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A regional approach for infection prevention in death investigations during the COVID-19 era

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Dear Editors:

As the novel coronavirus disease 2019 (COVID-19) continues to spread worldwide, governments are seeking effective systems for medical care and examination. Given that some expect a long pandemic lasting about 2 years [1], an economically sustainable system for providing medical services is required, as Parisi et al. described previously in this journal [2]. A major problem with COVID-19 is the rapid progression from asymptomatic infection or mild symptoms to fatal pneumonia or acute respiratory distress syndrome [3]. At the beginning of the outbreak in Japan, the public was asked to refrain from rushing to hospitals with trivial cold symptoms in order to avoid nosocomial infection. However, this led to some cases of sudden death at home in people who hesitated to visit a doctor but were shown to be positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) during death investigations.

SARS-CoV-2 is mainly transmitted via respiratory droplets, aerosols, and contact [4]. Therefore, if patients with out-of-hospital cardiac arrest have COVID-19, there would be a risk of infection not only for medical providers who attempt resuscitation but also for personnel involved in postmortem procedures such as police officers, death inspectors, forensic personnel and funeral directors. It is not hard to imagine that more than a few police investigators carried out their work without adequate protection in the early days of outbreak. Currently, the gold standard of COVID-19 diagnosis is reverse-transcription polymerase chain reaction (PCR) testing of respiratory tract specimens. To reduce the risk for SARS-CoV-2 infection of postmortem workers by performing PCR testing without delay, we worked in collaboration with regional medical associations, prefectural police departments, and municipalities to establish a protocol for police investigators and forensic medical staff who handle cadavers with suspected SARS-CoV-2 infection [5]: When there is a history of fever over 37.5 °C lasting more than 4 days, upper respiratory symptoms, or suspected pneumonia on postmortem computed tomography (CT) imaging, the medical examiner contacts the regional health center and arranges a SARS-CoV-2 PCR test. In Shiga Prefecture, which has approximately 13 thousand deaths annually, about 1.6 thousand deaths require postmortem investigation by the police. Here we report the results of SARS-CoV-2 PCR testing in death cases handled by police from April 1 to August 31, 2020.

Of 582 cases investigated by the Shiga Prefectural Police Department

during the period, 12 (2.1%; 7 male, 5 female; mean age, 59.8 [range, 0–89] years) underwent postmortem SARS-CoV-2 PCR testing. All 12 were negative. PCR testing was performed at the discretion of the transferring hospital in 10 cases and ordered by the medical examiner in the remaining 2 cases. General sickness was observed in 4 cases, hyperthermia in 4 cases, and dysgeusia in 2 cases. Six cases had findings suggestive of pneumonia on postmortem CT.

Our case series shows that most of the SARS-CoV-2 PCR tests run in death cases investigated by police were ordered by doctors at hospitals. In Japan, most PCR tests were performed at regional health centers at the beginning of the outbreak, but testing capabilities have expanded to individual hospitals since July [6] and it seems that many clinicians are proactive in examining for COVID-19. COVID-19 is reported to be infectious even in asymptomatic patients [7], so to ensure total safety of postmortem personnel, one strategy would be to test every cadaver, including for deaths unrelated to infectious disease. However, considering the limitation of test capability, comprehensive examination is not realistic, especially in small cities like Shiga Prefecture where numbers of patents or fatalities are low (nine fatalities to date, 1 November 2020 [8]).

Our protocol has been pragmatic in Shiga prefecture under infection scale of this summer and no COVID-19 patient among postmortem personnel has been detected so far. However, we are facing a larger third wave with the start of winter season and rapid increase is also suspected after easing the entry of foreign travelers. A continuous monitoring of the infection status both inside and outside of the region and updating the examining system fluently is required for preventing infection during postmortem investigation. Therefore, a close cooperative relationship with regional medical associations, prefectural police departments, and municipalities is essential, as well as exchanging information with other regions. Furthermore, fatalities of asymptomatic SARS-CoV-2 carriers or overlooked COVID-19 patients, including deaths unrelated to infection, have not been fully understood. Therefore, screening SARS-CoV-2 test for all cadavers during specific period would be considered to discuss the infection risk for personnel involved in postmortem procedures.

Besides, note that the positive result of SARS-CoV-2 must not be the excuse to evade autopsy but be utilized for adequate protection of postmortem personnel, since autopsy is the only method to reveal the cause and pathophysiology of death, as Spherhake mentioned previously [9].

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