

## Supplementary material

Time	Refilling Rate ml/min	Refilling Rate/UF Rate	Refilling Rate ml/kg/hr
30min	-4.7 (-7.5; -0.4)	-0.6 (-0.9; -0.1)	-3.6 (-7.5; -0.4)
30min-1hr	3.5 (2.0; 6.5)	0.4 (0.2; 0.7)	2.9 (1.6; 5.5)
1hr-2hr	7.9 (SD 4.2)	0.9 (SD 0.4)	6.8 (SD 3.4)
2hr-3hr	6.6 (SD 2.6)	0.8 (0.6; 0.9)	5.8 (SD 2.3)
3hr-4hr	6.7 (SD 3.7)	0.7 (SD 0.3)	5.6 (SD 2.6)

**Supplementary Table 1. Variations in refilling rate throughout a haemodialysis session.** Variables with normal distribution are presented as means and standard deviations (SD) while variables with skewed distribution as medians with 25<sup>th</sup> and 75<sup>th</sup> percentile values. hr= hour, kg= kilogram, ml= millilitre, UF= ultrafiltration.

Session 2 Characteristics		Intervention in the 1 <sup>st</sup> hour of HD		Intervention in the last hour of HD		p-value	
Pre-dialysis blood pressure (mmHg)	Systolic	139.8 (SD 33.6)		130.7 (SD 24.9)		0.455	
	Diastolic	<b>58.8 (SD 13.0)</b>		<b>76.0 (SD 23.9)</b>		<b>0.039*</b>	
	MAP	92.0 (SD 23.5)		98.9 (SD 25.4)		0.496	
Bioimpedance		Pre	Post	Pre	Post	Pre	Post
	OH (L)	1.6 (SD 1.6)	0.7 (SD 1.8)	1.1 (SD 1.2)	-0.1 (SD 1.9)	0.620	0.328
	ECW (L)	15.8 (SD 2.6)	14.5 (SD 2.4)	15.9 (SD 3.7)	15.2 (SD 4.7)	0.943	0.675
	TBW (L)	32.0 (SD 4.9)	30.5 (SD 4.8)	33.2 (SD 8.1)	33.0 (SD 9.4)	0.674	0.410
	BMI (kg/m <sup>2</sup> )	24.8 (SD 4.2)		26.1 (SD 4.0)		0.474	
Pre-dialysis Absolute Blood Volume (ml)		7123 (5054; 8238)		7043 (5020; 8175)		0.908	
Pre-dialysis Absolute Plasma Volume (ml)		5076 (3769; 6264)		4997(3640; 6379)		0.729	
Pre-dialysis serum osmolality (mOsm/kg)		302 (SD 10.1)		303 (SD 12.1)		0.899	
Pre-dialysis serum total protein (g/L)		67.6 (SD 7.8)		67.1 (SD 6.3)		0.497	

**Supplementary Table 2. Characteristics of the studied dialysis sessions (Phase 2).** Variables with normal distribution are presented as means and standard deviations (SD) while variables with skewed distribution as medians with 25<sup>th</sup> and 75<sup>th</sup> percentile values. Group comparison for normally distributed continuous variables was performed using t-test while comparison for skewed variables was performed using the Mann-Whitney test. "Pre" refers to values before initiation of dialysis treatment and "Post" to values immediately after dialysis treatment. BMI= body mass index, ECW= extracellular water, g= gram, HD= haemodialysis, hr= hour, kg=kilogram, L=litre, MAP=mean arterial pressure, m=metre, min= minute, ml= millilitre, mmHg= millimetres of Mercury, mOsm= milliosmoles, OH= absolute overhydration index, TBW= total body water. \* indicates significance of p-value <0.05.

Time	Refilling Rate ml/min			Refilling Rate/UF Rate			Refilling Rate ml/kg/hr		
	Control session 1 <sup>st</sup> hour	Intervention session 1 <sup>st</sup> hour	p-value	Control session 1 <sup>st</sup> hour	Intervention session 1 <sup>st</sup> hour	p-value	Control session 1 <sup>st</sup> hour	Intervention session 1 <sup>st</sup> hour	p-value
10min	-5.7 (-10.9; 6.5)	-19.9 (-31.4; -10.7)	0.014*	-0.88 (SD 2.0)	-1.19 (-1.88; -0.64)	0.356	-5.3 (-10.7; 6.4)	-20.4 (-35.3; -8.2)	0.024*
10-20 min	-5.4 (SD 11.4)	-5.0 (SD 8.3)	0.915	-0.41 (SD 1.4)	-0.30 (SD 0.5)	0.806	-4.7 (SD 10.7)	-4.6 (SD 7.5)	0.984
20-30 min	-0.1 (SD 6.9)	2.3 (SD 9.5)	0.487	-0.10 (SD 0.8)	0.14 (SD 0.6)	0.417	-0.5 (SD 6.3)	2.0 (SD 8.4)	0.422
30-40 min	1.2 (SD 7.8)	5.1 (SD 9.1)	0.275	0.09 (SD 0.9)	0.30 (SD 0.6)	0.471	0.9 (SD 6.7)	4.6 (SD 7.9)	0.230
40-50 min	3.5 (-0.1; 6.8)	9.7 (SD 6.5)	0.026*	0.40 (-0.03; 0.69)	0.58 (SD 0.4)	0.248	2.9 (-0.2; 5.5)	9.0 (SD 7.0)	0.033*
50-60 min	6.7 (-6.3; 11.0)	11.4 (SD 8.3)	0.033*	0.41 (SD 1.2)	0.68 (SD 0.5)	0.795	5.2 (-5.8; 9.9)	11.0 (SD 9.2)	0.043*

**Supplementary Table 3. Variation of the refilling rate during the first hour of the intervention and control dialysis sessions.** Variables with normal distribution are presented as means and standard deviations (SD) while variables with skewed distribution as medians with 25<sup>th</sup> and 75<sup>th</sup> percentile values. Group comparison for normally distributed continuous variables was performed using t-test while comparison for skewed variables was performed using the Mann-Whitney test. hr= hour, kg= kilogram, ml= millilitre, UF= ultrafiltration.

Time	Refilling Rate ml/min			Refilling Rate/UF Rate			Refilling Rate ml/kg/hr		
	Control session last hour	Intervention session last hour	p-value	Control session last hour	Intervention session last hour	p-value	Control session last hour	Intervention session last hour	p-value
180-190 min	5.1 (SD 6.7)	-6.3 (SD 11.0)	0.006*	0.64 (SD 0.7)	-0.38 (SD 0.7)	0.002*	4.6 (SD 5.2)	-6.9 (SD 10.4)	0.002*
190-200 min	8.9 (SD 7.4)	7.1 (SD 5.5)	0.498	0.99 (SD 0.7)	0.42 (SD 0.3)	0.021*	6.8 (SD 5.2)	7.0 (SD 6.4)	0.952
200-210 min	8.4 (SD 4.4)	11.2 (SD 5.5)	0.177	0.93 (SD 0.5)	0.67 (SD 0.3)	0.121	7.1 (SD 3.3)	10.8 (7.8; 12.8)	0.138
210-220 min	8.0 (SD 5.6)	12.7 (SD 5.0)	0.042*	0.85 (SD 0.5)	0.76 (SD 0.3)	0.604	6.3 (SD 3.7)	11.6 (SD 5.8)	0.014*
220-230 min	9.5 (SD 4.3)	9.2 (5.8; 12.1)	0.707	1.06 (SD 0.6)	0.55 (0.34; 0.73)	0.004*	8.2 (SD 4.3)	8.4 (4.7; 10.5)	0.817
230-240 min	5.7 (SD 7.9)	9.8 (SD 3.6)	0.158	0.44 (SD 1.4)	0.59 (SD 0.2)	0.722	4.2 (SD 7.4)	8.6 (SD 3.5)	0.082

**Supplementary Table 4. Variation of the refilling rate during the last hour of the intervention and control dialysis sessions.** Variables with normal distribution are presented as means and standard deviations (SD) while variables with skewed distribution as medians with 25<sup>th</sup> and 75<sup>th</sup> percentile values. Group comparison for normally distributed continuous variables was performed using t-test while comparison for skewed variables was performed using the Mann-Whitney test. hr= hour, kg= kilogram, ml= millilitre, UF= ultrafiltration.

Time	Plasma refill rate (ml/kg/hr)		p-value
	Preceded by high UFR	Preceded by moderate UFR	
<b>0</b>	7.2 (SD 10.2)	4.9 (SD 37.8)	0.838
<b>0-10min</b>	10.6 (4.7; 14.2)	8.9 (6.0; 16.4)	0.951
<b>10-20 min</b>	4.1 (1.5; 10.6)	4.6 (2.4; 8.4)	0.806
<b>20-30 min</b>	6.2 (SD 5.7)	1.9 (SD 9.5)	0.205
<b>30-40 min</b>	4.2 (1.7; 10.7)	3.5 (-0.5; 11.2)	0.712
<b>40-50 min</b>	-0.5 (SD 7.9)	-0.04 (SD 6.4)	0.888
<b>50-60 min</b>	1.4 (SD 7.5)	1.7 (SD 8.0)	0.937

**Supplementary Table 5. Variations in refilling rate throughout the equilibration phase following high and moderate UFR during Phase 2 of the study.** Variables with normal distribution are presented as means and standard deviations (SD) while variables with skewed distribution as medians with 25<sup>th</sup> and 75<sup>th</sup> percentile values. hr= hour, kg= kilogram, min= minute, ml= millilitre, UFR= ultrafiltration rate