

# SUSTAINED LOW-EFFICIENCY DIALYSIS (SLED) WITH TRISODIUM CITRATE 4% IN CANCER PATIENTS

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## BACKGROUND

The use of citrate as regional anticoagulation in the sustained low-efficiency dialysis (SLED) in cancer patients with coagulation disorders tends to be widely used. It is important to evaluate the characteristics of these patients with several complicating clinical factors.

## OBJECTIVES

Analyze the clinical and laboratory characteristics of cancer patients who used trisodium citrate in SLEDs, the particularities of these dialysis and evaluate the need of calcium replacement intravenously (IV) in SLED with regional citrate anticoagulation.

## METHODS

- Observational, retrospective cohort study using the electronic medical records with clinical and laboratory data of patients undergoing SLEDs with regional citrate anticoagulation.
- The ionized calcium samples were taken before the start of SLED, in the 1st hour (h) and thereafter, every 6h (pre-capillary and post-capillary samples).
- The parameters during dialysis were compiled as dialysis time, complications (clotting system, hypotension, malfunction access) and IV calcium replacement need.
- Statistical analysis was performed by SPSS program with Chi-square test and Pearson's correlation. Data described in percentage, mean and standard deviation, and was considered significant if  $p < 0.05$ .

## RESULTS

Table 1. Demographic and clinical characteristics of the patients at SLED start (first session).

Characteristic	Value	
	n	%
Age, yr	58.1±15.3	
Male	10	52.6
Serum creatinine, mg/dl	4.73±2.08	
Sodium, mEq/L	143.5±7.89	
Potassium, mEq/L	4.63±1.00	
Bicarbonate, mEq/L	21.2±5.20	
Ionized calcium, mg/dl	1.11±0.14	
RNI	1.3±0.2	
Mechanical ventilation	9	47.3
Postoperative status	4	21.0
Use of vasopressors	9	47.3
Sepsis	8	42.1
Hematologic Disease	6	31.5
Therapy with heparin	1	5.2
Liver failure	1	5.2
AKI	17	89.4
CKD terminal	2	10.5

Figure 1- Indications dialysis with citrate, n=50

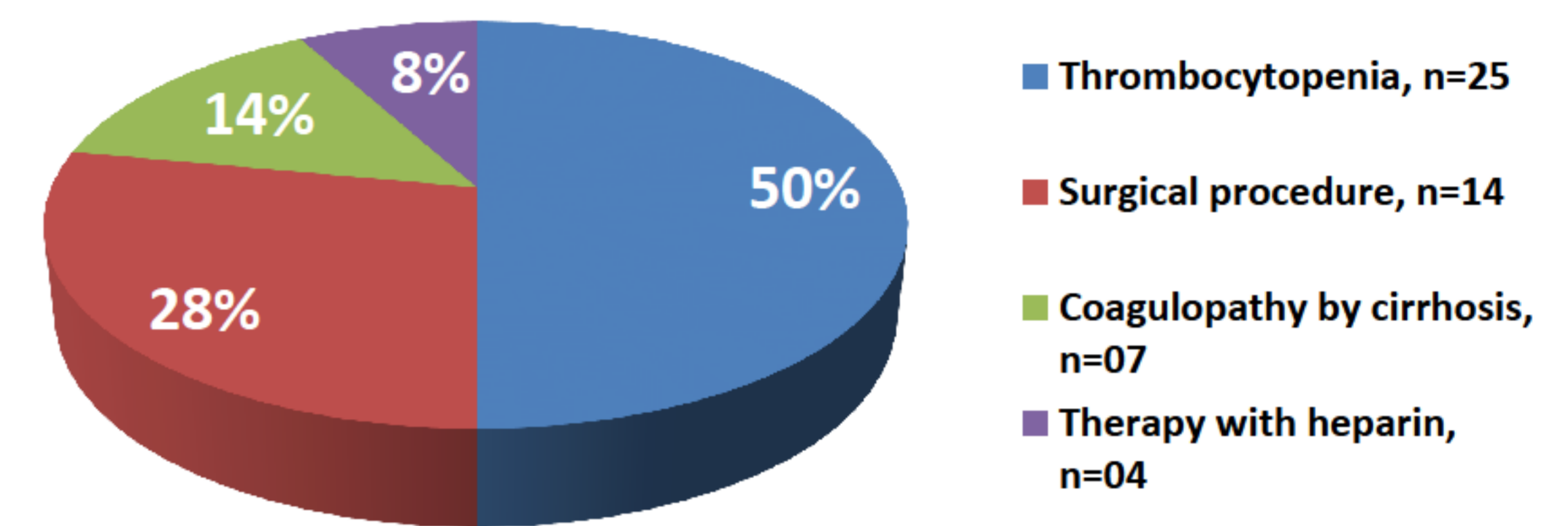


Figure 2. Causes of SLED interruption, n=16

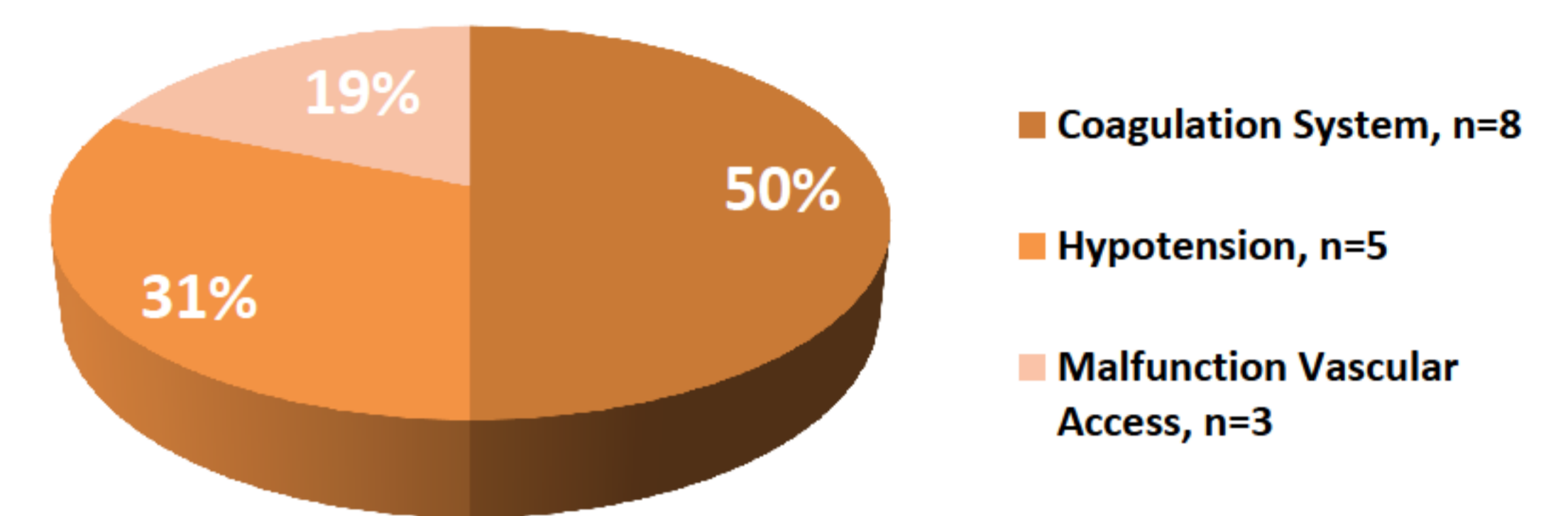


Table 2 Characteristics of patients in SLED and the presence of complications.

	All		No Complications		Presence of Complications		p
	n	%	n	%	n	%	
Hematologic Disease	21	45.8%	20	60.6	1	7.1	*0.001
Cancer in solid organ	27	55.1%	14	41.2	13	92.9	*0.001
AKI	43	89.6%	30	90.9	12	85.7	0.597
ESRD	5	10.4%	3	9.1	2	14.3	0.597
Thrombocytopenia	26	57.8%	20	64.5	5	38.5	0.110
Therapy with heparin	4	8.9%	1	3.2	3	23.1	*0.037
Active bleeding	15	33.3%	14	45.2	1	7.7	*0.017
Surgical procedure	14	31.1%	9	29	5	38.5	0.540
Liver failure	7	14.6%	4	12.1	3	21.4	0.412
Prescribed time 6 h	41	85.4%	31	93.9	9	64.3	0.500
Prescribed time 8 h	6	12.5%	1	3	5	35.7	*0.008
Temporary catheter	40	83.3%	28	84.8	11	78.6	0.601
Malfunction Vascular Access	9	18.8%	2	6.1	7	50.0	*0.001
Use tunneled catheter	5	10.2%	2	5.9	3	21.4	0.109

AKI: Acute Kidney Injury; ESRD: End Staging Renal Disease; \*  $p < 0.05$

Table 3 Laboratory data of cancer patients with complications in SLED.

	No Complications	Presence of Complications	P
Ionized calcium before SLED (mg/dL)	1.13±0.09	1.21±0.12	$p < 0.05^*$
Ionized calcium at 1st h prefilter (mg/dL)	1.11±0.08	1.17±0.16	N.S.
Ionized calcium at 1st h postfilter (mg/dL)	0.85±0.19	0.92±0.18	N.S.
Ionized calcium after SLED (mg/dL)	1.18±0.06	1.10±0.35	N.S.
RNI	1.21±0.17	1.29±0.23	N.S.
Platelets	109,424±58,998	158,071±87,492	$p < 0.05^*$
Time runs (h)	6.03±0.39	4.3±2.9	$p < 0.05^*$

N.S.: Not Significant

## CONCLUSIONS

In cancer patients, the presence of complications in SLED with regional citrate anticoagulation occurred more in patients with tumors of solid organs. The system clotting was the main complication and was related to malfunction access, serum levels of pre-capillary iCa and higher platelet count, resulting in a significant reduction in the duration of dialysis.

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