MANAGEMENT OF CORPSES WITH COVID-19: PERSPECTIVE ON CASES IN INDONESIA

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Abstract

The pandemic outbreak caused by COVID-19 has been spreading throughout the world including Indonesia. The high number of infection cases and deaths due to Covid-19 and the lack of experience in managing corpses (post mortem) caused by COVID-19 disease creates defiance for forensic practitioners and the general public. Indonesia has extra challenges because there are still people who refuse to bury corpses known to be COVID-19 victims in their areas. This paper reviews and summarizes the experience of how to deal with a corpse case with COVID-19 including how to bury such a corpse hence providing a perspective view for the future.

Keywords: *COVID-19, Corpse's, Forensic Practitioners*

Introduction

The Coronavirus 2019 or often known as COVID-19, is a disease that is said to have begun in Wuhan, China (1). At first, this disease was only considered as pneumonia with unknown etiology but the cause of this disease was later announced by the Chinese Disease Control and Prevention (CDC China) on January 8, 2020, as a new and unprecedented coronavirus (2). As the days went by, the development of this virus became increasingly widespread, and on January 31, 2020, the World Health Organization (WHO) announced that COVID-19 is a public health emergency and is an international concern with high risk. Globally the spread of Covid-19 was rapid, and on March 11, 2020, WHO established COVID-19 as a pandemic after the spread of the virus had reached 114 countries (3,4).

Over the months, this highly contagious pandemic had also created several challenges for forensic practitioners in China and also globally. Forensic practitioners needed to raise awareness of protection and to gather experience in investigating the deaths in medicolegal cases due to infectious diseases (5). There needed to be ways of not only handling corpses infected with COVID-19 but there needed to be counseling to multicultural Indonesian people involved.

This article discusses the handling of body or body parts of a person who is suspected/confirmed to have died due to COVID-19. This article aimed to provide a practical overview of the important recommendations in handling bodies with COVID-19. Furthermore, this article is intended as a reference for practitioners, managers, and planners, including policymakers involved in handling the COVID-19 pandemic, especially in Indonesia.

The potential risks during the handling of corpses

At present, the known 2019-nCoV transmission routes are mainly respiratory drops (droplets), aerosols and contact with virus secretion. During the handling of the corpse, the forensic practitioner and other health workers have direct contact with the body of the corpse which may have had secretions or fluids that came out of the mouth, nose or other places that are still very infectious and at high risk of transmitting to the persons handling the corpse (2).

2019-nCoV has strong resistance and is said to be resistant to cold environments (6,7). This shows that 2019-nCoV can survive on the corpse for a certain period after an infected person dies. Patients who have died of COVID-19 may still have a very large number of viruses. Cryopreservation can extend the virus in the body (5).

Infection may also occur when there is contact with a contaminated surface or object after touching a surface or object infected with a virus, following which, the person touches his/her own mouth, nose, or eyes. This virus

generally lasts a few hours outside its host, but it can also last up to several days in cold and humid conditions (8).

The risk of transmitting infection from the body of corpses

The transmission can be from droplets (water splashes) and aerosols (breath steam) that are left in the environment around the corpse's body and that comes out due to the process of moving the bodies. One study mentioned that this virus can last for days on inanimate objects (not just corpses). Some of the vulnerable zones such as the ward (isolation room), zones leading to the morgue, in the morgue, and the ambulance that transported the corpse (2). These zones are very-high risk zones when present without appropriate clothing / personal protective equipment (PPE).

Use of standard PPE includes gloves (it is necessary to ensure that the gloves are not torn, preferably nitrile gloves) aprons, long sleeves/work clothes to protect the skin and clothing from being contaminated with virus-infected objects, face masks and eye protection: Eye goggles, face shield / Full-face mask. FFP3 or N95 masks are prioritized to prevent inhalation of aerosols and splashes during the process of handling bodies in order to protect the face, eyes, nose, and mouth (9).

The environmental risk to the spread of infection

It should be noted that at the time of this review, persistence of COVID-19 on the surface is uncertain, but it can be presumed that the surrounding environment can also be infected. After doing all the steps mentioned above, the room has to be disinfected. Starting from the isolation room, the hallway travelled, ambulances, PPE clothes that have been usedand the mortuary room. Disposable PPE clothes and disposable materials are disposed of and destroyed (9).

Handling corpses so that these are not contagious

Appropriate clothing / personal protective equipment (PPE) takes an important role in protecting ourselves from the risk of transmission. But that by itself is not enough, it must be supplemented by reducing the risk of transmitting it by corpses and by the environment. In order to reduce the risk of transmitting infection from the corpse body, the steps are as follows: holes in the body (nose, mouth, eyes and others) need to be covered with cotton/gauze that has been disinfected (Figure 1), wrapped with several layers of plastic, the plastic then disinfected , following which, the corpse is covered with kafan cloth for a Muslim, then wrapped again with several layers of plastic, disinfected again, then put it into a coffin (made of thick wood, with a metal layer if necessary) (Figure 2), then the coffin is sized and nailed/screwed, and finally, the coffin is disinfected [9]. Up to this point, the body should no longer be able to transmit the infection.

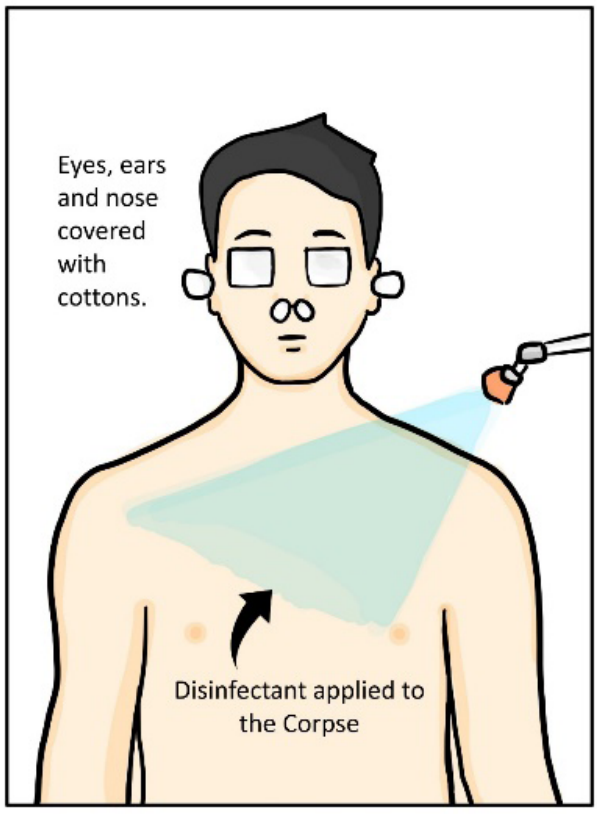

Figure 1: Nose, mouth, eyes and other covered with cotton

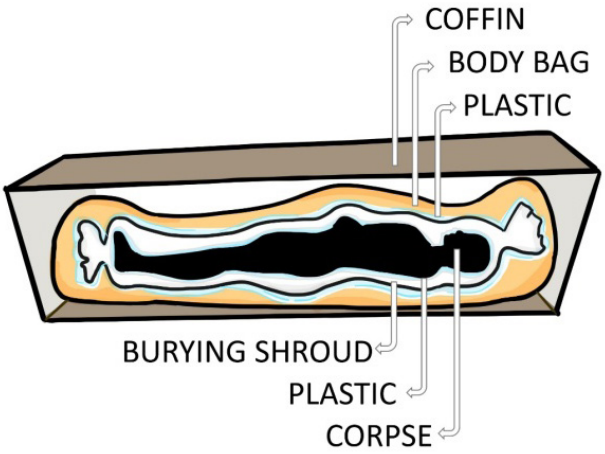

Figure 2: Management of corpses with Covid-19 so as not to transmit infection

For of the safety of family members, it is forbidden for them to enter the mortuary room and they need to always keep their distance

The reasons are as follows:

a. Firstly, the number of PPE is usually limited (the priority for the use of PPE is for health workers) (10).
b. Secondly, family members may still not understand how to use the protective equipment, do not

understand the dos and don'ts while in the room (for example, they may lean carelessly on potentially infected items), and do not understand how to correctly remove the PPE.

c. Thirdly, the possibility is that, among families, there are people without symptoms but has the potential to transmit to other family members and to officers.

The level of resistance of the virus

A study conducted in Singapore found that environmental pollution can take place in rooms of COVID-19 patients and in toilets used by the patients. Viruses can be detected in door handles, toilet seats, light switches, windows, cabinets and in cooling fans but not in the air (11).

Some studies had shown that this virus can live for days on inanimate objects (7). Logically, it can take months, even years, for nature to be able to damage the layers of plastic and damage the coffin, and with liquids from the body during the decomposition process in which the virus are still alive and infectious.

Standard handling of the corpse to avoid transmission of infections

Following the steps described above, the body should be not be contagious with several disinfecting processes, several layers of plastic, and also put into the coffin and with the additional process of the immediate burial or cremation (9). What should be made aware of is that when the family members are gathered for burial and for mourning, there is the potential to transmit to each other since they can be asymptomatic or even confirmed to be positive with the infection. When all the precautions are taken, there should be no reason to refuse the burial of those who had died due to COVID-19.

Discussion

A corpse infected with COVID-19 carries a significant risk of infection because the 2019-nCoV has a strong resistance to cold environments. This suggests that 2019-nCoV can persist in the body for a long time after an infected person dies (5). Patients who have died of COVID-19 may carry a significant amount of the virus. Cryopreservation can prolong viral persistence in the body (5,6). This may affect a small number of corpses with COVID-19 infections that are buried in certain areas. Therefore the community and religious leaders must understand corpse management in COVID-19 deaths. Good management of the corpse will ensure that everyone involved is safe and that the infection can no longer be transmitted from the bodies.

From what is currently known, the 2019-nCoV transmission routes include respiratory droplets, aerosolsand contact with virus secretions (9). During management, forensic doctors and other health workers should be protected from the viruses since they are in close proximity to the body.

Corpses with COVID-19 should be correctly managed. Protection measures for managing the body with COVID-19 for forensic purposes include the use of one-piece clothing, N95 masks, face shields, protective shoe covers and additionally two layers of medical latex gloves; They must also be aware of the proper way to use the protective items and to remove these (12).

Conclusion

The public, they don't need to be afraid of the transmission of the virus from a corpse with COVID-19, because it can be avoided utilizing correct protocol process for the body and for officers who manage the body using standard APDs. The community must also be disciplined in following the established procedures.

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Competing Interests

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Ethical Approval

Not applicable

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