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European Journal of Emergency Medicine 2020, XXX:000–000

Daily pool testing of nasopharyngeal self-obtained swaps of healthcare professionals with definite COVID-19 exposition

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The coronavirus disease 2019 (COVID-19) pandemic challenges the national healthcare systems worldwide. Specifically, the potential risks for healthcare professionals (HCP) and quarantine measures can affect entire hospital units within hours. COVID-19 is transmitted via aerosols (cough or respiratory droplets) as well as contact with bodily fluids, or from contaminated surfaces [1] and therefore, specific situations that are known to produce high concentrations of aerosols like orotracheal intubation may lead to infection of HCPs [2]. The high-risk situations can usually be controlled and HCPs are able to prepare themselves. On the other hand, the staff of emergency departments are often confronted with unusual presentations of any disease including COVID-19 and therefore may be exposed unwillingly to infectious patients in early phases of care. There are no studies with COVID-19 cases available, but data from severe acute respiratory syndrome (SARS) and influenza strongly suggest that except for high-risk procedures as mentioned above, a surgical face mask is protective if it fits well, which is more important than the type of the mask itself [3,4] (<https://apps.who.int/iris/handle/10665/331215>; assessed 14 March 2020).

We report about 10 HCPs who were exposed to an index case with COVID-19 and a highly positive PCR-test result. The patient was a 21-year-old man, who did not belong to a risk category as defined at that time by exposure to a confirmed case of COVID-19 or travel to a risk zone. He was presented by the Emergency Medical Services early in the morning with slightly disturbed vigilance and mental confusion. The primary hypothesis was meningitis or encephalitis. At triage, an elevated temperature of 38.5°C was detected and the patient reported respiratory symptoms such as rhinorrhea and dry cough without fever for 14 days. The symptoms had aggravated during the last couple of days prior to presentation. He also reported having been vaccinated against rabies, diphtheria and tetanus toxoids combined with whole-cell pertussis vaccine and Japanese encephalitis the day before. At triage, a facemask was placed on the

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Received 21 March 2020 Accepted 24 March 2020

patient's face. A cranial computed tomography-scan and liquor test was normal. After a negative influenza A/B and respiratory syncytial virus test, the patient was sent home with the recommendation of bed rest. Later the SARS-CoV-2 screening PCR of the influenza swaps was reported positive. During the 7 h of treatment, 10 HCPs, 3 doctors and 7 nurses were exposed <2 m distance and at least once without facemasks. The patient was wearing a surgical facemask at all times. Gloves were worn at patient contact at all times, but no safety goggles or safety gown. No aerosol-generating procedures had been performed. All HCPs were sent in home isolation. From day 5, we started to analyze daily nasal-pharyngeal swaps, obtained by the HCPs themselves, using a real-time RT-PCR for SARS-CoV-2 performed on MagNa Pure 96 and Light Cycler 480 instruments [5]. The test was done from pooled specimen and remained negative until day 14. Two of the HCPs developed a sore throat, but none had fever. On day 14, additional swaps were taken from outside and analyzed separately. The tests of all 10 HCPs were negative.

These data suggest that outside of high-risk situations, a surgical facemask, gloves and standard hand hygiene is sufficient to protect HCPs that usually follow basic hygiene recommendations, and that short exposition in this context might have a low risk of infection.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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DOI: 10.1097/MEJ.0000000000000719