Dialysis Complications in AKI Patients Treated with Extended Daily Dialysis: Is the Duration of Therapy Important?

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Introduction and objectives

- EDD has emerged as an alternative to CRRT in the management of haemodynamically unstable AKI patients, mainly in developing countries.
- This trial aimed to evaluate and compare the dialysis complications occurring during different durations of EDD sessions (6 vs. 10 h) in critically ill AKI patients.

Methods

- We included patients older than 18 years with AKI associated with sepsis admitted to the intensive care unit and using a noradrenaline dose ranging from 0.3 to 0.7 ucg/kg/min. Patients were divided into two groups randomly: in group 1 (G1), 6-h sessions were performed; in group 2 (G2), 10-h sessions were performed.
- The results were compared using the t test, Mann-Whitney test, chi-square or Fisher. It was adopted as statistically significant $p < 0.05$. This study received financial support from the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

Results

- 75 patients were treated with 195 EDD sessions for 18 consecutive months. Age was 61.8 15.1 years; male sex was 70.6 %, the main focus of infection was abdominal (42.6%) and SOFA was 13.6 2.7.
- The prevalence of hypotension, filter clotting, hypokalaemia, and hypophosphataemia was 82.6, 25.3, 20, and 10.6%, respectively.
- G1 and G2 were similar in male predominance (65.7 vs. 75.6%, p = 0.34), age (63.6 14 vs. 59.9 15.5, p=0.28), and SOFA (13.1 2.4 vs. 14.2 3.0, p=0.2).

Table 1- Dialysis complications of AKI patients treated with different durations of EDD

Complications n (%)	G1=6h(n=38)	G2=10h(n=37)	p value
Hypotension	31 (81.5)	31 (83.7)	0.80
Filter clotting	9 (23.6)	10 (27)	0.73
Hypokalemia	5 (13.1)	3 (8.1)	0.71
Hypophosphatemia	7 (18.4)	8 (21.6)	0.72

Table 2- Distribution of intra-dialytic complications by sessions of EDD according to different duration of sessions

Complications n(%)	G1=6h(n=100)	G2=10h(n=95)	p value
Hypotension	63 (63%)	53 (55.8%)	0.21
Filter clotting	11 (11%)	18 (18.9%)	0.72

The group treated with sessions of 10 hours showed higher refractory to clinical measures for hypotension and dialysis sessions were interrupted more often (9.5 vs. 30.1%, p=0.03).

Table 3- Metabolic and fluid control of the groups in the first three sessions of EDD

	G1=6h (n=100 sessions)			G2=10h (n=95 sessions)			P value*
	S1(n=38)	S2(n=28)	S3(n=15)	S1(n=37)	S2(n=24)	S3(n=17)	
BUN	159 ± 60	120 ± 50	105 ± 38	152 ± 69[a]	94 ± 38[b]	96 ± 37[c]	NS
BUN post	64 ± 32	47 ± 17	44 ± 20	48 ± 25[a]	43 ± 20[b]	41 ± 22[c]	NS
URR	0.61±0.1	0.59±0.1	0.62±0.1	0.68± 0.1[a]	0.64±0.1[b]	0.69±0.1[c]	NS
Kt/V	1.09±0.2	1.07±0.25	1.09±0.25	1.26±0.26[a]	1.21±0.24[b]	1.28±0.27[c]	NS
Cr (mg/dl)	3.8 ± 1.4	3.2 ± 1.3	2.8 ± 1.2	3.7 ± 1.3[a]	2.7 ± 0.8[b]	2.5 ± 0.6[c]	NS
K (mEq/L)	4.4 ± 0.8	4.6 ± 1	4.4 ± 0,9	4.7 ± 1[a]	4.2 ± 0,6[b]	4 ± 0.5[c]	NS
Bic	17 ± 3	18.7 ± 3	19.9 ± 3.9	18.6 ± 4.2[a]	19.7 ± 7.3[b]	21 ± 2.5[c]	NS
pH	7.2±0.09	7.2±0.1	7.2±0.09	7.2±0.1[a]	7.3±0.1[b]	7.3±0.09[c]	NS
Presc UF	1957±933	2182±857	2260±812	2524±916[a]	2766±992[b]	2611±977[c]	NS
Actual UF	1731±818	1967±980	2146±820	2332±947[a]	2214±1440[b]	2376±1243[c]	NS
FB (ml)	-401±181	-690±40	-731 ±125	-396±47[a]	-614±140[b]	-652 ± 141[c]	NS

Conclusion

- Intra-dialysis hypotension was common in critically ill AKI patients treated with EDD. There was no difference in the prevalence of dialysis complications in patients undergoing different durations of EDD.