J Korean Med Sci. 2020 Nov 2;35(42):e380
https://doi.org/10.3346/jkms.2020.35.e380
eISSN 1598-6357·pISSN 1011-8934

JKMS

Brief Communication
Infectious Diseases, Microbiology & Parasitology

Universal Screening of Severe Acute Respiratory Syndrome Coronavirus 2 with Polymerase Chain Reaction Testing after Rally of Trainee Doctors

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Received: Oct 12, 2020
Accepted: Oct 16, 2020

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Disclosure
The authors have no potential conflicts of interest to disclose.

Author Contributions
Conceptualization: Jung J. Data curation: Kim SK. Formal analysis: Kim SK. Supervision: Kim SH, Kim EO. Validation: Jung J. Writing - original draft: Kim SK, Jung J. Writing - review & editing: Jung J.

ABSTRACT

There were two rallies of medical students and trainee doctors, where 9,000 participants gathered. We performed polymerase chain reaction (PCR)-based universal screening for the participants using pooling at a tertiary care hospital. Around 609 (94%) of 646 participants underwent PCR tests for severe acute respiratory syndrome coronavirus 2; all of them tested negative. Our data suggested low transmission rates in open air mass gatherings when appropriate personal protective practices were followed.

Keywords: Mass Gathering; Rally; Universal Screening; Severe Acute Respiratory Syndrome Coronavirus 2

Thousands of medical students, interns, and residents across Korea went on strike to protest against the government's medical workforce reform plan. They held two rallies on August 7 and 14, 2020.[1] Although masks were used and the rally was held outdoors, there was concern regarding the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) during their assembly as a crowd. Since medical interns, residents, and fellows come in close contact with patients, the spread of the virus among healthcare workers poses a significant threat because of the potential risk of its transmission to the patients. Therefore, after they returned to work, we performed universal screening of the rally participants for SARS-CoV-2.

This study was performed in a tertiary care hospital (with 2,700 beds) in Seoul, Korea. This hospital employed 8,800 healthcare workers, including 1,718 doctors. Among the doctors were 131 interns, 456 residents, 325 clinical fellows, and 246 medical students.

Before the rally, guidelines provided by the infection control office were handed out, which promoted the use of filtering facepiece 2 equivalent respirator masks, hand hygiene, minimum 1 meter distancing, no physical contact, no singing or chanting, restriction on drinking or eating food, and self-monitoring of symptoms after the rally. Participants with coronavirus disease 2019 (COVID-19) symptoms were restricted from joining the rally.

During the rally, approximately 9,000 participants gathered in Yeouido Park, southwestern Seoul for 3 hours. We performed polymerase chain reaction (PCR)-based universal screening

for the participants by pooling 5 specimens 3–4 days after the rally (considering the incubation period).[2,3] The participants informed the infection control office if they developed COVID-19 symptoms within 2 weeks of participating in the rally using an app-based system. Subsequently, SARS-CoV-2 PCR tests were performed.

A total of 646 trainee doctors and medical students participated in the rally at least once. Among them 318 (49%) were men with a median age of 29 (interquartile range, 27–32) years. There were 95 interns, 378 residents, 131 clinical fellows, and 42 medical students. All 609 (94%) participants who underwent PCR screening tested negative.

There were 387 participants (50 interns, 307 residents, and 30 medical students) in the first rally. Among them, 360 (93%) participants underwent PCR tests on August 10 (3 days after the rally). The number of participants in the second rally was 555 (67 interns, 300 residents, 131 clinical fellows, and 27 medical students). Among them, 525 (95%) participants underwent PCR tests on August 18 (4 days after the rally).

From August 7 to August 28, 11 participants had COVID-19 symptoms including fever, cough, myalgia, sore throat, and headache. However, PCR results were negative for all of them.

Historically, sports, religious, musical, and other mass gatherings have been the source of infectious diseases.[4] To mitigate the risk of SARS-CoV-2 transmission in the rally of Korean trainee doctors, we developed an action plan and an app-based system for notification of COVID-19 symptoms. Additionally, after the participants returned from the rally, we performed universal screening for over 600 (94%) of them. No participant was infected because appropriate personal protective practices were followed in the open space. Further, high-risk behaviors such as physical contact, singing, drinking, or chanting were avoided. To save resources, we used the pooling strategy, reported previously.[5] Finally, because this was a single-center study and Korea has a low prevalence of COVID-19, further studies in other settings are warranted.

In conclusion, our study provides important information regarding low transmission rates in mass gatherings at open space when appropriate personal protective practices are followed.

REFERENCES

1. The Korea Herald. Trainee doctors strike over plan to raise number of medical students. http://www.koreaherald.com/view.php?ud=20200807000661. Updated 2020. Accessed August 7, 2020.
2. Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: Estimation and application. *Ann Intern Med* 2020;172(9):577-82.
PUBMED | CROSSREF
3. Wiersinga WJ, Rhodes A, Cheng AC, Peacock SJ, Prescott HC. Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19): a review. *JAMA* 2020;324(8):782-93.
PUBMED | CROSSREF
4. McCloskey B, Zumla A, Ippolito G, Blumberg L, Arbon P, Cicero A, et al. Mass gathering events and reducing further global spread of COVID-19: a political and public health dilemma. *Lancet* 2020;395(10230):1096-9.
PUBMED | CROSSREF
5. Jung J, Kim MN, Kim SH. Universal screening with sample pooling in preoperative patients as long-term strategy in the COVID-19 pandemic. *J Korean Med Sci* 2020;35(33):e309.
PUBMED | CROSSREF