



Care for critically ill patients with COVID-19: don't forget the eyes

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To the Editor:

As of 24 April 2020, over 2.8 million cases of Coronavirus disease 2019 (COVID-19) with ~200,000 deaths have been reported in 210 countries (<https://www.worldometers.info/coronavirus/>). Studies have shown that ~30% of the hospitalised patients with COVID-19—usually those who were older (mean age of 60–70 years) and with multiple systemic co-morbidities—require admission to intensive care units (ICUs) and ventilatory support [1–3]. While provision of the critical care service is crucial, it is important not to forget about the eye care in these critically ill patients.

Occurrence of ocular complications, particularly corneal infection (a potentially blinding condition), has been a recurrent theme for critically ill patients in ICUs [4]. Main predisposing factors include the inability to close the eyes causing exposure keratopathy, impaired blinking reflex, drying of ocular surface causing breakdown of corneal epithelium, contamination from the infected respiratory secretions, and intermittent positive-pressure from the ventilation causing venous stasis and conjunctival oedema [4]. This issue recently came to light where a patient with COVID-19 in our ICU, ventilated for several days, developed an exposure keratopathy with corneal abrasion, which was reported as ‘white cornea with presumed infection’. This was immediately reviewed by the ophthalmology team and prophylactic topical antibiotic medication was instituted. This underscores the importance of incorporating prevention, recognition, and management of eye problems as part of the care bundle of COVID-19.

In addition, COVID-19 patients who require critical care are usually those that are elderly with multiple co-morbidities. These factors have significant clinical ramifications for the eyes as elderly patients who develop corneal infection are associated with poorer visual outcome and higher rate of complications such as corneal perforation, need for emergency corneal transplant, and evisceration (removal of all the internal contents of an eye) [5].

Prevention is therefore paramount. With this in mind, we provide some practical and important practice points with an aim to improve the eye care for critically ill patients (Fig. 1). In the current pandemic, we hope that these strategies will help reduce the avoidable risk of sight-threatening complications (and potential medical litigation) and provide a more

Summary of Eye Care for the Critically Ill Patients

1. Prevention is key to the management of critically ill patients.
2. Ensure the eyes are fully closed. Apply chloramphenicol 1% ointment in the inferior fornixes of the eyes, **AND**:
 - (a) Keep both eyes shut by directly taping the lids with a micropore tape applied horizontally; **OR**
 - (b) Place a “moisture chamber” where a manually prepared cling film or plastic wrap can be affixed to the periocular skin using ointment; **OR**
 - (c) For severe cases, place a temporary “Frost suture” through the lid margin of the upper or lower eyelids, tie and tape the free ends of suture on the forehead or cheek. The free ends can then be used as a handle to open or close the lids. This procedure is usually done by the ophthalmologists.
3. Avoid aspiration of secretions across the patient's face/open eyes. Organisms from respiratory secretions (released spontaneously or by suction of tracheobronchial secretions) are commonest cause of ocular contamination leading to conjunctivitis and corneal infection.
4. Inspect eyes every 6–8 hours, instil ointment and close eyes with fresh tape.
5. If the cornea looks dull or is partially or completely white, contact the ophthalmologists.

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Fig. 1 Summary of eye care for the critically ill patients.

holistic care for the critically ill patients during the battle against COVID-19. It would be an unimaginable tragedy for patients with COVID-19 to recover from the life-threatening respiratory illness but to wake up with visual impairment.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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