

Category : **Renal: extracorporeal support**

**A94 - Covid-19: impact on circuit lifetime and performance during continuous renal replacement therapy**

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### **Introduction:**

The impact of SARS-CoV-2 associated coagulopathy on continuous renal replacement therapy (CRRT) circuit lifespan and performance remains unknown.

### **Methods:**

In this prospective observational study, we enrolled all consecutive patients who received CRRT in our intensive care unit September and December 2020. We collected patients' baseline characteristics, laboratory results, CRRT circuit lifespan as well as plasma and effluent samples at 12 (T1), 24 (T2), 48 (T3) and 72 hours (T4) of CRRT circuit initiation. At each study time point, we computed urea, creatinine and  $\beta$ 2-microglobulin clearance. Results obtained in patients with COVID-19 (C19 group) were compared to those without COVID-19 (control group). Circuits' lifespan was assessed using Kaplan-Meier estimates and compared using log-rank test. Filter clearances at each study time point were compared using Student's T-test.

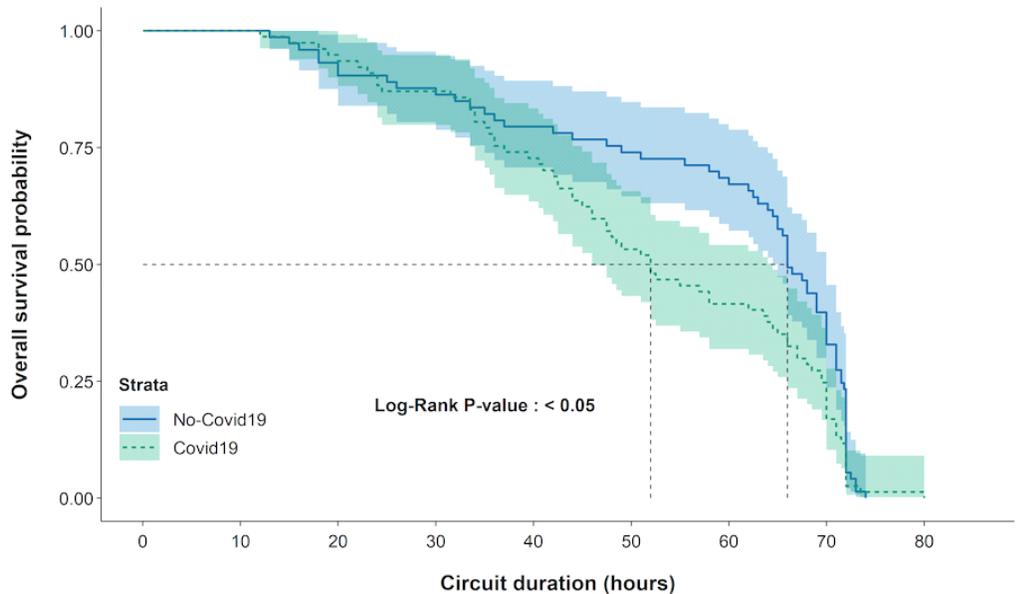
### **Results:**

We included 35 patients, 26 (74%) males (median age 68 [IQR 57– 71] years). Of those 16 (45%) were COVID-19 positive. We analyzed 150 CRRT circuits: 77 (51.3%) in the C19 group and 73 (48.7%) in the control group. Compared to patients in the control group, those in the C19 group had a significantly shorter median circuit lifespan (52 [37.0 – 69.5] versus 66 [49 – 71.5] hours,  $p = 0.024$ ). They had a lower median urea (T1 27.5 vs 31.4; T2 26.8 vs 32.6; T3 27.3 vs 30.4 and T4 26.4 vs 30.7 ml/kg/h, all  $p < 0.05$ ) and creatinine (T1 22.7 vs 24.7; T2 23.0 vs 24.5; T3 20.4 vs 22.9 and T4 21.3 vs 22.8 ml/kg/h, respective  $p$  values: 0.03, 0.02, 0.06 and 0.08) clearance at all study time points. However, there was no difference in  $\beta$ 2-microglobulin's clearance between the two groups (respective  $p$  values: 0.6, 1.0, 0.8 and 0.7).

### **Conclusion:**

Patients with COVID-19 disease had a shorter CRRT circuit lifetime and a lower urea and creatinine clearance. The magnitude of this difference was, however, limited and further studies are required to explore clinical implications of such differences.

**Image :**



**Number at risk (%)**

No-Covid19	73 (100)	73 (100)	68 (93)	64 (88)	58 (79)	54 (74)	50 (68)	29 (40)	0 (0)
Covid19	77 (100)	77 (100)	73 (95)	67 (87)	56 (73)	41 (53)	32 (42)	19 (25)	1 (1)

*Kaplan-Meier analysis presenting circuit lifespan in COVID-19 group versus control group. Median circuit lifespan was 52 [37.0 - 69.5] hours in the COVID-19 group versus 66 [49.0 - 71.5] hours in the control group. p value = 0.024 using log-rank test comparison.*