

LETTER

Investigation on cognition of COVID-19 and safety during the pandemic among hospital pharmacy staff

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease (COVID-19) in China at the end of 2019 is now a major global public health issue.¹ Hospital pharmacists not only have to deal with the supply and storage of medicines needed for COVID-19, but also have a high risk of infection as frontline positions need to direct contact with suspected or confirmed COVID-19 patients or their specimens.

This study investigated the hospital pharmacists' awareness of SARS-CoV-2, treatment and prophylaxis medications for COVID-19, as well as occupational safety during the pandemic. It utilised a mobile phone app-based questionnaire survey, and was carried out during the COVID-19 pandemic from 1–29 February 2020. The study employed licensed registered pharmacists who worked in hospitals. A total of 526 pharmacists completed the questionnaire: 141 males and 385 females, aged 20 to 74 years. Their job distribution was: 180 dispensing medicine, 150 clinical pharmacists, 58 management, 39 therapeutic drug monitoring (TDM), and 99 in other roles. Their educational backgrounds were: 24 educated to junior college or below, 336 had a bachelor's degree, and 166 had a master's degree or above. Of those, 168 were on the frontline during the pandemic.

Results of the investigation showed that pharmacists with bachelor's and master's degrees or above were significantly more familiar with the characteristics, infection symptoms and infectious routes of SARS-CoV-2 than those educated to junior college or below ($p < 0.05$, online supplementary table S1). There was no statistical

difference in regard to familiarity with the characteristics, infection symptoms and transmission routes of SARS-CoV-2 between pharmacists in different positions; however, clinical pharmacists had a higher cognition of prevention methods ($p < 0.05$, online supplementary table S1).

The familiarity rates of hospital pharmacists with antiviral and immune enhancement medicines such as immune globulin, interferon, ribavirin and lianhua qingwen capsule recommended by the national COVID-19 prevention and control plan² were $>80\%$. However, the rates of familiarity with lopinavir/ritonavir and remdesivir were only 58.17% and 56.08%, respectively (online supplementary table S2). Clinical pharmacists were obviously more familiar with both these medicines than pharmacists in other positions ($p < 0.05$; online supplementary table S3). The utilisation rate of prophylaxis medications was $<10\%$ among hospital pharmacy staff during the COVID-19 pandemic. The proportion of prophylactic use of arbidol and thymosin by frontline pharmacists was higher ($p < 0.001$) than non-frontline pharmacists, and there was a statistical difference in the probability of infection with COVID-19 between these two groups ($p < 0.05$; online supplementary table S4).

Further large-scale studies are needed to confirm our analysis.

In conclusion, our survey data indicate that special attention should be paid to improving the knowledge about SARS-CoV-2 for pharmacists with lower educational qualifications. Clinical pharmacists are more familiar with protease inhibitors such as lopinavir/ritonavir and remdesivir. Prophylactic use of some medicines by pharmacists in high-risk positions might not reduce the probability of their infection with COVID-19.

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REFERENCES

- 1 World Health Organization (WHO). Novel coronavirus (2019-nCoV). Situation report. Available: https://www.who.int/docs/default-source/coronavirus/situation-reports/20200207-sitrep-18-ncov.pdf?sfvrsn=fa644293_2 [Accessed 9 Feb 2020].
- 2 World Health Organization (WHO). Available: https://www.who.int/docs/default-source/wpro-documents/countries/china/covid-19-briefing-nhc/1-clinical-protocols-for-the-diagnosis-and-treatment-of-covid-19-v7.pdf?sfvrsn=c6cbfa4_2