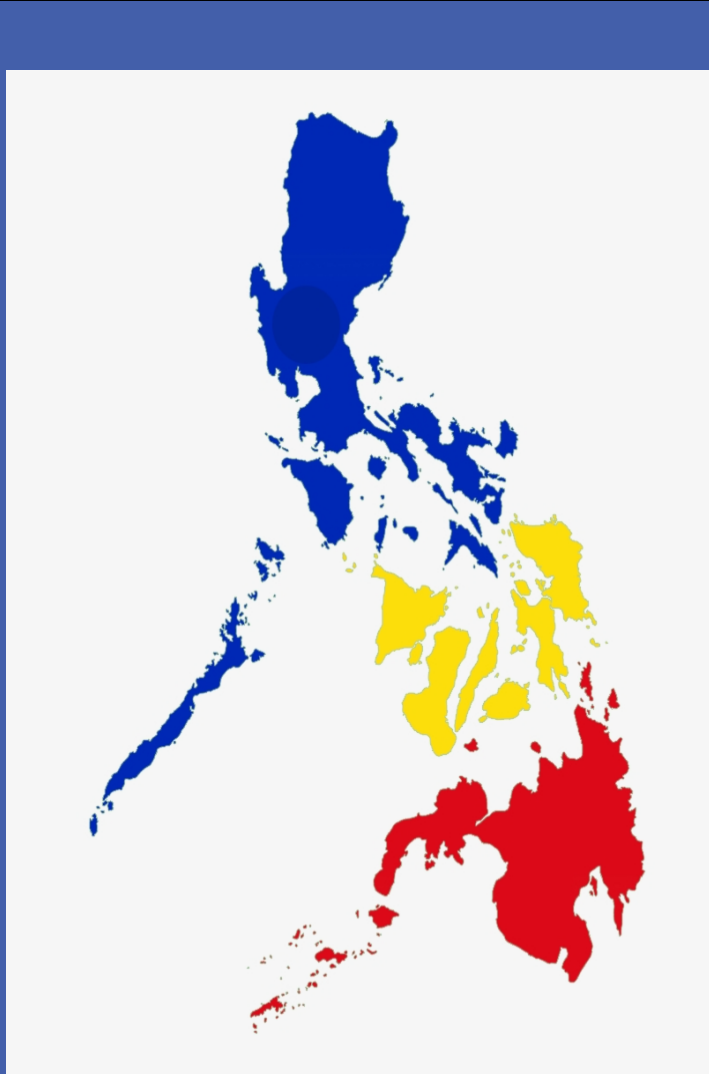


Severe Leptospirosis with Multiple Organ Failure Treated with Renal Replacement Therapy, ECMO and Hemoperfusion using HA 330: A Case Series

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BACKGROUND

Leptospirosis is an endemic zoonosis in the Philippines precipitated by disasters and extreme weather events. It emerged as an important cause of pulmonary hemorrhage and acute kidney injury. This case series aimed to describe the use of hemoperfusion therapy using HA 330 cartridge in patients with severe leptospirosis who were on extracorporeal membrane oxygenation (ECMO) together with renal replacement therapy (RRT).

METHODS

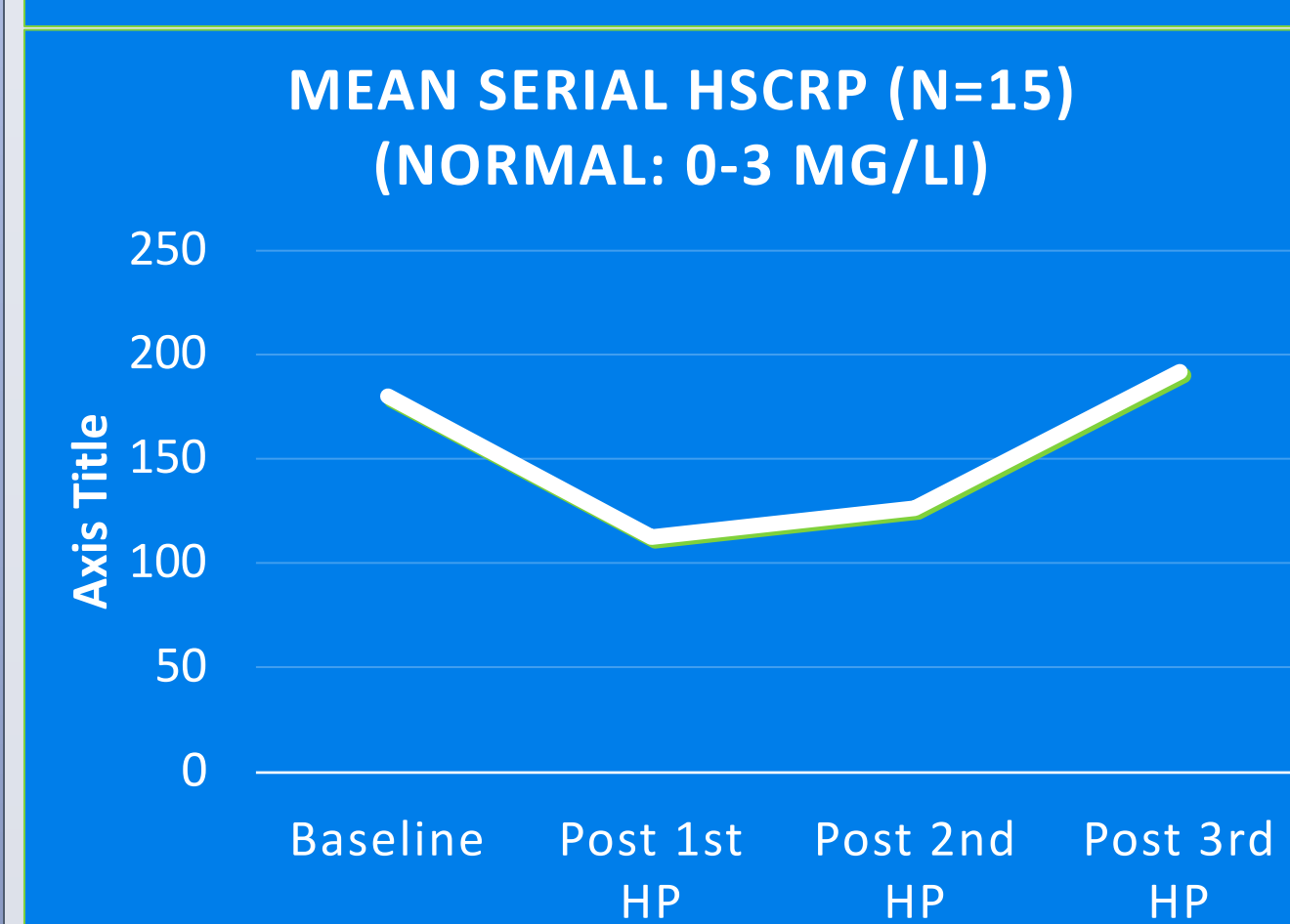
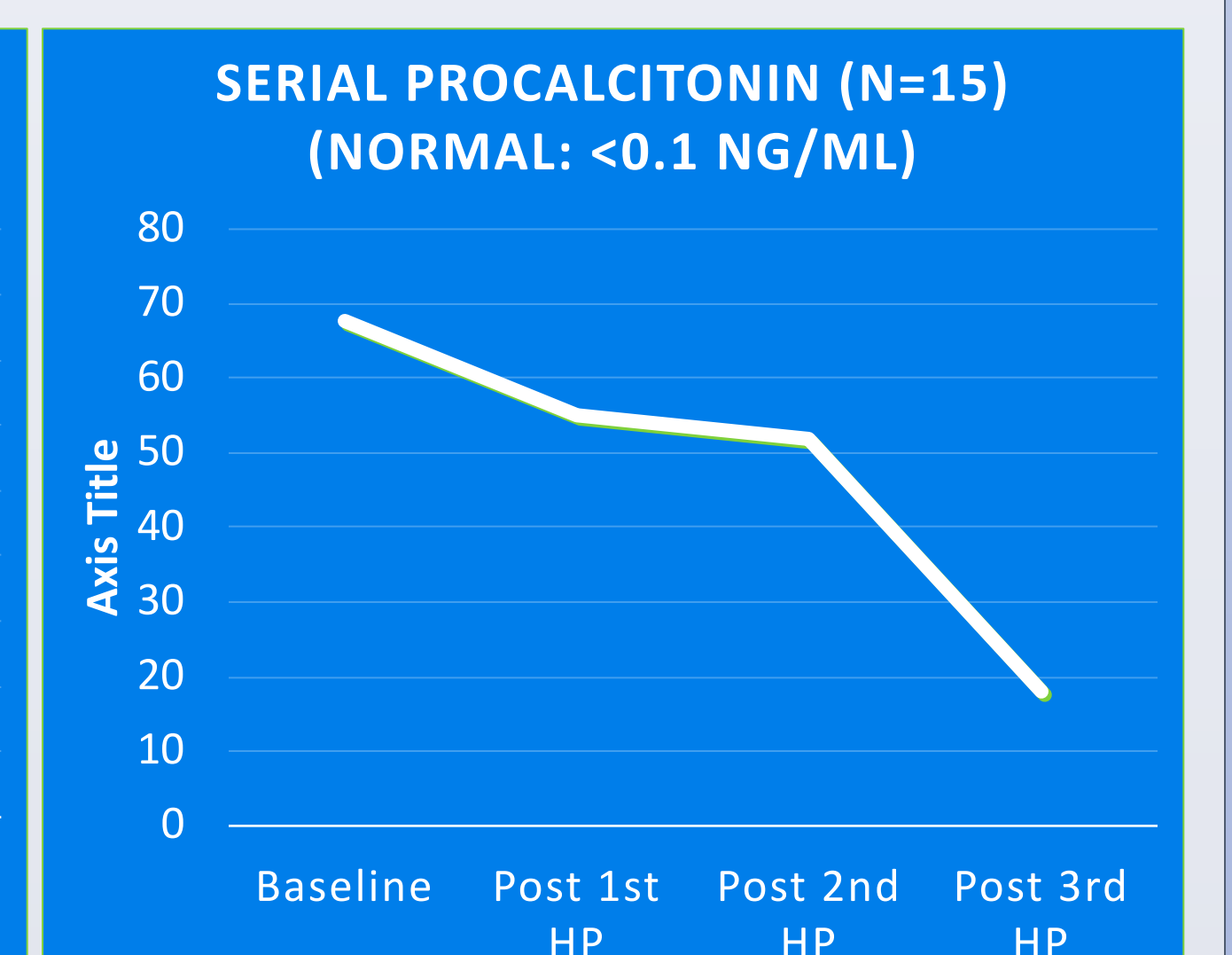
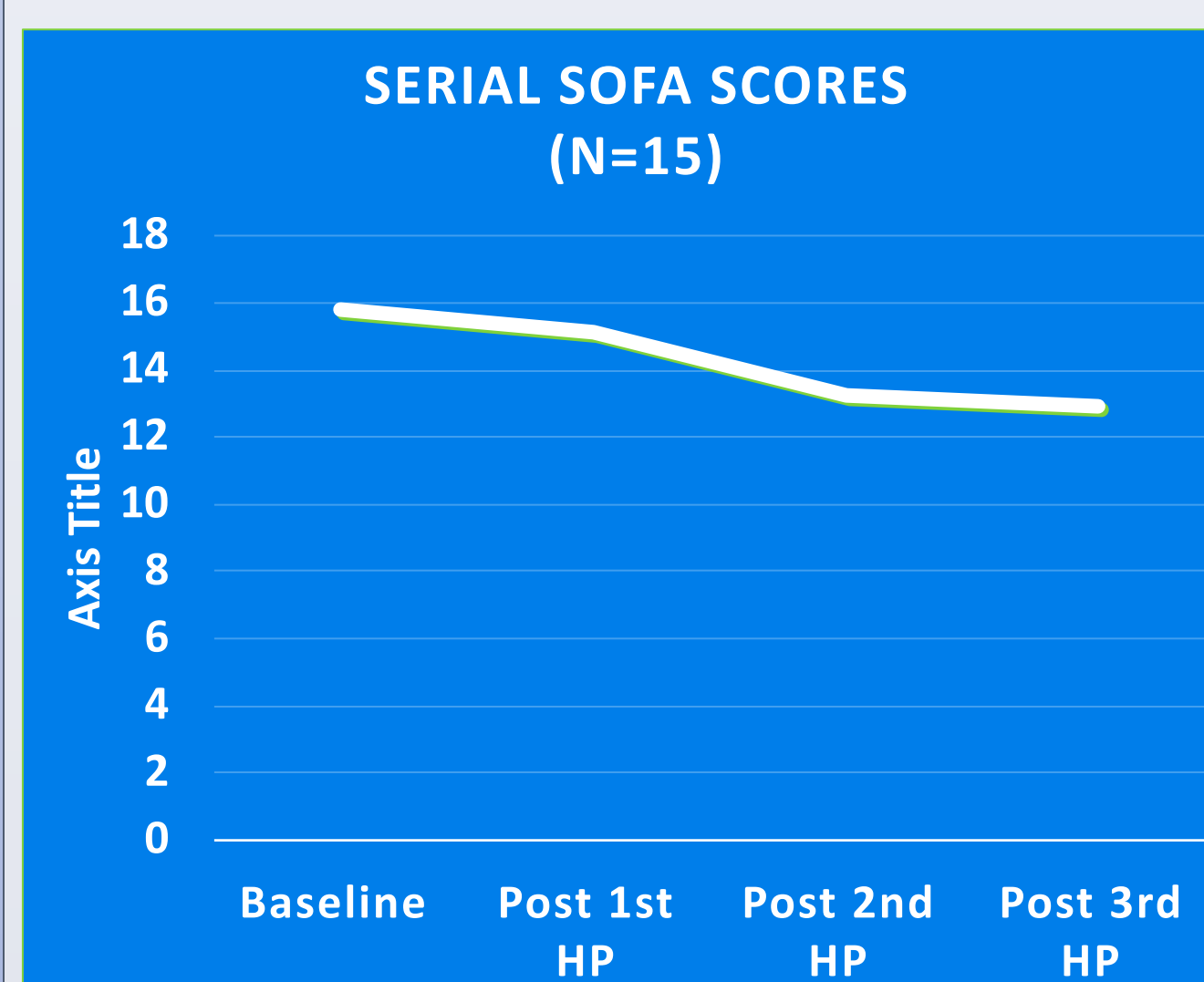
We included patients with severe leptospirosis who acute respiratory distress syndrome and acute renal failure. All patients received a minimum of 3 hemoperfusion treatments using HA 330 cartridge for 3 hours for 3 days and underwent additional treatments depending on their hemodynamic status. Blood flow rates were kept between 150-200mL/minute. Sequential organ failure assessment (SOFA) score, demand for inotropes to achieve a MAP 65 ($\mu\text{g}/\text{h} \cdot \text{mmHg}^{-1}$), HsCRP and Procalcitonin were collected at the baseline until after the last hemoperfusion therapy. Renal and patient survival were also noted.

RESULTS

There were 19 patients who were included in this case series. Fourteen patients survived and all patients recovered their pulmonary and renal function. Five patients died.

BASELINE CHARACTERISTICS

PATIENT	AGE	CREATININE (mg/dL)	PRO-CALCITONIN	APACHE II*	SOFA** score
1	47	6.4	73.81	20	16
2	38	1.7	6.1	22	17
3	42	4.6	1.98	33	17
4	26	12	28.05	30	17
5	40	9.1	75	19	18
6	22	8.9	92.03	25	17
7	22	9.5	48.96	25	18
8	28	10.5	205.81	20	17
9	33	7.4	61.3	22	11
10	40	4.6	29.1	33	13
11	40	12.2	12.51	30	12
12	25	4.6	166.2	19	21
13	34	7.7	40.6	25	19
14	23	5.4	170.9	25	13
15	20	2.5	1.45	20	11



MEAN INOTROPIC REQUIREMENTS DECREASED AFTER HEMOPERFUSION (n=15)

Inotropes	Baseline dose	Post 1 st HP	Post 2 nd HP	Post 3 rd HP
Norepinephrine (mkm)	1.11	0.41	0.08	0.025
Dopamine (mkm)	2.54	1.75	0.5	0
Dobutamine (mkm)	0.96	0.23	0	0

RENAL OUTCOME AND PATIENT SURVIVAL			
PATIENT	DAYS OFF DIALYSIS	DAYS ON ECMO	PATIENT SURVIVAL
1	11	6	Alive
2	2	17	Alive
3	6	5	Alive
4	14	8	Alive
5	18	7	Died
6*	-	1	Died
7	4	19	Alive
8	8	7	Died
9	6	6	Alive
10	4	10	Alive
11	4	9	Alive
12	4	34	Alive
13	4	10	Alive
14	14	18	Alive
15	6	6	Alive

CONCLUSION

There was a decrease of Procalcitonin, HsCRP levels, SOFA scores, and decrease of inotropes after the first hemoperfusion, allowing adequate blood pressure support to do the ECMO and renal replacement therapy. It stabilized the hemodynamic status of the patient.