

RECOMMENDATIONS REGARDING PATIENTS WITH RENAL DISEASE WHO NEED HEMODIALYSIS TREATMENT - INDICATIONS FOR THE STAFF WHO MUST PERFORM THE DIALYTIC PROCEDURES IN COVID-19 CHRONIC HD AND PATIENTS WITH ACUTE RENAL FAILURE.

Preliminary considerations

Dialysis procedures, in chronic HD patients and in patients with AKI, are at risk of transmission and dissemination of COVID-19 for multiple procedural and logistical aspects:

- 1) extended period of continuous assistance (> 5 hours)
- 2) high risk of personnel exposure (blood circuit attack / disconnection phases, AV fistula puncture, CVC management, emergency maneuvers in case of hypotension and other complications) with phases of direct physical contact and in any case at close range in session management course (risk level 3)
- 3) high clinical and infectious disease risk for multi-comorbid, immunosuppressed and often anergic (and therefore paucisymptomatic) patients.
- 4) contiguity between patients for the long periods of time necessary for treatment, waiting before dialysis and collective transport to and from dialysis center.
- 5) Apart from the epidemiological aspects, there is the non-substitutability of highly specialized nursing staff in short time (> 3 months of training) in case of contagion or removal for quarantine period.

Specific recommendations

In light of these previous considerations, doctors and nursing staff who serve in dialysis facilities must receive useful information on the transmission and prevention of the COVID-19 epidemic and indications on the management of patients in artificial renal replacement treatment. It is appropriate, in addition to the general indications disseminated at national and general level, to follow specific recommendations:

- Members of the **medical-nursing staff must self-monitor their health** and immediately inform the Director and / or the Nurse Coordinator if either they or **their family members** have developed symptoms indicative of COVID-19 infection.
- **Personnel carrying the virus (ascertained) must not come into contact with patients on dialysis.**
- The operators of the dialysis centers must be trained to perform the nasopharyngeal swab for PCR COVID-19, with adequate protection, in agreement with the infectious disease specialist or the managers of the Public Hygiene Service.

Even in the absence of established COVID-19 cases, it is useful to follow some good clinical practices:

- Operators must pay particular attention to the universal measures foreseen in type 2 protection level and wear surgical masks, gloves, goggles or face mask, headgear and frequently change their uniform
- Hand hygiene must be strictly implemented: wash your hands thoroughly with soap and water and systematically using alcoholic solutions; use disposable gloves and surgical masks (in all dialysis rooms)

Early recognition and isolation of people with respiratory infection are necessary to limit the spread of the infection:

1. Sensitize patients to report, before the arrival at the dialysis center, the appearance of fever or respiratory symptoms and comply with the indications provided by the doctors and nurses of the Center including the possible activation of home pathways (activation of the Public Hygiene Service).
2. It is appropriate to activate a triage before entering the Dialysis Room managed by the nursing staff in order to identify patients with signs and symptoms related to the infection (fever, cough, upper airway involvement, conjunctivitis) or who have come to contact with people with Covid 19 infection.
3. Reduce the parking time in the waiting areas and regulate the flow in the dedicated locker rooms.
4. It is recommended to measure body temperature before the start of the dialysis session.
5. Patients with respiratory symptoms must be evaluated before the start of the dialysis treatment; if indicated, the monitoring procedures must be activated (infectious disease assessment, if positive send to the emergency room) for further investigations including radiological investigations or swabs.
6. All patients must carry out hand hygiene with alcohol solution, preferably before entering the dressing room (autonomous patients) or in any case before entering the Dialysis Room (patients transported by ambulance).
7. It is advisable that all patients wear a surgical mask during the journey to reach the Dialysis Center, in the waiting room and during the dialysis treatment.
8. In the waiting rooms of the Dialysis Center, patients or their carers (reduce the number of the carers to a minimum) must respect the distances provided by the Prime Ministerial Decree (at least 1 meter far).
9. If a patient has undergone the dialysis treatment in the Dialysis Center, and then he is again tested positive for Sars-Cov 2, the areas used must be made available to other patients only after adequate sanitization.
10. Similar directions must be followed for patients being treated in a limited care Dialysis Center; if the case management with all the necessary precautions is not possible on site, the patient must be transported to the Hub Center, in order to implement diagnostic procedures and any default measures.

Recommendations for staff and for the organization of dialysis therapy in the various facilities:

- In case of confirmed infection, patients on chronic dialysis treatment should be hospitalized in specific areas following the organization of the individual hospital units and dialysed in the dedicated hospitalization center (procedures and equipment for dialysis treatments at bed as long as available).
- All personnel involved in the direct care of patients with chronic renal failure on dialysis with COVID-19 must have full protection (type 3 protection level), including water repellent gowns, hair caps, goggles, gloves and masks (mask FFP2 or FFP3 if available). This protective equipment must be used independently of the treatment site (Intensive Care Units, Infectious Diseases Center, dedicated spaces identified in each unit, any treatments in the dialysis department) and extended to highly suspect patients awaiting a swab report, patients who remained positive after discharge and patients at high risk of contagion that are placed in quarantine.
- Similarly, in the case of positive SARS-CoV-2 patients developing ARF with the need for dialysis support, the treatment must be performed in the ward where the patient is hospitalized: Intensive Care Units, Infectious Diseases Center, or any other space identified and protected in each unit. Treatment personnel must be equipped with all individual prevention measures for type 3 protection level.
- For dialysis treatment of patients hospitalized in dedicated spaces or rooms, use of monitors for continuous techniques (CRRT). Management modalities of the session defined by the Nephrologist based on the clinical complexity. No contraindications to the use of intermittent or SLED techniques if the logistical conditions allow it with the use of portable osmosis. Currently there is no scientific evidence of the need for dedicated dialysis monitors; thorough cleaning / disinfection of the equipment at the end of the session.
- The healthcare team must be organized for patient management; a minimum number of personnel must enter the operational isolation area.
- In the case of patients on dialysis that have been quarantined by close contact, a dedicated and isolated area must be identified, if possible, in each specific dialysis facility; alternatively treated in the last shift of the day. Non-symptomatic patients can be dialysed in dedicated areas of the Dialysis Center (e.g. room for HBsAg positive patients usually underutilized). Close clinical monitoring. The organization must be managed by the Nephrology Units also depending on the number of the patients to be treated.

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- The systematic use of a surgical mask during transport, in the waiting room and in the Dialysis Room, in addition to compliance with the general prevention rules (e.g. interpersonal distance), can help reduce the number of patients defined in close contact.
 - Room sanitization required at the end of the session or dialysis shifts.
 - Each Hospital Center (each company) should develop a strategy for the treatment of positive Covid patients based on the different clinical pictures (in particular the presence or absence of respiratory failure), the territorial characteristics, the availability of usable structures, identifying dedicated environments and trying to preserve as much as possible a hemodialysis section free from contagion risk. It may be useful to identify a Covid19 dialysis center for an entire provincial or metropolitan area; however, the choice must be based on the characteristics of the territory and the distribution of its facilities.
 - In chronic hemodialysis patients, when possible, the frequency of hemodialysis sessions should be reduced (for example from three to two per week), especially in presence of preserved diuresis.
 - Highly recommended to reduce collective transport to reduce the risk of contagion during journeys to and from the dialysis Center; use surgical-type masks during transfer, avoid the promiscuous transport of patients with upper respiratory tract problems.
 - Vascular catheterizations on patients with confirmed or suspected COVID-19 infection should be performed in a designated room with adequate protection for medical and nursing staff.
 - Monitor the trend of consumption and related supplies and reduce the use of devices for which deficiencies are expected. A reduction in the dialysis rhythm can help in this direction.

Peritoneal Dialysis

For patients already on Peritoneal Dialysis, a home management is recommended as much as possible, avoiding / slowing down the frequency of the hospital accesses. Maintain telephone or tele-surveillance contact (where and when it is possible). Report to the patient and caregiver the need, in case of suspicious symptoms for Covid-19 infection, of notifying the Public Hygiene Service (or follow the specific local indications). Advise the patient that, in the event of high fever, worsening respiratory symptoms, he / she must call the emergency numbers.

Position paper of the Emilia-Romagna Section of the Italian Society of Nephrology

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Reference documents

- 1) ERA / EDTA position (European Society Dialysis and Transplantation)
- 2) Recommendations of the American Society of Nephrology
- 3) Position of the Italian Society of Nephrology
- 4) Position of the Lombardy Section of the Italian Society of Nephrology