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Perspectives

Take proactive measures for the pandemic COVID-19 infection in the dialysis facilities

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The COVID-19 outbreak started from Wuhan, Hubei province, China since Dec 2019 became a great threaten to the modern medical system worldwide. Quarantine and containment are the basic principles to prevent rapidly spreading of the novel infection. However, patients with end-stage renal disease (ESRD) need regular dialysis to maintain life. The combination of frequent medical visit, long hours of staying, short distance between the medical staffs and a group of patients together become a condition of prone clustering in hemodialysis units. The specified water supply, machines, equipment, capacity, and personnel are further challenges to rearrangement of any regular dialysis therapies.

Taiwan has the highest incidence rate, 493 per million population, and the highest prevalence, 3392 per million populations, of treated ESRD in the world.[1] In the dialysis population of Taiwan, 91.2% of cases complied hemodialysis, 8.8% of cases complied peritoneal dialysis, 45.3% of cases had diabetic mellitus, and the 5 year survival rate was 58.5%.[2] In 2020, Taiwan has more than 90,000 regular dialysis patients, 690 dialysis facilities (including hospital-based dialysis units), and the national health insurance covers all of the 23 million residents in a relative small island located in eastern Asia. For enhancing the adherence to the infection prevention and infection control policies, the Taiwan Society of Nephrology (TSN) drafted the "Guidance of COVID-19 infection prevention in dialysis facilities" to help preparation of each dialysis facility to different epidemic stages.[3]

At this critical time, the world needs to take action to the great challenge of pandemic COVID-19 infection. In the recent informative article entitle of "Mitigating Risk of COVID-19 in Dialysis Facilities" by Kliger and Silberzweig from the American Society of Nephrology,[4] the authors summarized the scientific data about the disease presentation and the estimated reproductive number of the COVID-19, raised the healthcare professional's alertness to the pandemic challenge, and provided the mitigation strategies for dialysis facilities. Here, we would like to share our actions and add few measures which could be useful from the contingency team of TSN.

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First, a stage-based, proactive screening action should be taken. In Taiwan, all clinics and hospitals performed the at gate body temperature measurement and infectious risk assessment including the travel, occupation, contact, and clustering (TOCC) history according to the guideline of the Taiwan Centers for Disease Control and Prevention (CDC) and the "Guidance of COVID-19 infection prevention in dialysis facilities" by TSN.[3,5] The context of the TOCC is very important and is revising based on epidemic evidences in a timely manner. For example, the TOCC focused on travel history to Wuhan, Hubei province, China in late January, rapidly changed to the whole China in February. When prominent community transmission occurred of an abroad area, the Taiwan government raised the travel alert level and the Taiwan CDC enrolled these subjects into home quarantine accordingly. The border control, case identification, and setting strategies and risk level of quarantine showed good results in the interim data of Taiwan COVID-19 containment.[6] However, the COVID-19 was declared a global pandemic by the World Health Organization on 11 March 2020. The TOCC with concerns at present, includes every travelers from abroad abides by home quarantine for 14 days, healthcare workers and staffs related to transportation or travel business, ever attending large scale activities, and recent health problem simultaneously occurs in family members, friends, or coworkers.

Second, the traffic control bundle and checkpoint hand washing are important measures to mitigate nosocomial infections. Taiwan has learned lessons from the severe acute respiratory syndrome (SARS) epidemic event in 2003.[7] Nosocomial transmission between the medical staff and the community is a vortex and may facilitate the spreading of infection. Once a COVID-19 infected case or more cases occurred in a dialysis facility, cohorting the patients and a medical team in a designated isolating shift and place is suggested by the Centers for Disease Control and Prevention (CDC).[3,8] To mitigate the damage and to prevent further nosocomial transmission, the traffic control bundle including designate the contaminated zone, intermediate zone, and the clean zone, and checkpoint hand washing are the key procedures.[7]

Third, a preplan of divided work group and fixed caring team is suggested. The preservation of medical manpower and medical resources are the safeguard for the whole society. Taiwan government executes a contingency plan regularly and now our medical supplies, diagnostic testing, and isolation room capacities and equipment are expanding to face the COVID-19 challenge. The Taiwan National Health Command Center (NHCC) suggest all medical facilities to plan for dividing medical staffs in small groups to work and to live at different area or at different shift.[9] A fixed medical staff to patients group is also suggested. When an in-hospital event or prominent community infections occur in a city or an area, the administration of a dialysis facility should consider proactively activate this fixed caring mode to minimize the staff-patient exposure.

Fourth, we suggest full-time mask usage and pre-gate and post-gate hand disinfect. The dialysis patients are usually older with comorbid disease and are the high mortality risk group of COVID-19 infection.[10] Since the droplet spreading and the contact infection are preventable, we suggest all patients and the medical staffs have their face masks during the dialysis therapy. A good indoor air ventilation, stringent environment cleaning and disinfect are mandatory. The before-gate hand hygiene with alcohol is to protect the facility, and the post-gate hand hygiene with alcohol can protect the community.

Our human world is vulnerable in facing this novel contagious infection. Well acknowledged the risk and proactively take action to prevent possible COVID-19 infection within a dialysis facility is life-saving. In the community spreading stage, a fixed care mode with well-protected patients and staffs will minimize possible damage once occurred. The well-planed zones in section and checkpoint disinfect could step down the risk of nosocomial infection. Take proactive measures is effective before it is too late. May we prepare for the worst and hope for the best.

Declaration of Competing Interest

The authors have no conflicts of interest relevant to this article.

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