

# Incidence and determinants of acute hemodialysis complications during the first three sessions in the two hemodialysis centers of Yaounde

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## Introduction and aim

The initiation of hemodialysis is associated with increased risk of acute complications. This study aim to determine the incidence and determinants of acute hemodialysis complications in Yaounde, Cameroun.

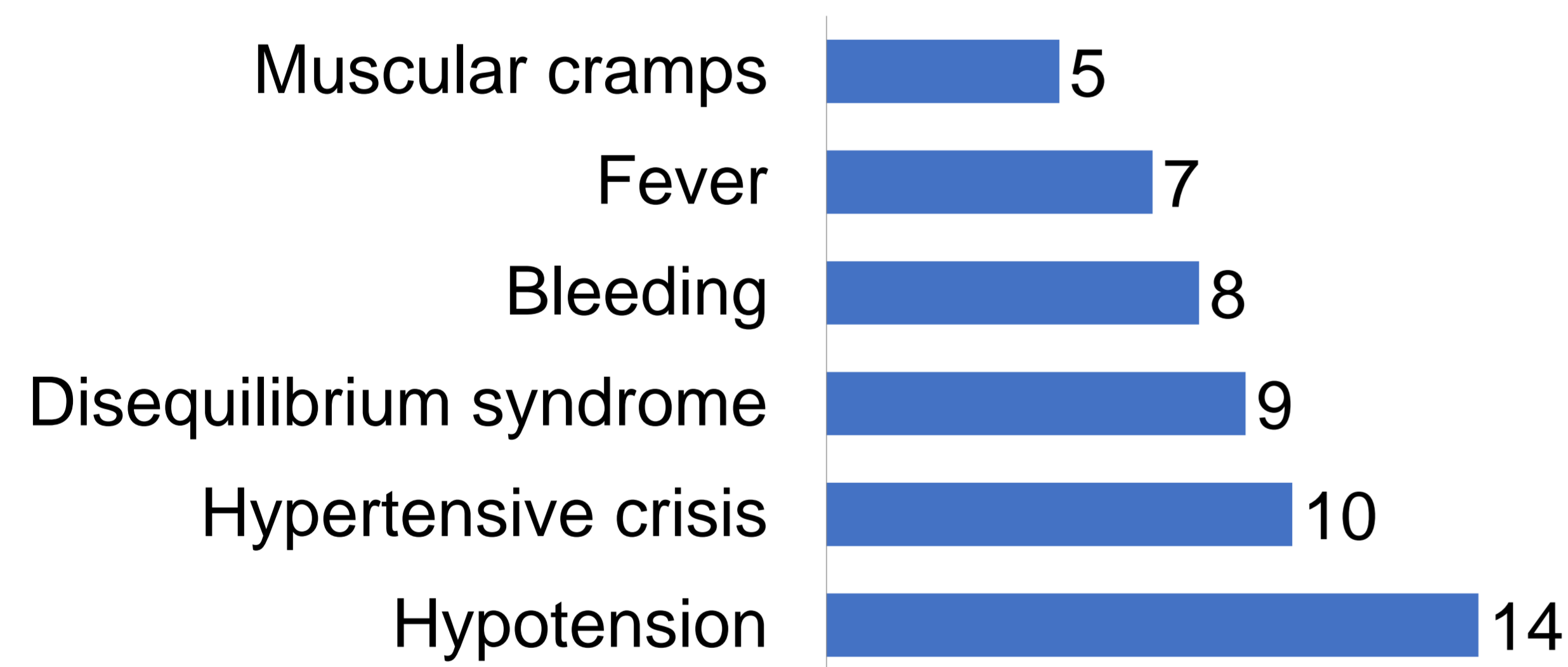
## Patients and Methods

This was a cohort study of three months duration (January-March 2016) in hemodialysis centers of Yaounde University Teaching and General Hospitals. We followed the first three hemodialysis sessions of two hours each of all consenting adults' patients using a polysulfone membrane and bicarbonate. We examined patients before, during and after each hemodialysis session. All clinical manifestations linked to hemodialysis and occurring up to 24 hours following the third hemodialysis session were recorded as complications.

## Results

- We included 53 patients (71.7% males) with a mean age of 51±17.6 years among which only 49 reached the third session. Two patients died after each first two sessions corresponding to 153 hemodialysis sessions follow up.
- Hemodialysis was initiated in emergency in 83% of cases.
- Uremic encephalopathy (49%), pulmonary edema (34%) and electrolytes and acid-base abnormalities (11.3%) were the main indications of hemodialysis.
- The incidence rate of acute complications was 28.1 complications for 100 sessions of dialysis-days. We observed 17 (39.5%), 14 (32.5%) and 12 (27.9%) acute complications respectively after the first, second and third dialysis sessions.
- We reported 7 deaths giving a global mortality rate of 4.57 for 100 patients-days. This was 3.77, 3.92 and 6.12 respectively after the first, second and third dialysis sessions.

**Figure 1: Acute hemodialysis complications**



**Table 2: Determinants of mortality**

Determinants	RR (95%CI)	p
Muscular cramps	3.88 (0.40 – 37.61)	0.28
<b>Fever</b>	<b>19.06 (2.58 – 140.75)</b>	<b>0.017</b>
<b>Bleeding</b>	<b>28.8 (3.34 – 248.04)</b>	<b>0.010</b>
Disequilibrium syndrome	7.94 (0.71 – 88.10)	0.17
<b>Hypertensive crisis</b>	<b>25.33 (11.56 – 55.49)</b>	<b>0.046</b>
<b>Hypotension</b>	<b>18.13 (3.55 – 92.44)</b>	<b>0.001</b>

**Table 1: Determinants of acute complications**

Determinants	RR (95%CI)	p
<b>Age&gt;50 years</b>	<b>2.58 (1.2 – 5.55)</b>	<b>0.018</b>
Hypertension	1.29 (0.63 – 2.63)	0.48
<b>Diabetes mellitus</b>	<b>2.1 (1.00 – 4.43)</b>	<b>0.047</b>
Feeding <2 hours	0.94 (0.46 – 1.91)	0.87
Anemia	2 (0.20 – 19.39)	1.00
Hyponatremia	1.83 (0.49 – 6.80)	0.36
<b>Hyperkalemia</b>	<b>10.76 (1.09 – 105.48)</b>	<b>0.032</b>
Hypocalcemia	2.52 (0.77 – 8.23)	0.119
Hypermagnesemia	1.78 (0.41 – 7.75)	0.459
Metabolic acidosis	0.65 (0.15 – 2.69)	0.709
Blood urea nitrogen >200 mg/dl	1.51 (1.25 – 1.84)	0.543

## Conclusion

This study revealed a higher incidence of acute hemodialysis complications and mortality rate. Efforts should be made for early referral of patients requiring hemodialysis.

No conflicts  
of interest

