questionnaire which was circulated as a Google form among forensic medicine experts all over the country. The objectives of the study were explained to them in detail. Online written informed consent was taken before proceeding further. The questionnaire was designed to study the Knowledge, attitude, and perception regarding the procedure of autopsy in COVID-19 cases among doctors doing post mortem examination. Participants were instructed to indicate their responses by selecting an appropriate answer in the columns. Multiple responses to

questions were not permitted. Participants have to submit the response online after submitting response to all the questions. The data obtained from the answer sheet was evaluated and incorporated on Microsoft Excel sheet and descriptive analysis in terms of percentage was carried out.

Inclusion criteria

1. Doctors Performing Medico legal post mortems and are consenting for the participation in study

Exclusion Criteria

1. Doctors not consenting to participate
2. Incompletely filled questionnaire

Results

The statistical data obtained from the study is presented in a tabulated format

Sr. No.	Questions	Yes (%)	No (%)	Don't Know(%)
1	Are the mortuary workers at risk of COVID-19 infection during performing autopsies on COVID-19 positive patients?	109 (97.32%)	03 (02.68%)	00 (00.00%)
2	Can a routine autopsy be performed on a COVID-19 positive patient?	21 (18.75%)	85 (7.89%)	06(05.35%) (05.35%)
3	Can routine Autopsy be performed if a COVID-19 positive patient commits suicide?	49 (43.75%)	60 (53.7%)	03 (02.67%)
4	Can routine autopsy be performed in the homicidal case of a COVID-19 positive patient?	69 (61.60%)	39 (34.82%)	04 (03.75%)
5	Can the body of a deceased person who was known to be COVID-19 positive be buried?	69 (61.60%)	39 (34.82%)	04 (03.75%)
6	Disposal of the body of a COVID-19 positive deceased, Should be the responsibility of Doctor?	17 (15.17%)	93 (83.03%)	02 (01.78%)
7	Disposal of the body of a COVID-19 positive deceased, should be a responsibility of Relatives?	17 (15.17%)	93 (83.03%)	02 (01.78%)
8	Disposal of the body of a COVID-19 positive deceased should be a responsibility of Administration?	104 (92.85%)	06(05.35%)	02 (01.78%)
9	If a suspected person for COVID-19 infection dies, can sample be taken to know his COVID-19 status?	103 (91.96%)	06(05.35%)	03 (02.67%)
10	Can an autopsy be withheld till COVID-19 testing report is received?	84 75%)	26 (23.21%)	02 (01.78%)
11	Can an autopsy surgeon give PM opinion of cause of death only by history and external examination of the body of the deceased?	41 (36.60%)	69 (61.60%)	02 (01.78%)
12	Is it right to give opinion in a COVID-19 suspected case without performing autopsy?	32 (28.57%)	73 (65.17%)	07 (06.25%)
13	Should there be a separate fully equipped mortuary for conducting an autopsy of COVID-19 cases, like there is a separate operation theatre for living patients?	94 (83.92%)	17 (15.17%)	01 (00.89%)
14	Should we consider all cases to be COVID-19 positive while conducting Autopsies?	83 (74.10%)	27 (24.10%)	02 (01.78%)
15	Should it be mandatory on administration part to provide all sanitization and personal protective gears to the workers in mortuary	111 (99.10%)	00 (00.00%)	01 (00.89%)
16	Should lab technicians be called for the collection of COVID-19 testing sample from a dead body	67 (59.82%)	37 (33.03%)	08 (07.14%)
17	Should Autopsy surgeon himself collect the COVID-19 testing sample from a dead body?	57 (50.89%)	50 (44.64%)	05 (04.46%)
18	Is declaring COVID-19 positive status of patient ethically right?	90 (80.35%)	19 (16.96%)	03 (02.67%)
19	COVID-19 positive dead body should be disbursed immediately, even at night?	55 (49.10%)	(49 43.75%)	08 (07.14%)

Discussion

Are the mortuary workers at risk of COVID-19 infection during performing autopsies on COVID-19-19 positive patients?

There is unlikely to be an increased risk of COVID-19 infection from a dead body to health workers or family members who follow standard precautions while handling body. Only the lungs of dead COVID-19 patients, if handled during an autopsy, can be infectious,¹ but the doctor's, mortuary technician and other mortuary staff in mortuary performing autopsy are exposed to potentially high and dangerous health risks to organs fluid and secretions, even after taking the highest precautions. Hence, the pathological Autopsy requires a detail deliberation.³ In the current study is has been observed that 109 (97.32%)doctors out of 112 fell that there is risk of COVID-19infection during performing autopsies on COVID-19 positive patients.

Can a routine autopsy be performed on a COVID-19-19 positive patient or in case of suicide/homicide?

Autopsies on body of deceased who are Covid-19 positive should be avoided and if needed should be done as per the safety precautions issued be the Government of India Ministry of Health & Family Welfare Directorate General of Health Services (EMR Division) Covid-19:Guidelines on dead body management. If a body with suspected or confirmed COVID-19 is selected for autopsy, health care facilities must ensure that safety measures are in place to protect those performing the autopsy.⁴In widespread infections, a minimally invasive autopsy can be performed.⁵

In the current study it is observed that 21 (18.75%) doctors agree with the statement, whereas 85 (7.89%) disagree with the statement and 06(05.35) stated that they don't know. Considering the situation to be an alleged history of Suicide 49 (43.75%) doctors agree,60 (53.57%) doctors disagree and 03(02.67%) stated that they don't know, where as in case of a homicide 69 (61.60%) doctors agree 39 (34.82%) doctors disagree and 04(03.75%) stated that they don't know.

Can the body of a deceased person who was known to be COVID-19positive be buried?

COVID-19Interim guidance states that People who have died from COVID-19can be buried or cremated.⁶

In the current study it is observed that 69 (61.60%) doctors agree with the statement, where as 39 (34.82%) disagree with the statement and 04 (03.75%)stated that they don't know.

Disposal of the body of a COVID-19 positive deceased;should be the responsibility of Doctor/ Relative/ Administration?

World Health Organization and Royal College of Pathologists states ensure that personnel who interact with the body (health care or mortuary staff, or the burial team) apply standard precautions,^{7, 8}also as per the department of health, hospital authority, food and environmental hygiene only trained personnel should handle dead bodies⁹ Being a new disease there is knowledge gap on how to dispose of dead body of a suspect or confirmed case of COVID-19.¹

In the current study it is observed that 17 (15.17%) doctors agree that Disposal of the body of a COVID-19 positive deceased should be the responsibility of Doctorand relatives, where as 93 (83.03%) disagree with the statement and 02 (01.78%) stated that they don't know. However In the current study it is observed that 104 (92.85%) doctors agree that disposal of the body of a COVID-19 positive deceased should be the responsibility of administration, where as 06 (05.35%) disagree with the statement and 03 (02.67%) stated that they don't know.

If a suspected person for COVID-19 infection dies, can sample be taken to know his COVID19 status and can an autopsy be withheld till COVID-19 testing report is received?

It is advisable to collect nasopharyngeal swab at the emergency department/casualty/ward/ICU and should be sent for COVID-19RT-PCR test in all Suspected/Latent/ Unascertainable cases before moving the body to mortuary for preservation if the same was not sent in due hospital course.³

In the current study it is observed that 103 (91.96%) doctors agree with the statement that if a suspected person for COVID-19 infection dies, sample can be taken to know his COVID-19-19 status, where as 06

(5.35%) disagree with the statement and 03 (02.67%) stated that they don't know, moreover In the current study it is observed that 84 (75%) doctors agree with the statement that autopsy can be withheld till COVID-19 testing report is received, where as 26 (23.21%) disagree with the statement and 02 (01.78%) stated that they don't know.

Can an autopsy surgeon give PM opinion of cause of death only by history and external examination of the body of the deceased and is it right to give opinion in a COVID-19 suspected case without performing autopsy?

The death in hospital or under medical care due to COVID-19 is a non medico legal case and no Forensic Autopsy will be conducted. The certification of death and issuance of Medical Certificate of Cause of Death (MCCD) will be done by the treating doctor of the hospital.³ Some of the cases of suspected death due to COVID-19 virus are brought dead in hospital and are labelled as medico legal case by the emergency doctor on duty and the body is sent to mortuary as MLC case and police is informed, which may need post mortem examination for clarity in the cause of death and differentiating between MLC and Non MLC case. The Forensic Autopsy of these cases may be waived off.³ In the current study it is observed that 41 (36.60%) doctors agree with the statement that PM opinion of cause of death can be given only by history and external examination of the body of the deceased, where as 69 (61.60%) disagree with the statement and 02 (01.78%) stated that they don't know, however it is observed that 32 (28.57%) doctors agree with the statement that it is right to give opinion in Covid-19 19 suspected cases without performing autopsy, where as 73 (65.17%) disagree with the statement and 07 (06.25%) stated that they don't know.

Should there be a separate fully equipped mortuary for conducting an autopsy of COVID-19 cases, like there is a separate operation theatre for living patients?

The existing mortuary facility for body storage should be strictly divided into COVID-19 bodies and Non COVID-19 bodies.³

In the current study it is observed that 94 (83.92%) doctors agree with the statement, where as 17 (15.17%) disagree with the statement and 01 (00.89%) stated that

they don't know.

Should we consider all cases to be COVID-19 positive while conducting Autopsies?

In all most all cases we do not have history of patient's whereabouts hence we do not know if he had acquired the infection prior to his death or if the infection is the reason for the death

In the current study it is observed that 83 (74.10%) doctors agree with the statement, where as 27 (24.10%) disagree with the statement and 02 (01.78%) stated that they don't know.

Should it be mandatory on administration part to provide all sanitization and personal protective gears to the workers in mortuary

As per UNESCO International Bioethics Committee its responsibilities of the governments to ensure public safety and protect health, and raise awareness of the public and other actors on the methods required for this purpose; responsibilities of the public to abide by the rules that protect everyone not only as individuals but also, and above all, as a community; responsibilities of healthcare workers to treat and care for patients.¹⁰

In the current study it is observed that 111 (99.10%) doctors agree with the statement none disagree with the statement and 01 (00.89%) stated that they don't know.

Should lab technicians be called for the collection of COVID-19 testing sample from a dead body or Should Autopsy surgeon himself collect the COVID-19 testing sample from a dead body?

Lab technician should have received appropriate training for sample collection from suspected SARI/ COVID-19 cases and collect appropriate samples as decided by the treating doctor.¹¹

In the current study it is observed that 67 (59.82%) doctors agree with the statement, where as 37 (33.03%) disagree with the statement and 08 (7.14%) stated that they don't know.

Is declaring COVID-19 positive status of patient ethically right?

The COVID-19 pandemic has raised challenges in dealing with information sharing by the public and the authorities. The revelation of information only becomes of 'public interest' when the information affects the public or is a matter of public health policy. Such information can be seen as beneficial when knowing the information helps to generate awareness among the public to protect themselves against the disease. It is reasonable to believe that a common good for the public would outweigh the private interests of an individual or a few individuals.¹²

In the current study it is observed that 90 (80.35%) doctors agree with the statement, where as 19 (16.96%) disagree with the statement and 03 (02.67%) stated that they don't know.

COVID-19-19 positive dead body should be disburshed immediately, even at night?

The body should be cremated as soon as possible with post-funeral hand hygiene of handlers and sanitising the specified area.¹³

In the current study it is observed that 55 (49.10%) doctors agree with the statement, where as 49 (43.75%) disagree with the statement and 08 (07.14%) stated that they don't know about the possibility of the same.

Conclusion

- Mortuary workers are at risk of Covid- 19 infections hence should consider all bodies to be as positive and take all precautions irrespective of the case.

- There should be provision for testing the Covid-19 status of the suspected deceased and time of autopsy to be delayed till report is awaited, also there should be provision of avoiding autopsy in case the deceased is positive.

- Disposal of body should be responsibility of the administration with properly framed guidelines for role of doctors, hospital staff and relatives.

- There should be a separate fully equipped mortuary for conducting an autopsy of COVID-19 cases with uninterrupted supply of PPE by the authorities.

- Lab technicians should be trained and deputed to collected samples from dead bodies when needed.

- Considering it to be for the benefit of all, it is ethically right to declare the Covid-19 status of the patient.

- No published data is available about the urgency of disposal of a body of the deceased who was Covid-19 positive. In such cases the body can be packed following appropriate precautions and then can be cremated accordingly during the day.

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Conflict of Interest: None

Ethical Clearance: All matters regarding ethical aspects of the study had been taken care off

References

1. Van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, Tamin A, Harcourt JL, Thornburg NJ, Gerber SI, et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N Engl J Med.* 2020; 382:1564–156.
2. Precautions for Handling and Disposal of Dead Bodies Department of Health Hospital Authority Food and Environmental Hygiene Department The 10th edition, 2014 (Last reviewed: February 2020). (Accessed on 22 Nov 2020). Available from: https://www.chp.gov.hk/files/pdf/grp-guideline-hp-ic_precautions_for_handling_and_disposal_of_dead_bodies_en.pdf
3. World Health Organization. (2020). Infection prevention and control for the safe management of a dead body in the context of COVID-19: interim guidance, 24 March 2020. World Health Organization. [Accessed on 22 Nov 2020] Available from: <https://apps.who.int/iris/handle/10665/331538>
4. Indian Council of Medical Research 2020. STANDARD GUIDELINES FOR MEDICO-LEGAL AUTOPSY IN COVID-19 DEATHS IN INDIA. 1st edition. [2020]. (Accessed on 22 Nov 2020). Available from: <https://stopcorona.tn.gov.in/wp-content/uploads/2020/03/Standard-guidelines-for-Medico-legal-autopsy-in-COVID-19-deaths-in-India-10.05.2020-32-Pages-English-1.07-MB.pdf>
5. World Health Organization. (2009). Natural ventilation for infection control in health care

- settings. World Health Organization. (accessed March 22, 2020). Available from: <https://apps.who.int/iris/handle/10665/44167>
6. Government of India. Ministry of Health & Family Welfare. Directorate General of Health Services (EMR Division). COVID-19: Guidelines On Dead Body Management. (accessed 10 April 2020) Available from: https://www.mohfw.gov.in/pdf/1584423700568_COVID19GuidelinesonDeadbodymanagement.pdf
 7. WorldHealthOrganization. Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected. 2020. [Accessed on 22 Nov 2020] [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125)
 8. Castillo P, Martinez MJ, Ussene E, Jordao D, Lovane L, Ismail MR, et al. Validity of a Minimally Invasive Autopsy for Cause of Death Determination in Adults in Mozambique: An Observational Study. *PLoS Med.* 2016;13(11):e1002171
 9. Royal College of Pathologists (UK). (2020). Autopsy practice relating to possible cases of COVID-19-19 (2019 nCov, novel coronavirus from China 2019/2020). (Accessed on March 22, 2020) Available from: <https://www.rcpath.org/uploads/assets/d5e28baf5789-4b0f-acecfe370eee6223/fe8fa85a-f004-4a0c81ee4b2b9cd12cbf/Briefing-on-COVID-19-19autopsy-Feb-2020.pdf>
 10. COVID-19 - Sample collection guidelines. (2020). Indian Council of Medical Research – National Institute of Epidemiology. (accessed on Nov 22, 2020) Available from: http://www.nie.gov.in/images/leftcontent_attach/COVID-SARI_Sample_collection_SOP_255.pdf
 11. Vidua R, Duskova I, Bhargava D, Chouksey V, Pramanik P. Dead body management amidst global pandemic of Covid-19. *Medico-Legal Journal.* 2020;88(2): 80-83
 12. Yusof, A.N.M., Muuti, M.Z., Ariffin, L.A., Tan, M.K.M.: Sharing information on COVID-19: The ethical challenges in the Malaysian setting. *Asian Bioethics Review.* 2020; 12: 349–361
 13. UNESCO International Bioethics Committee (IBC) and the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology (COMEST). STATEMENT ON COVID-19-19: ETHICAL CONSIDERATIONS FROM A GLOBAL PERSPECTIVE. 2020. [Cited on November 2020]. Available from: <http://jcb.utoronto.ca/news/documents/Statement-on-COVID-19-19-Ethical-Considerations-From-a-Global-Perspective-UNESCO.pdf>