

Original Research Article

Understanding among dialysis therapist and technologist about prevention protocols of COVID-19 in north-west zone of India: a questionnaire-based survey

Gajram Singh¹, Dheeraj Kumar², Manoj Kumar^{3*}, Milind Chunkhare⁴

¹Department of Dialysis Technology, ²Department of Cardiology Technology, Faculty of Paramedical Sciences,

³Department of General Medicine, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, India

⁴Department of Computer Science, Symbiosis International University, Pune, Maharashtra, India

Received: 11 October 2023

Revised: 07 December 2023

Accepted: 08 December 2023

*Correspondence:

Dr. Manoj Kumar,

E-mail: dheeraj00002@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: All over the world human community fighting with COVID-19. It affected a large number of population. Our immune system helps fighting with COVID-19, CKD patients which are on MHD are more prone to COVID-19 infection. MHD patient required twice or thrice a week dialysis. During dialysis, a therapist plays a major role in COVID-19 HD procedure of CKD patients. Dialysis therapist works like a frontline warrior. Aim was to observe the understanding of dialysis therapist/technologist about COVID-19 protocols for prevention of COVID-19 infection.

Methods: A total 122 responder from northwest zone of India attended question-based survey form on the understanding of the infection prevention procedure of COVID-19 maintenance hemodialysis patients. Question set was based on union health ministry of Indian government guideline for dialysis unit set up for COVID-19 patients, Dialysis therapist and patents care taker. Data collection was done by online sampling method.

Results: Study observed dialysis therapist of northwest India about understanding of COVID-19 prevention protocols. Approximate- 122 participants include in this study. But major case of COVID-19 treating in government sector hospitals. This study observed that mostly participants have good understanding about COVID-19 infection prevention protocols.

Conclusions: Required a regular education training program for all government and private sector health workers for infection control practices of COVID-19. Dialysis therapist and other health workers are doing work like a frontline warrior, their safety is a major concern so we can avoid the risk of transmission of disease to dialysis therapist.

Keywords: COVID-19, COVID-19 infection prevention protocols, Dialysis awareness, Dialysis therapists

INTRODUCTION

COVID-19 is an extremely infectious disease first case reported in Wuhan China.¹ COVID-19 virus is a member of corona virus (CoV) family. Its host is humans, other mammals, and birds. It is asymptomatic in some people and others show severe symptoms in respiratory and digestive organs.¹⁻³ The common symptoms of COVID-19 are cough and cold, fever, fatigue, dyspnea, muscular pain,

runny nose, sore throat, head and chest pain, loss of smell, etc.⁴⁻⁶ So it is called severe acute respiratory syndrome corona virus 2 or (SARS-CoV-2) according to ICTV.⁷ When a healthy person comes in contact with a COVID-19 patient, symptoms may be seen after 2-14 days.⁸ India is a hub of traditional medicine so for controlling for COVID-19 AYUSH department of government of India gives an advisory for use of some herbal medicine as immunity booster of any individual,

Indian Council for Medical Research (ICMR) advised to Indian doctors hydroxychloroquine use as prophylaxis and antiviral drugs (lopinavir and ritonavir) use in combination in serious COVID-19 cases.⁹⁻¹² Basically SARS-CoV emerged from bats in China and then first time infected to human in China after that spread all over the world by community transmission and now challenging for health care providers in all over the world.^{13,14} SARS-CoV-2 infection is increasing rapidly it is a challenge for health professional and government due to absence of any vaccine and specific therapies.¹⁵ In UK approximate 10% people on maintenance hemodialysis and approximately 25% of them died and 4% mortality rate on maintenance hemodialysis patients in USA.^{16,17} The world fighting against COVID-19. Health workers play a major role in fighting with COVID19, approximate 130000 CKD patient in India on MHD it will increase 232/million population.^{18,19} CKD patient immunity is very low due to ESRD. So, the chance of COVID-19 infection is very high in maintenance hemodialysis CKD patient.²⁰ For controlling the infection of COVID-19 in these ESRD patients WHO and department of health ministry of India issued some guideline. These are for dialysis technologist and patients both follow these guidelines for controlling COVID-19 infection and reducing CKD patient mortality by COVID19 infection.²¹ A dialysis therapists/technologist must be trained in prevention protocols of COVID-19 which issue by MOHFW. A definite in dialysis therapist/ technologist data is not available in India. But a large number of dialysis therapists/technologists work in private sector, few numbers dialysis technologists/ therapists in government sector. A dialysis therapist is the key person in a dialysis unit so proper training of a dialysis therapist is must about COVID-19 protocol of dialysis procedure. Because if a dialysis technologist is not trained properly how he saves the patient and himself also. CDC recommends hand wash more than 20 second with soap and water use alcohol based (above 70% alcohol) sanitizer avoid unnecessary touch to your eyes, nose, and mouth without washing your hand. If you touch any surface frequently then disinfect that surface. If you have flu like symptom then stay at your home and avoid unnecessary outer visit.²²

METHODS

It was an observation study it conducted on dialysis therapist/technologist of northern and west India. A small number of dialysis therapists approximately 122 joined this study by Google questionnaire, mostly working in private sector hospital. The study was conducted at Saifai, Etawah, UP and Pune, Maharashtra, India from July 2020 to August 2020. Questionnaire consisted of different type of 34 questions distributed in demographic condition, education qualification, and the understanding of a dialysis therapist regarding COVID-19 infection prevention protocols. We created a Google form and it distributed by WhatsApp message to all participants after that observed the response of the candidates. The study

population was dialysis therapists/technologist who working in government and private sector. The sample size was 122 participants of north and west India. Data was collected by online google form which was circulated through social media. The inclusion criteria was dialysis therapists, exclusion criteria was allied health professional except dialysis therapist. Ethical approval was not required.

RESULTS

After observation of the questionnaire answer sheet. We found that, 68% working in private sector. In total number of dialysis therapists, male was 55% and female was 45. A large number of candidates approximate 86% working in clinical dialysis unit, 12% working in academic field and only 2% in research work. Approximate 89% were diploma holder after 10+2, 5% graduate, only 6% candidates were post graduate level. 76.2% had less than 3 year working experience (Table 1).

Table 1: Socio-demographic variables (n=122).

		Percentage
Where are you working?	Government	32
	Private	68
Working area	Clinical	86
	Academic	12
	Research	2
Sex	Male	55
	Female	45
Education	Diploma	89
	Graduate	5
	Postgraduate	6

Only 76.2% candidate confident about prevention of COVID-19 infection control protocols. Regarding renal failure patients who were more prone to COVID-19 infection, 86.9% were agree on this. 86% was confident about symptom of COVID-19. 93.4% said COVID-19 infection spread person to person. COVID-19 is treated by antiviral drug, 60.7% said yes, but a large number of COVID-19 cases in India cure without antiviral drugs. 82% candidate agreed that mortality is by comorbidity disease. We ask about risk of COVID-19 of dialysis therapist 84.4% said yes. Risk of infection to dialysis therapist is very high for COVID-19 infection. COVID-19 RNA PCR test is must for all ESRD patients who are on maintenance hemodialysis before each hemodialysis process, 86.1% said yes, it is must according to protocols guideline. Mostly participants follow the protocol. 96.7% participant's use PPE kit during hemodialysis session. 88% participants said both type of patients on hemodialysis should separate, mostly hemodialysis unit provide a separate hemodialysis arrangement for COVID-19 patients. 77.8% participants know about donning and doffing process. 83.6% participants said they have sufficient staff. 89.3% participant's confident about their

working for hemodialysis procedure of COVID-19 patient (Table 2).

Table 2: Questionnaire response rate (n=122).

Questions		
What is the source of your information regarding COVID-19	Newspaper/electronic media	60
	Social media	40
Are you trained with COVID-19 Infection control protocols?	Yes	76
	No	24
Please indicate you're staying zone?	Green	57
	Orange	28
	Red	15
Do you know that renal failure patient is more susceptible for COVID19 infection?	Yes	87
	No	13
Did you know about COVID-19 disease?	Yes	87
	No	7
	Maybe	6
Do you aware about suspected COVID-19 disease symptoms?	Yes	86
	No	14
COVID-19 Infected person can infect another person?	Yes	93
	No	7
COVID-19 is treated by antiviral drugs	Yes	60
	No	19
	Not necessary	21
Infection with COVID-19 always causes death?	Yes	18
	No	82
Are dialysis Technologist/therapist have a risk of COVID-19?	Yes	84
	No	16
Do you know about COVID-19 test is must before plan each hemodialysis session?	Yes	86
	No	14
Do you always follow COVID-19 Haemodialysis protocols?	Yes	95
	No	5
Should all maintenance hemodialysis patient wear triple layer face mask during HD procedure?	Yes	98
	No	2
Do you know about PPE kit?	Yes	97
	No	3
Are you use PPE kit during COVID-19 patient's haemodialysis procedure?	Yes	88
	No	12
Can you reuse PPE kit?	Yes	18
	No	82
Have you separate COVID-19 and normal CKD maintenance haemodialysis patients?	Yes	88
	No	12
Do you know about donning and doffing process in COVID19 Haemodialysis unit?	Yes	74
	No	16
What you used during haemodialysis procedure of COVID-19 patient?	Gloves and goggles	0
	Mask	1
	PPE kit	9
	All the above	90
Do you use standard precaution for infection control of COVID-19 in haemodialysis unit	Yes	97
	No	3
Is an isolated dialysis unit/machine available for COVID19 patient in your hospital?	Yes	79
	No	21
Are sufficient trained dialysis therapist/technologist being available in your hospital for COVID-19 and normal MHD patients?	Yes	84
	No	16
Are you confident that you can participate in the care and dialysis procedure management of COVID-19 Renal failure patient?	Yes	89
	No	11

DISCUSSION

This survey was conducted on dialysis therapist/technologist. All of these directly concern with hemodialysis patients. So while the majority of participants gave positive responses to the awareness protocol, some participant's responses were unsatisfactory. Substantial proportion of candidates work in the private sector according to the demographic structure. It also provides information on gender variation, which is quite low, with male accounting for 53% and females accounting for 47%. It provides information about dialysis technologist education; most candidates were accredited diploma, which is beneficial to the health industry. However, a few candidates pursued further education and obtained a postgraduate degree. Participant take information by social and electronic media and updated their knowledge, it shows that a large number of candidate well aware about infection prevention protocol. But only 86% participant have knowledge about symptoms of COVID-19 i.e. fever, coughing, tiredness, dyspnea loss of taste and smell. COVID-19 is an infectious airborne disease.^{1,3} It spreads from one infected person to another healthy person, 93% participants were aware about this, that shows the awareness of the disease.⁴ COVID-19 is a viral disease but it is like a flu. Mostly COVID-19 patient recovered in two to three weeks without taking antiviral drug.² 82% participants said that mortality rate of COVID-19 is very less. A dialysis technologist has direct exposure with COVID-19 patient during hemodialysis procedure so the chance of COVID infection is very high. For the prevention of infection, COVID-19 RNAPCR test is must before each hemodialysis, 86% of candidate were following. Because hemodialysis patients spend approximately 4 hours in the hemodialysis unit, wearing a triple layer mask is required for COVID-19 patients, and 98% of participants do so.²²

Mostly dialysis technologist follow the prevention of COVID-19 infection protocol and know about PPE kit.^{3,6} Approximately 90% participants respond that they have separate hemodialysis unit and staff for COVID-19 positive and normal MHD patient. Large number of participants showed positive responses about donning and doffing process. For prevention of COVID-19 infection we use PPE kit, mask, gloves and goggles. 90% of candidates are confident for COVID-19 patient dialysis, this discussion shows that a large number of dialysis technologists well aware about COVID-19 infection prevention protocols and take of participation fighting against COVID-19 and save life CKD maintenance hemodialysis patient.⁶

CONCLUSION

After above a healthy discussion, the study shows that a large number of dialysis therapist/technologists are well aware about COVID-19 protocols in maintenance hemodialysis of ESRD (end stage renal disease).

Infection prevention protocol of COVID-19 awareness percentage is very high in mostly participant. A large number of candidates working in private sector so there is high requirements to implement continuous training program on infection control practices for COVID-19. All private and government hospitals should conduct regular webinar for improve awareness in dialysis therapist. Webinar should conduct for all healthcare professional and student so it can helpful to fighting with COVID-19 and other communicable disease.

ACKNOWLEDGEMENTS

I would like to express my heartfelt appreciation to everyone engaged in the study, both directly and indirectly.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Corona virus dashboard. Available at: <https://covid19.who.int/>. Accessed on 12 August 2023.
2. WHO. Rolling updates on coronavirus disease (COVID-19). 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>. Accessed on 12 August 2023.
3. Government of India, 2020. India fights corona COVID-19. Available from: <https://www.mygov.in/COVID-19>. Accessed on 12 August 2023.
4. Mayo clinic. Patient health information, COVID-19. Available from: <https://www.mayoclinic.org>. Accessed on 12 August 2023.
5. Meredith G, Tim J. Everything you should know about the COVID-19. 2020. Available from: <https://www.healthline.com>. Accessed on 12 August 2023.
6. CDC. symptom of COVID-19. Available from: <https://www.cdc.gov/covcov>. Accessed on 12 August 2023.
7. Modi PD, Nair G, Uppe A, Modi J, Tuppekar B, Gharpure AS, et al. COVID-19 awareness Among healthcare students and professionals in Mumbai metropolitan region: a questionnaire-based survey. *Cureus*. 2020;12(4):e7514.
8. Singhal T. A review of coronavirus disease-2019 (COVID-19). *Indian J Pediatr*. 2020;87(4):281-6.
9. Jain J, Kumar A, Narayanan V, Ramaswamy RS, Sathiyarajeswaran P, Shree Devi MS, et al. Antiviral activity of ethanolic extract of *Nilavembu kudineer* against dengue and chikungunya virus through in vitro evaluation. *J Ayurveda Integr Med*. 2020;11(3):329-35.
10. Press Information Bureau. Advisory for corona virus, Homoeopathy for prevention of corona virus

- infection, Unani medicine useful in symptomatic management of corona virus infection. 2020. Available from: <https://pib.gov.in/PressReleasePage.aspx?PRID=1600895>. Accessed on 12 August 2023.
11. Bhatnagar T, Murhekar MV, Soneja M, Gupta N, Giri S, Wig N, et al. Lopinavir/ritonavir combination therapy amongst symptomatic coronavirus disease 2019 patients in India: protocol for restricted public health emergency use. *Indian J Med Res*. 2020;151(2 and 3):184-9.
 12. Rathi S, Ish P, Kalantri A, Kalantri S. Hydroxychloroquine prophylaxis for COVID-19 contacts in India. *Lancet Infect Dis*. 2020;20(10):1118-9.
 13. WHO. Director General Speeches. 2020 Available from: <https://www.who.int/director-general/speeches/detail>. Accessed on 13 August 2023.
 14. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, Liu L, Shan H, Lei CL, Hui DS, Du B. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020;382(18):1708-20.
 15. Rombolà G, Brunini F. COVID-19 and dialysis: why we should be worried. *J Nephrol*. 2020;33(3):401-3.
 16. UK Renal Registry. COVID-19 surveillance report for renal centres in the UK. Bristol; 2020.
 17. Persaud N. ESKD patients on hemodialysis at high risk of COVID-19 death. 2020. Available from: <https://www.renalandurologynews.com/news/nephrology/hemodialysis/eskd-patients-on-dialysis-at-high-risk-of-covid-19-death/>.
 18. Langade D, Modi PD, Sidhwa YF, Hishikar NA, Gharpure AS, Wankhade K, et al. Burnout Syndrome Among Medical Practitioners Across India: A Questionnaire-Based Survey. *Cureus*. 2016;8(9):e7711.
 19. Varughese S, Abraham G. Chronic kidney disease in India: A Clarion Call for Change. *Clin J Am Soc Nephrol*. 2018;13(5):802-4.
 20. Srivastava A. Health news, 2020. Available at: <https://www.firstpost.com>. Accessed on 13 August 2023.
 21. Government of India. Ministry of Health and Family Welfare Guidelines for Dialysis of COVID-19 patients. Available from: <https://www.mohfw.gov.in/pdf/GuidelinesforDialysisofCovid19Patients.pdf>. Accessed on 13 August 2023.
 22. Center for disease control (CDC), US. corona virus disease 2019. 2020. Available from: <https://www.cdc.gov/coronavirus/2019ncov/index.html>. Accessed on 13 August 2023.

Cite this article as: Singh G, Kumar D, Kumar M, Chunkhare M. Understanding among dialysis therapist/technologist about prevention protocols of COVID-19 in north west zone of India: a questionnaire-based survey. *Int J Community Med Public Health* 2024;11:177-81.