RIVERSIDE MEDICAL CENTER, INC.

DR. PABLO O. TORRE MEMORIAL HOSPITAL

METRO PACIFIC HEALTH
THE HEART OF FILIPINO HEALTHCARE

DEPARTMENT: Ancillary Division		**POLICY NUMBER:** DPOTMH-MPP-HEMO-P014-(01)	
TITLE/DESCRIPTION: **MANAGEMENT OF COMPLICATIONS**			
EFFECTIVE DATE: May 30, 2025	**REVISION DUE:** May 29, 2028	**REPLACES NUMBER:** N/A	**NO. OF PAGES:** 1 of 6
APPLIES TO: Hemodialysis Unit, Medical Service Division		**POLICY TYPE:** Multi Disciplinary	

PURPOSE:

To establish a clear, standardized procedures for the identification, prevention, and management of complications associated with hemodialysis, ensuring patient safety and optimal clinical outcomes.

DEFINITIONS:

INTRADIALYTIC HYPOTENSION (IDH) - This can cause distressing symptoms & may also be associated with poor long term outcomes. Definition: systolic BP less than 90 mmHg as this has the strongest association with increased mortality.

CRAMPS - a sudden, unexpected tightening of one or more muscles.

NAUSEA AND VOMITING - ***Vomiting,*** or emesis, is the forceful retrograde expulsion of gastric contents from the body. *Nausea* is the unpleasant sensation that precedes vomiting. ***Nausea*** frequently is relieved by vomiting and may be accompanied by increased parasympathetic nervous system activity including diaphoresis, salivation, bradycardia, pallor, and decreased respiratory rate.

HEADACHE - Headache consists of *pain or discomfort arising from pain-sensitive structures in the head*

Seizure - A seizure represents the *uncontrolled, abnormal electrical activity of the brain* that may cause changes in the level of consciousness, behavior, and memory.

DYSEQUILIBRIUM - A set of systemic & neurologic symptoms that can occur either during or following dialysis. Early manifestations include nausea, vomiting, restlessness & headache. More serious manifestations include seizures, obtundation & coma. Most believe it is relataed to an acute increase in water content. It can be precipitated when an acutely uremic patient is dialyzed too energetically.

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RESPONSIBILITY: Nephrologist, Medical Resident On-Duty, Hemodialysis Personnel, Physician On-Duty

POLICY:

All persons responsible are required to be competent, attentive, and informed at all times of the to potential intradialytic and post-dialysis complications. They must act promptly to identify, document, manage, and report them. Staff must ensure that emergency interventions and protocols are in place and practiced regularly. Clear definitions, roles, and management protocols must be in place, consistent with PSN recommendations for clinic operations.

Intradialytic Hypotension (IDH)

Management:

1. Avoid large intradialytic weight gains
2. Increasing weekly treatment time (4 hrs 3 times a week based on European Best Practice Guidelines)
3. Frequent re assessment of target/dry weight
4. May need to withhold BP meds
5. Patients who are prone to hypotension during dialysis should avoid eating just before or during a dialysis session

Acute management:

1. Patient should be placed in Trendelenburg position if respiratory status allows
2. A bolus of 0.9% saline (100 ml increments or more as necessary) should be rapidly administered via the blood line
3. The ultrafiltration rate should be reduced to as near zero as possible & patient should then be monitored closely. UF can be resumed once vital signs have stabilized.

***with current dialysis practice, reduction of the blood flow rate to manage IDH is UNLIKELY to be of benefit.**

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CRAMPS

Exact etiology is unknown but the 4 most important predisposing factors are: hypotension, Forced stretching of the muscle may provide relief hypovolemia, high UF rate (large weight gain) & use of low sodium dialysis solution.

Management:

1. When hypotension & muscle cramps occur concomitantly, both may respond to treatment with 0.9% saline.
2. Hypertonic solutions (saline, glucose, mannitol) may be more effective; hypertonic glucose is preferred for treatment of muscle cramps in nondiabetic patients
3. For prevention, biotin at 1mg/day has been reported to improve cramps and vitamin E.

NAUSEA AND VOMITING

The cause is multifactorial. Most episodes in stable patients are probably related to hypotension.

Management:

1. Treat any associated hypotension
2. Antiemetics can be administered (metoclopramide 5 to 10mg)

HEADACHE

Cause is largely unknown. It may be a subtle manifestation of disequilibrium.

Management:

1. Paracetamol

CHEST PAIN AND BACK PAIN

The cause is unknown but an Acute Coronary Syndrome needs to be ruled out. There is no specific management. Investigate for cardiac causes,

1. Do a 12lead ECG

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DYSEQUILIBRIUM

Management:

1. Symptomatic if mild & if patient is acutely uremic & symptoms occur during dialysis, the blood flow rate should be decreased & consideration should be given to terminating the dialysis session earlier than planned.
2. If seizures, obtundation or coma occur in the course of a dialysis session, dialysis should be stopped. Airway should be controlled & patient ventilated if necessary.

Prevention

- One should not prescribe an overly aggressive treatment session
- Use dialysis solution sodium concentration of 140 mEq/L

SEIZURE

Etiology

1. Uremic encephalopathy
2. Disequilibrium syndrome
3. Aluminum encephalopathy
4. Hypertensive encephalopathy
5. Intracranial hemorrhage
6. Others
    - Hypocalcemia
    - Hyperosmolality
    - Hypernatremia (accident due to hemodialysis machine malfunction)
    - Anoxia (Arrhythmia, anaphylaxis, severe hypotension, air embolism)

Prevention

- Limiting dialysis session length and flow rate
- Maintenance od dialysis solution Na concentration at or above plasma level
- Use of 3.5 mEq/L or 4.0 mE
- q/l calcium bath in hypocalcemic patient, administration of IV calcium during dialysis if necessary
- BP control during EPO therapy

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Management

- Stop dialysis
- Maintain airway patency
- Draw blood for glucose, calcium and other electrolytes
- If hypoglycemia is suspected, administer IV glucose
- Administer (if reqiured):
  - IV diazepam: 5-10 mg slow IV then q 15 mins (up to maximum total dose of 30 mg)
  - IV phenytoin: 10-15 mg/kg slow IV infusion at a rate no greater than 50mg/ min

PROCEDURE:N/A

WORK INSTRUCTION::N/A

WORK FLOW::N/A

FORMS::N/A

EQUIPMENT::N/A

REFERENCES:

1. https://www.ncbi.nlm.nih.gov/books/NBK410/
2. PSN Handbook of Dialysis (Fifth Edition)

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