

COVID-19 in intensive care. Some necessary steps for health care workers

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To the Editor

Due to the nature of their profession, health care personnel (HCP) have always been easy targets for transmission of communicable diseases like COVID-19. Shielding HCPs is of consequential significance in ensuring continued health care for the whole population in addition to reducing further spread. Close contact, repeated contact and prolonged contact are unavoidable in the intensive care (IC) environment. It is not uncommon for IC-HCPs to get carried away during an emergent situation, such as that posed by a suddenly deteriorating patient, and forgo the protective barriers that protect them from contracting a communicable infection. Some notable precautionary measures are mentioned below. This is by no means an exhaustive list.

Minimize surface contact – think before you touch

Central to the prevention of transmission of infective pathogens is to reduce contact. All unnecessary contact with

patients and their immediate surroundings, including medical equipment like infusion pumps and ventilators, should be avoided. Using patient monitors on central workstations to monitor vitals and other parameters of treatment may also reduce contact.

Aerosol generating procedures – a breath of ‘foul’ air?

Extra care should be taken while aerosol generating procedures. Non-invasive ventilation, high flow oxygen therapy, intubation/extubation, nebulization, open suctioning of airway secretions, bronchoscopy, induction of sputum, bag and mask ventilation, cardiopulmonary resuscitation, *etc.* have the potential to generate aerosols in high quantity. During such procedures, the use of a respirator, like N95 respirator, has been advised in preference to a facemask [1-3]. Further, the use of viral filters and closed suctioning should always be ensured. Engineering measures like air flow changes and negative pressure air ventilation also help in reducing aerosol quantity in the IC unit.

Hand hygiene and personal protective equipment – a tale of two hands, and more

Primary recommendations of thorough hand hygiene (HH) and personal protective equipment (PPE) are of utmost importance. Regarding HH, both alcohol-based hand rubs, or soap and water hand wash have been advised [1-3]. But in case hand are visibly soiled, only the latter should be used. HH should be performed while entering/ and leaving the IC unit, before and after touching patient or patient’s immediate surroundings (like bed, infusion pumps, feeding tube, ventilator, urinary catheter, *etc.*) and before and after performing a procedure on a patient [1-3].

Ideally, all HCPs caring for COVID-19 patients should use a fit tested respirator [2], but in case of shortage, the use of facemasks has been advised [3]. It must be remembered that facial hair (beards) interfere with the fit and render the seal around the facemask useless. [4] As such, it is advisable to keep a close-shave.

When putting together and taking apart are not antipodes

The CDC (Centers for Disease Control and Prevention, USA) has recommended sequences for both donning (putting on) and doffing (removing) PPE [5].

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For donning, the sequence of HH—gown—mask—goggles—gloves should be followed. Meanwhile, during doffing, the order used should be gloves—goggles—gown—mask—HH. While doffing, extra care should be taken to avoid touching the outside of gloves and the front of the mask, since both are the most contaminated parts of PPE. This recommendation includes wearing goggles for protection against ocular transmission. The evidence of ocular transmission is unclear. Animal studies, however, have shown evidence of ocular transmission and infection. Thus, prevention and protection of eyes is also an integral part of PPE and should not be ignored or missed [6].

Discard or disinfect

Lastly, the issue of handling patient equipment needs to be addressed. All disposables should be discarded, as per biomedical waste management protocol of the hospital, as soon as their function is complete. Re-useable/non-disposables should be thoroughly disinfected using manufacturer recommendations. Surface cleaning and disinfection should be done frequently in IC units. Visibly soiled surfaces/equipment should be dealt with immediately.

Conclusions

On 30th January 2020, the World Health Organization (WHO) declared a public health emergency and recently as a global pandemic [7]. India already has crossed 100 patients tested positive as on 15th March 2020. India is in phase 2 and may soon enter phase 3 of this pandemic, unless curtailed [8]. Looking at the current COVID-19 pandemic data from countries like China, South Korea and Italy to name a few, it is easy to understand that health care systems are put under immense pressure for a continued period of time. As such, ensuring the wellbeing of HCPs is crucial to keep health care system up and running.

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