Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Letter to the Editor

Positive effects of COVID-19 control measures on pneumonia prevention

The pandemic of Corona Virus Disease 2019 (COVID-19) is becoming a worldwide disaster. According to the WHO, more than 4,248,389 cases were reported and 294,046 deaths were confirmed globally as of 14 May, 2020 (WHO, 2020). It has been reported that humans may be more likely to be infected with different types of viruses through respiratory transmission. Here we report the protective effect to pneumonia while fighting against COVID-19.

The first COVID-19 case in Guangzhou, China was reported on 21st of January, 2020, and it has been rapidly reached the peak on the 6th week of 2020. Multiple measures including social lockdown, nucleic acid testing, quarantine, wearing masks, extensive screening of fever cases and close contacts have been taken to prevent the outbreak of SARS-COV-2 outbreak in Guangzhou. After the peak, the number of cases were dramatically decreased since 11th week. At present, all reported cases in Guangzhou are imported cases and related cases (Fig. 1A).

We have previously observed that the seasonal influenza virus was also being prevented while fighting against the SARS-COV-2 pandemic in Guangzhou City, China (Wu et al., 2020). According to the Chinese National Influenza Center, the positive rate of the influenza like illness samples in 2020 was much less than that in 2019 both in southern and northern China in 2020 than that of in 2019 (Fig. 1B). And the weekly reported cases in Guangzhou was persistently decreased since the beginning of the year (Fig. 1C).

David Kim’s report (Kim et al., 2020) showed that the rates of co-infection of SARS-COV-2 and other respiratory pathogens is higher than previously reported. However, we also observed that the pneumonia cases (except for the COVID-19 cases) were dramatically deceased, the in-patient cases of pneumonia in Guangzhou would have reached its peak between week 10 and 22 in the last 4 years. However, in 2020, the curve was dramatically going down (Fig. 1D) except week 8 and 9, which might be related to the extensive screening during 8th to 9th week, leading to more patients came to the hospital for treatment. Out-patient cases were observed the same trend (Fig. 1E). Notably, in 2019, the pneumonia cases in the out-patient surveillance remained stably during 13th week to 31st week, which was also shown in the in-patient surveillance almost the whole year, except two canyons in week 4–10 and week 46–48 (Fig. 1D and E).

The pneumonia was dramatically decreased compared to the last four years in Guangzhou. The measures taken to fight against COVID-19 have reduced the risk of pneumonia transmission: (1) massive nucleic acid testing and extensive screening for fever cases; (2) social lockdown and quarantine; (3) the whole

Fig. 1. Positive effects of COVID-19 control measures on pneumonia prevention. (A) The reported cases of COVID-19 in Guangzhou City. (B) The positive rate of the specimens of the first 10 weeks of the year, China. (C) The reported cases of influenza in Guangzhou City. (D) The weekly reported cases of out-patient pneumonia in Guangzhou City. (E) The weekly reported cases of in-patient pneumonia in Guangzhou City.

https://doi.org/10.1016/j.ijid.2020.05.069
1201-9712/© 2020 The Authors. Published by Elsevier Ltd on behalf of International Society for Infectious Diseases. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
population were wearing facial masks; so, all suspected of COVID-19 and regular pneumonia cases were send to hospital, the risk of infection with pneumonia was minimized. Limitation of this study includes the lack of age-specific weekly data on pneumonia, and cannot distinguish the community- and hospital- acquired pneumonia from the system, and COVID-19 might also have raised the attention of the physicians and the infectious disease specialists, also, the SARS-COV-2 outbreak in Guangzhou may affect patients' inclination to go and see a doctor.

Conflicts of interests

The authors declare no conflicts interests.

Funding

This work was supported by the National Natural Science Foundation of China (81803325), Medical Science and Technology Project of Guangzhou (2019A011064, 2020A011067), Guangdong Medical Science and Technology Research Project (A2019379), Science and Technology Research Planning Project in Guangzhou (201707010451, 201804010093), the Project for Key Medicine Discipline Construction of Guangzhou Municipality (2017-2019-07).

Author contributions

Concept and design: Di Wu and Zhoubin Zhang; Acquisition, analysis, or interpretation of data: Di Wu, Jianyun Lu, Xiaowei Ma and Yanhui Liu; Drafting of the manuscript: Di Wu, Qun Liu and Jianyun Lu; Statistical analysis: Jianyun Lu, Lan Cao; Supervision: Zhoubin Zhang.

Ethical approval

None.

References

Kim D, Quinn J, Pinsky B, Shah NH, Brown I. Rates of co-infection between SARS-CoV-2 and other respiratory pathogens. JAMA 2020; [Epub ahead of print].

Sakamoto H, Ishikane M, Ueda P. Seasonal influenza activity during the SARS-CoV-2 outbreak in Japan. JAMA 2020; [Epub ahead of print].

WHO. Coronavirus disease 2019 (COVID-19) Situation Report – 115, 14 May. 2020 Available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/ Accessed 15 May 2020.

Wu D, Lu J, Liu Y, Zhang Z, Luo L. Positive effects of COVID-19 control measures on influenza prevention. Int J Infect Dis 2020;95:345–6.

Di Wu1, Jianyun Lu1, Lan Cao, Xiaowei Ma, Qun Liu, Yanhui Liu, Zhoubin Zhang*.

Guangzhou Center for Disease Control and Prevention, Guangzhou, China

1These authors contribute equally.

* Corresponding author at: Center for Disease Control and Prevention, No. 1, Qide Road, Baiyun District, Guangzhou 510440, China.

E-mail addresses: wudi0729@126.com (D. Wu), 258506273@qq.com (J. Lu), caolan1314@126.com (L. Cao), 103073279@qq.com (X. Ma), liuqunss@163.com (Q. Liu), 84321988@qq.com (Y. Liu), zhoubinzhangggz@21cn.com (Z. Zhang).

Received 7 May 2020