

Responding Strategies for The Covid-19 In Digestive system Diseases Center in Wuhan and Haikou City

Lidan Bian

Hua Li

Xuanxuan Wang

Jiao Chen

Hongping Cheng

Xiaowei Wu

Xun Gong

Lidan Bian[#] Department of Gastroenterology, Dongxihu Union Hospital of Huazhong University of Science and Technology, Wuhan, China, Hua Li[#] Nursing Department of Cadre sanatorium of Hainan & Geriatric hospital of Hainan (CSH), Haikou, China, Xuanxuan Wang Department of integrated traditional Chinese and Western medicine in Hubei Cancer Hospital, Wuhan, China, Jiao Chen School of International Education, Hainan Medical University, Haikou, China, Hongping Cheng School of public health, Hubei Medical College, Shiyan, Hubei, China, Xiaowei Wu Department of thoracic surgery, Tongji Hospital Affiliated to Tongji Medical College, Huazhong University of science and technology, Wuhan, China, Xun Gong* Center for civil-military inoculation and development of new material industry in Huludao City, Huludao, China, [#]Lidan Bian and Hua Li contributed equally to this work. *Corresponding Author: Xiaowei Wu, E-mail: chiqian5090@163.com wuxiaowei119@126.com, Xun Gong, E-mail: gongxun83@aliyun.com*

Since first being recorded late last year in China, Coronavirus Disease 2019(Covid-19), which is highly contagious and can trigger severe respiratory symptoms¹, has spread around the world and been declared a pandemic by the World Health Organization.

As the largest hemodialysis center in wuhan city, which was the outbreak's epicenter, there was more than 600 patients undergoing hemodialysis therapy in our setting. The crowds with high mobility made it more difficult to prevent and control of COVID-19 cases than that in general population. Along with the end of lockdown in wuhan city, some patients recovered and returned from COVID-19 designated dialysis settings, we took measures accordingly. Now we share our experience of prevention and control for COVID-19 in a large non-designated dialysis center of Wuhan city.

Tob Regul Sci.™ 2021;7(5-1): 3452-3455

DOI: doi.org/10.18001/TRS.7.5.1.122

1. Establish a special working group responsible for infection prevention and control (IPC) of COVID-19 in dialysis center. The working group with head of dialysis center as team leader in charge, should include backbone doctors, head nurses, engineers and IPC nurses. All health workers consist of doctors, nurses, engineers and service workers were trained on-line about IPC information, instruction, and occupational safety of COVID-19 and provided adequate IPC and personal protective equipment (PPE) supplies, particularly for those caring for suspected or confirmed COVID-19 patients.

2. Minimize cluster medical activities, including collective shift, learning, cases discussion,

etc, which could be replaced by telephone, social media and other online ways. When gathering was necessary, it was required to wear appropriate PPE in order to minimize occupational safety and health risks. It was advised that all staff should have meals in different periods and try not to talk during meals to reduce the spread of droplets.

3. Strengthen the monitoring of temperature and respiratory symptoms of all staff, who should self-monitor for signs of illness, self-isolate and report illness to IPC group if it occurred. When health workers' family members had fever, cough and other symptoms, they should also report to IPC group and be isolated and observed according to the relevant procedures in time.

4. All health workers took effectively measures of standard prevention^{2, 3}, including wearing N95 respirators and hats that met the requirements during caring work, and strictly implementing hand hygiene. Goggles, face shields and protective clothing were worn in the following situations: (1) Pre-examination and consultation; (2) Invasive operation; (3) Connection of vascular access; (4) Needle insertion, blood drawing, etc, which might contact the patient's blood and body fluids. PPE should be discarded into an appropriate waste containers after use, and hand hygiene was performed before putting on and after taking off PPE.

5. Set up the system of standby shifts to ensure that there was enough staff on duty, and appropriate working hours were arranged with breaks. Health workers were advised to stay at home and isolate with family members during the rest period. In case of contact with confirmed or suspected COVID-19 patients, health workers should report in time and cooperate with IPC group for isolation and observation.

Patients Management

1. Distribute dialysis schedules to HD patients in order to register for the records in local communities to facilitate the travel on the day of dialysis treatment in the lockdown period of Wuhan city. HD patients took their body temperature at home before going out, and fever patients would be reported to the community personnel and sent to fever clinic for further tests and treatment. When traveling to dialysis setting, HD patients and accompanying personnel wore medical masks which fitted their faces, and took alternative masks when polluted.

2. After arriving at the dialysis building by the designated route, HD patients should cooperate with nurses to measure body temperature while waiting in triage areas. All patients should maintain physical distance of at least 1 m from other persons, especially those with respiratory symptoms, and perform hand hygiene frequently, using an alcohol-based hand rub if hands were not visibly dirty or water when hands were visibly dirty. When coughing or sneezing, patients covered their nose and mouth with papers, dispose of the tissue immediately after use,

and performed hand hygiene.

3. HD patients should cooperate with doctor's pre-examination and assess, and not conceal medical history. All patients performed hand hygiene correctly before going into the dialysis rooms and were arranged in the fixed machines as much as possible to reduce the chance of cross infection. It was recommended that HD patients and accompanying personnel wore medical masks at all times. Health workers would open the window regularly in order to improve airflow and ventilation during dialysis treatment, it was advised that patients wore a hat and keep warm accordingly. Patients should not eat or make loud noises during dialysis to avoid transmission of potentially infective respiratory droplets. Disinfection must be carried out in strict accordance with the regulations^{2,3}, and supervision and implementation had to be strengthened.

4. Establish IPC information registration system for daily updates of screening, suspected and confirmed COVID-19 patients. Medical workers were shared and familiarized with the information on these patients and took appropriate measures to assess, triage, test, and transfer them. IPC group must communicate the development of IPC policies, and report suspected and confirmed cases to higher authorities following established public health reporting procedures in time.

Screening process of covid-19 in HD patients

All HD patients in our center were screened by health workers at triage areas and inquired about epidemiological history of close contact and infection symptoms including fever, cough, shortness of breath, fatigue, etc during the dialysis interval (Figure 1). (1) For patients without relevant symptoms, close contact history and CT manifestations, routine dialysis was carried out. (2) COVID-19 tests (including nucleic acid, IgM/IgG to SARS-CoV-2, Blood test and CT scan) in fever clinic were required in patients with relevant symptoms or close contact history or CT manifestations, and continuous renal replacement therapy (CRRT) would be undergone in the isolation ward in fever clinic before their results were available. If the infection was completely ruled out, routine dialysis was resumed. For suspected and confirmed COVID-19 cases, patients

would be transferred to designated hospitals⁴. Patients who could not completely be ruled out of suspected cases would be arranged dialysis treatment in the night isolation area for 14 days, re-examining and consulting with IPC experts were conducted subsequently. If excluded, routine dialysis would be resumed. When diagnosed suspected and confirmed COVID-19 cases, patients would be transferred to designated hospitals.

After discharge from designated hospitals, suspected or confirmed COVID-19 patients would continue to conduct 14-day isolation management and health monitoring, and undergo dialysis treatment in designated settings⁴. After the release of isolation, patients returned to our dialysis center with discharge summary and release certificate of isolation, and would be arranged additional 14 days dialysis in the night isolation rooms. Reexamination and IPC experts consultation were conducted after 14 days, the routine dialysis was resumed after considering the cure and no infectivity.

Management Of Medical Waste

All medical waste, including those produced during care of suspected or confirmed COVID-19 patients, should be considered to be infectious waste and collected into clearly marked lined containers safely⁵. Health's workers who handled and transported medical waste should wear appropriate PPE (boots, long-sleeved gown, heavy-duty gloves, respirators, and goggles or a face shield) and perform hand hygiene after removing it.

In conclusion, we share our experience of IPC for COVID-19 in a large non-designated dialysis center of Wuhan city. Many countries are still suffering from the epidemic around the world so far, our perspective may provide some reference and guidance for dialysis staff in densely populated and severely epidemic areas.

Article Information

Authors' Full Names and Academic Degrees: Lidan Bian, MD, Xuanxuan Wang, MD, PhD, Jiao Chen, PhD, Xiaowei Wu, MD, PhD, and Xun Gong, MD, PhD.

Support: This research was supported by youth program of high-end science and technology innovation think tank of Chinese Association for

Science and Technology

(DXB-ZKQN-2017-043).

Financial Disclosure: The authors declare that they have no relevant financial interests.

REFERENCES

1. Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41: 145–151.
2. National Health Commission of the People's Republic of China. Technical guidelines for novel coronavirus infection prevention and control in medical institutions (First Edition). http://www.gov.cn/zhengce/zhengceku/2020-01/23/content_5471857.htm. Accessed January 22, 2020.
3. Expert team of Chinese Medical Association Nephrology Branch: Recommendations for prevention and control of novel coronavirus infection in blood purification center (room) from the Chinese Medical Association Nephrology Branch. *Chinese J Nephrol*. 2020;36:82–84.
4. National Health Commission of the People's Republic of China. Protocol on Prevention and Control of Novel Coronavirus Pneumonia (Edition 6). http://en.nhc.gov.cn/2020-03/29/c_78468.htm. Updated March 29, 2020.
5. National Health Commission of the People's Republic of China. Regulation for cleaning and disinfection management of environmental surface in health care. <http://www.nhc.gov.cn/wjw/s9496/201701/0a2cf2f4e7d749aa920a907a56ed6890.shtml>. Accessed January 17, 2017.

Figure 1.
Screening process of covid-19 in HD patient

