Hemodialysis: Heparin Protocol

Site Applicability

All PHC Hemodialysis (HD) Units (SPH In-center, Metro and Coastal Community Dialysis Units)

Practice Level

Specialized: Nurses who have completed the required education and provide nursing care in a PHC Renal Program HD unit follow this protocol.

Requirements

A prescriber's order is required to initiate the heparin protocol for chronic hemodialysis patients.

Need to Know

1. Heparin is the most common anticoagulant used during HD for the prevention of clotting of the HD circuit.
2. The half-life of heparin is approximately 90 minutes. Therefore, approximately half the administered heparin will be metabolized by that time. The full dose of IV heparin will be completely gone after approximately 4 hours.
3. Therefore, if heparin is stopped 1 hour prior to end of a HD treatment, a significant amount of the heparin will be gone, but there will be some anticoagulation present to prevent clotting.
4. Situations in which administering heparin or the dose of heparin should be reassessed by the MD include:
    a. Platelet count below 50: dose may need to be reduced.
    b. Surgery within the last 2 days: Should use no heparin for the subsequent 2 treatments after the surgery. Restart date to be determined by MD based on type and extent of surgery.
    c. Known to have active bleeding from the retina (i.e. due to diabetes) or has had eye surgery within the last 10 days. Heparin should be held for 3 runs post eye surgery for retinal bleeding.
    d. menstruating women
    e. active bleeding (e.g. GI, hemoptysis) or bruising
    f. history of recurrent falls
    g. If there is recurrent clotting of the extracorporeal system
    h. Uremic pericarditis
    i. Active intracranial or extradural hemorrhage
    j. Use of systemic anticoagulants
    k. Coagulation Factor VII or VIII deficiency

Equipment and Supplies

1. Heparin 10,000 units/10 mL vial
2. Needle gauge #18
3. 20 mL syringe
4. Medication label (ADC printed)

Protocol

1. Only use single dose vial of heparin with concentration of 1000 units/mL or 10,000 units /10 mL.
2. A medication label should be attached to 20 mL syringe with heparin 10,000 units/10 mL. prior to loading to the HD machine
3. Follow HD machine instructions in loading the 20 mL syringe with heparin
4. Most patients receive a standard loading dose of 1000 units and a standard running dose of 500 units/hour until the last hour of HD.
5. Patients with a high risk for bleeding should be dialyzed “heparin free.” This consists of normal saline (NS) flushes every 30 to 60 minutes using 100 to 200 mL of NS to visualize the circuit and, as necessary, a change of the circuit when there are clotting difficulties if greater than 1 hour of HD is remaining.
6. When a patient is having a HD treatment after a fistulogram/fistuloplasty, heparin is not being held unless there are complications during the procedure.
7. Heparin should be discontinued one (1) hour prior to end of a HD treatment if the patient is going for fistulogram/fistuloplasty after the HD treatment.

Documentation

1. Cerner Sites

   A. Cerner Electronic Health Record iView Dialysis Management (Intra & Post-Hemodialysis)

   - Record heparin dose used for the HD treatment
   - Record any clotting during the HD treatment
   - Record dialyzer appearance post HD treatment
   - Record clotting time of needle sites

   B. Nursing Narrative Notes

   - Record Assessment of the event leading to further clotting of the extracorporeal system despite appropriate titration
   - Record Intervention performed and who was notified

2. Non-Cerner Sites

   - Record Hemodialysis treatment log and/or progress notes actions taken and who was notified.
   - Record direction received from prescriber if applicable
   - Record in the report card/ diary for staff to follow up in subsequent treatments

Patient and Family Education

1. Inform patient that there is an increased risk of bleeding during the first hour following HD treatment.

References

1. Counts, C. (Ed.). (2015). *Core Curriculum of Nephrology Nursing. Sixth Edition. Module 3.* A. J. Janetti Inc.; Pitman, NJ.
2. Daugirdas, J., Blake, P., and Ing, T. (Eds.). (2014). *Handbook of Dialysis. Fifth Edition*. Lippincott Williams & Wilkins, NY.
3. UpToDate© (2020). Literature review through 2021: *Anticoagulation for the hemodialysis procedure. Kovalik, E., and Davenport, A. (Authors); Schwab, S. and Motwani, S. (editors.)*. retrieved June 9, 2021 from www.uptodate.com

Persons/Groups Consulted

Renal Practice Committee

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First Released Date:	November 2003
Posted Date:	21-JUL-2021
Last Revised:	21-JUL-2021
Last Reviewed:	
Approved By:	PHC
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