

 BC Renal Agency	Title: Intradialytic Hypotension Protocol
Clinical Practice Standards and Procedures	Origin Date: July 8, 2008 Reviewed Date: July 8, 2008 Revised Date: June 4, 2010

This protocol is posted on the BC Provincial Renal Agency website – For Health Professionals Channel – Standards and Guidelines – <http://www.bcrenalagency.ca/professionals/standguide.htm>

1.0 PRACTICE STANDARD

Skill Level: Specialized

Registered Nurses who have completed the required hemodialysis specialty education and who provide nursing care in a British Columbia In-Centre and/or Community Renal Program perform this protocol.

Need To Know:

- The Registered Nurse will treat hypotension following a thorough assessment and according to the following protocol and algorithm.
- The protocol is intended for periodic and unexpected hypotension during hemodialysis. It does not replace the need for careful clinical assessment of dry weight and/or acute illness in an unwell patient.
- When the target is reduced by 0.5 kg as part of treating hypotension, this change is not considered a new dry or goal weight.
- A Nephrologist should be alerted and assess a patient with symptomatic hypotension over 3 consecutive treatments or per unit specific protocol.
- **Intradialytic hypotension** is defined as an abrupt drop in blood pressure of greater than 40mmHg in systolic blood pressure or greater than 20mmHg in diastolic blood pressure and/or a systolic blood pressure of less than 100mmHg or a diastolic blood pressure of less than 40mmHg requiring a nursing intervention. Intradialytic hypotension may be associated with symptoms that include abdominal discomfort, yawning, sighing, nausea, vomiting, muscle cramps, restlessness, dizziness, fainting or anxiety. Intradialytic hypotension may occur if the ultrafiltration rate exceeds the plasma refilling rate within the blood vessels of the patient. It is a common complication during hemodialysis treatments. It may be minor or severe, asymptomatic or very symptomatic with changes in consciousness - decreased level of consciousness or even cardiac decompensation.

Strategies to prevent hemodynamic instability are routinely prescribed and may include one or more of the following:

- Accurate dry weight assessment
- Dialysate sodium modeling
- Combined sodium and ultra filtration modeling (profiling)
- Sequential Ultrafiltration then isovolemic dialysis (no Ultrafiltration)
- Cool dialysate
- Use of Hematocrit or Hemoscan monitoring
- Alpha agonists –midodrine or pseudoephedrine
- Avoid eating directly prior to or during dialysis
- Improving cardiac performance with higher dialysate calcium

The BCPRA Medical Advisory Committee (MAC) recommends against the use of albumin for the treatment of intradialytic hypotension based on the lack of supporting evidence in the literature and potential harm and risk.

2.0 DEFINITIONS AND ABBREVIATIONS

UF - ultrafiltration

Qb – blood pump speed

S&S – signs and symptoms

SOB – shortness of breath

3.0 ASSESSMENT AND INTERVENTIONS

Assess for signs and symptoms of hypotension such as decrease in blood pressure, increased heart rate, vertigo, diaphoresis, nausea, vomiting, restlessness, cramping etc. and follow attached algorithm.

4.0 DOCUMENTATION CONSIDERATIONS

Document vital signs, symptoms and/or patient condition, hypotension algorithm use, significant findings such as excessive fluid being removed, nitro patch left on, error in target weight entered, patient outcomes and all nephrologist communication on unit specific documentation record.

5.0 SPECIAL CONSIDERATIONS

Potential causes of hypotension may include the following:

1. A rapid reduction in plasma osmolality, which causes extracellular water to move into the cells.
2. Rapid fluid removal in an attempt to attain “dry weight”. This may lead to the blood vessels inability to refill from interstitial spaces. The decrease in blood volume may lead to a decrease in cardiac filling and in cardiac output. This will ultimately lead to hypotension.

3. Inaccurate determination of true “dry weight”.
4. Sepsis, active bleeding, and anemia.
5. Autonomic neuropathy.
6. Diminished cardiac reserve.
7. Intake of antihypertensive medications that can impair cardiovascular stability.
8. Sudden release of adenosine during organ ischemia.
9. Ingestion of a meal immediately before or during dialysis.
10. Arrhythmias or pericardial effusion with tamponade, which are volume unresponsive causes of hypotension.
11. Reactions to the dialyzer membrane, which may cause wheezing, dyspnea and hypotension.
12. Increased synthesis of endogenous vasodilators, such as nitric oxide.
13. High magnesium concentrations in the dialysate.

6.0 REFERENCES

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