**Haemodialysis protocol in COVID 19 pandemic**

**Department of Medicine and Nephrology, PGIMS, Rohtak**

**Safety of Health Care Workers and patients during haemodialysis in COVID-19 pandemic in dialysis unit**

 **“standard precautions”**

**1. Hand hygiene** is a major component of standard precautions and one of the most effective methods to prevent transmission of pathogens associated with health care.

**2. Personal protective equipment** (PPE) use is guided by risk assessment(risk of infectivity of a pathogen) and the extent of contact between HCW and infected patient

**3. Respiratory hygiene/cough etiquette** is also included in “standard precautions” to contain the source of infection- this is to be used by both HCWs and patients. It includes- 1. Covering mouth and nose when coughing or sneezing. 2. Hand hygiene after contact with respiratory secretions. 3. Spatial separation of persons with acute febrile respiratory symptoms.

**4. Additional components of standard precautions for HCWs working at respective areas are-**

a) Prevention of needle-stick and other sharp instrument injuries; b). Environmental cleaning; c). Patient care equipment cleaning and disposal d**)** Biomedical waste disposal (includes linen and clinical waste).

**MAIN HAEMODIALYSIS UNIT STANDARD/ UNIVERSAL PRECAUTIONS PATIENTS**

The entire staff of dialysis unit (residents, house surgeons, nursing staff, dialysis technicians, bearers and sweepers) and OPD patients undergoing MHD (and their caregivers) in dialysis unit of PGIMS Rohtak will be educated regarding testing, triage, management/referral and notification policy of COVID-19 patients recommended by the Union Ministry of health and Family welfare and those by State/ UT Health Departments as well as District health authorities.

1) Thorough screening at the entrance by nursing officer, in case of any doubt ask the patient to wait in waiting area, inform the resident and then he/she will take final decision with consultant whether patient to be wheeled in or labelled suspect to be shifted to COVID-19 area.

**1. In main hemodialysis unit :** dialysis will be done in 3 shifts (4 hr each) from 8:00 AM -10:00 PM

* One patient to be wheeled in at a time.
* Patient must wear a mask.
* Each dialysis chair/bed will have waste disposal bins to ensure adherence to hand and respiratory hygiene, and cough etiquette and appropriate alcohol-based hand sanitizer within reach of patients and staff.
* Trash can be put in yellow bag available next to patient bed.

**DIALYSIS STAFF**

All Nursing officers/technical officers who stay in main dialysis hall for duration of the duty and in screening area must take universal precautions and wear surgical gown, Cap, Shoe cover, Gloves (disposable whenever touching surfaces or patient), and Sterile gloves during connection/disconnection of the tubes, N-95/FFP3 Layer mask.

Hand hygiene has to be done frequently, clean with soap and water or use sanitizer with- 60% alcohol based, Social distancing amongst dialysis team members (1 meter at least) will be ensured.

**IN BETWEEN TWO SHIFTS**

**Linen** to be put in red bucket which has 1% hypochlorite, let the linen soak for 20 minutes and then to send for laundry **HD sets/trays** with instruments to be put in red bucket which has 1% hypochlorite, let the linen soak for 20 minutes and then to send to CSSD.

**Hemodialysis (HD) Machines :** Hot disinfection to be done (with citrosil), HD machine surface to be cleaned with 1% hypochlorite followed by mopping with dry cloth. HD machine front screen to be cleaned with alcohol-based sanitizer.

**Surface cleaning:** All surfaces to be cleaned with 1% hypochlorite (counters, tables, door handles, landline phone, light switches, weight measuring machine side handles/bars)

**Oxygen saturation probes and BP cuff to be cleaned with alcohol**

**Beds:** Clean beds with 1% hypochlorite.

**Bins:** Clear all the bins

**Floor:** Mopping with 1% hypochlorite**.**

Remove gown, inside out, touching inner surface to put green cloth gown in red bucket containing 1% hypochlorite for at least 20 minutes, then it goes for laundry.

**For patients and attendents**

* Cough etiquette: coughing/sneezing into your elbow, not your hands.
* Leave your belongings outside dialysis room.
* Frequent hand washings.
* It is advised not to take any food during dialysis.

**Renal Replacement therapy protocol SUSPECTED AND POSITIVE COVID-19 PATIENT with AKI or CKD or ESKD**

TREAT ALL SUSPECTED PATIENTS LIKE A POSITIVE PATIENTS TAKING ALL THE PRECAUTIONS LISTED BELOW. Even if Infectious Disease team feels it is not a suspected COVID-19 patient but if the dialysis/ward resident or consultant have any suspicion treat it like a positive patient.

Suspected /positive COVID-19 patient will be shifted to COVID area BLOCK-C and then to Isolation Ward that is ISOLATION Ward 24, 25, 26 & Trauma Centre as per protocol.

If however patient is **sick** then he/she has to be shifted to TICU/ ICU/Day care as per protocol and will be managed in ICU setting .Patient will be dialysed, if required, as per covid status in main haemodialysis unit or trauma care centre

Use of **acute peritoneal dialysis** will be entertained only as life saving procedure if haemodialysis is not available at that time or contraindicated. Used dialysis bags and tubing need to be properly disposed using 1% hypochlorite infection control team of Trauma Centre will ensure proper disposal of these article along with used dialysis fluid.

For COVID-19 positive **stable CKD** patients dialysis will be done in designated COVID-19 Isolation Room in Trauma Centre.

All patients admitted in Isolation ward/ICU, PGIMS Rohtak with COVID-19 infection with CKD/AKI will be managed as per standard of care by the COVID-19-ICU incharge. Nephrology consultations will be done by Department of Medicine and division of Nephrology, PGIMS Rohtak on SOS basis.

Resident/Nursing/technical officer/ sanitation attendant have to wear PPE kit provided to them, keep their mobile phones/personal items in the lockers provided to them.

Step 1: The Resident/Consultant on call of Isolation will inform the medicine consultant on duty and resident nephrology about dialysis of diagnosed or suspected patient.

Step 2: The nephrology resident on call/dialysis technician will again confirm the patient.

Step 3: The resident on duty in isolation will inform the nephrology resident and give details regarding time of shift of patient.

Step 4: Nursing officer of trauma centre will ensure sanitation of the passage to the dialysis room, with all the doors open so that patient can be wheeled in the COVID-19 isolation room straight away. The dialysis technician will ensure that the dialysis machine is set in order with the dialyser connected, primed and heparin connected. Also the nursing officer will keep the emergency drugs like adrenaline, noradrenaline in saline (500 ml), avil and hydrocortisone ready.

Step 5: The dialysis technician will be present throughout the dialysis and resident on duty (Trauma Centre) will oversee the patient for hemodynamic stability in case of any issues he/she can contact the resident nephrology and consultant nephrology.

Step 6: Once the dialysis is over dialysis technician will close the circuit and leave the dialysis catheter in-situ with heparin and adequate dressing.

Step 7: Syringes, needles, dialyser, tubing and any other surgical/ medical waste to be put in yellow bucket which has double yellow waste bags. As there is only one designated technician for COVID-19 patient, timing of dialysis will be between 9:00 AM – 4:00 PM.

Linen has to be put in perforated bags in a red bucket with which has 1% bleach at least for 30 mts. Both these bins will be in isolation room.

Step 8: Nursing staff of trauma centre will ensure the sanitation of the passage till lift is done.

Step 9: Once all clear message is given, open the door, shift the patient out on patients’ tolley. From there patient will be taken by concerned ward attendant wearing PPE.

Step 10: Machine disinfection: hot chemical disinfection with citrosil to be done. Portable RO should be properly disinfected with hypochlorite (1% Sodium Hypochlorite).

Step 11: The nursing officer/technical officer will then go to the doffing area.

It is advisable not to shake dirty laundry. This will minimize the possibility of dispersing virus through the air.

Step 12: The safai karamchari with PPE will come and firstly take the biomedical waste to the rear end of dialysis unit and keep it in area demarcated.

Subsequently he will clean the room with 1% bleach (trolleys, beds, floor, wall) under the supervision of nursing officer. In addition to the procedure room, the “unclean area” the whole corridor of dialysis unit and corridor till entrance to Nephrology department has to be cleaned with 1% bleach

Bio medical waste disposal incharge’s Number will be displayed and provided by Trauma Centre incharge.

If more patients with COVID-19 require dialysis in future, more dialysis machines may be earmarked for this purpose.

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