

To whom it may concern

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Medical expert statement regarding a potential dialysate or drain line contamination in case of treatment of COVID-19 patients with chronic dialysis systems

Regarding a potential contamination

- of the spent dialysate,
- of filtrate in the filtrate bag (CRRT),
- of the drainage area of dialysis machines,
- of the drain line of small reverse osmosis units

and concerning a respective re-contamination of medical device components after treatment of a COVID-19 patient, we would like to make the following statement when using Fresenius Medical Care equipment:

COVID-19 is caused by SARS-CoV-2, a virus belonging to the Coronaviridae, a family of enveloped, positive-sense, single-stranded RNA viruses. It has round or elliptic and often pleomorphic form. Its diameter is approximately 60–140 nm.

Especially in critically ill COVID-19 patients who are typically treated by continuous renal replacement therapies (CRRT), viremia occurs frequently. Due to the pore size of the membrane, the dialyzer represents a barrier for intact viruses including Coronaviridae and prevents viruses from entering the dialysate. Therefore, contamination of the dialysate, filtrate or the drainage areas of the dialysis machines with Corona viruses is not expected. Hence, changes to drainage installations are not required. As a second protective measure, the free-fall sections in the (chronic) dialysis machines prevent retrograde contamination of the machines via the drainage system.



Maintenance dialysis machines: Should a blood leak occur, viruses could also enter the dialysate. Corona viruses are enveloped viruses and therefore sensitive to disinfectants. The disinfection processes of our dialysis machines are generally effective for inactivating enveloped viruses, so that Coronaviridae are inactivated effectively during the disinfection process.

Design of the passage between machine drain and drain pipe of the building should prevent generation of airborne droplets (aerosols) that may lead to infection of the staff.

CRRT machines: The emptying of filtrate bags in CRRT procedures on COVID-19 patients should only be carried out using personal protective equipment (PPE) comprising FFP2 mask, gown, gloves, eye protection and apron, as is mandated for patient care in intensive care units (source: WHO: Rational use of PPE for coronavirus disease (COVID-19), Interim guidance 19 March 2020).

Water treatment: Concentrate is led through the drain lines of the small reverse osmosis units, and is discharged before the reverse osmosis membrane. If the drain line comes into contact with Corona viruses, e.g. after contact of the drain line with viruses when led into a wash basin, the viruses are retained by the reverse osmosis membrane and thus cannot get into the dialysis water. The drain pipe should be placed such that no aerosols can be formed. As concentrate is passed through the drain line during operation, any viruses potentially contained in the liquid are rinsed out.

In addition, installed DIASAFE plus filters on the maintenance dialysis machines also prevent viruses from passing through.

All measures have to be aligned with the respective local hygiene officer.

Best regards

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