Hemodialysis: Urea Specimen Drawing Post Dialysis

Site Applicability

PHC In-center and Community Dialysis Units

Practice Level

Specialized: Registered Nurses and Licensed Practical Nurses who have completed the required education, and provide nursing care in a PHC Renal Program hemodialysis specialty unit

Need to Know

1. Dialysis adequacy can be assessed by using pre and post dialysis urea measurements and calculating the percent reduction of urea (PRU). PRU is calculated by: ([Pre-urea minus Post-urea]/pre-urea) x 100%.
2. Both samples (Pre-dialysis and post-dialysis) must be drawn during the same hemodialysis treatment.
3. Do not draw a sample for use as a pre dialysis measure of urea if hemodialysis (HD) has been initiated.
4. Obtain the pre-dialysis blood specimen from the arterial needle/CVC prior to flushing the needle/CVC or connecting the arterial tubing. Be sure that no saline and/or heparin are in the arterial needle/CVC/tubing prior to drawing the sample (see B-00-13-10104 Hemodialysis: CVC Blood sampling)
5. As per the Kidney Dialysis Outcome Quality Initiative (KDOQI) clinical practice guideline for hemodialysis adequacy, the minimally adequate dose of HD given three times per week is single pool (sp) Kt/V of more than or equal to 1.2 or PRU of 65%. The target recommended dose should be (sp) Kt/V of 1.4 or greater than; or a PRU of more than or equal to 70%.

Equipment and Supplies

1. Non sterile gloves
2. Alcohol swab
3. Vacutainer or Luer- Lock access device with needle
4. Sunquest Collect Specimen Label (Cerner)
5. Blood specimen tube (PST Gel and Lithium Heparin/ 3 mL light green top)
6. Yellow gown or cytotoxic disposable blue gown
7. Goggles/face shield and/or mask
8. Syringe (10 mL), if needed
9. Sharp needle 21G 1 TW (0.8 mm x 25 mm) [if required]

Procedure

Steps	Rationale
1. Prepare equipment/supplies to terminate dialysis including vacutainer with or without needle and blood specimen tube as per routine procedure	
2. At the completion of each hemodialysis (HD) treatment, press Bypass icon (B Braun Dialog+ machine) or flip up (open) the shunt interlock cover for dialysate lines (Fresenius 5008 machine)	This stops dialysate flow, lowers ultrafiltration rate to minimum, and opens arterial and venous pressure limits
3. Decrease the blood pump speed to 100 mL/min for 15 seconds.	The slow-blood-flow method reduces the entry of cleared (e.g. dialyzed) blood into the access and stops cardiopulmonary and hemodialysis access recirculation which could result to a falsely high PRU
Drawing Sample From Arterial Port On Bloodline	
4. After 15 seconds, **stop the pump,** swab arterial bloodline injection port with alcohol	
5. Insert needle (of syringe or vacutainer) at a 90 degree angle into the arterial (red) injection port of the HD line. (You may shut off the blood pump before sampling, or leave it running at 100 mL/min while the sample is being drawn). **Proceed to step 7.**	
Drawing Sample From CVC Or Arterial Access Needle	
6. After 15 seconds, stop pump and clamp arterial CVC/access needle and arterial bloodline. Attach vacutainer (or 10 mL syringe) to CVC arterial limb or arterial access needle.	This procedure eliminates need for using an exposed needle.
7. Attach specimen tube to vacutainer and obtain specimen (or drawback on syringe to obtain enough blood to fill specimen tube). When specimen tube is full remove vacutainer after clamping line. If applicable, dispose of sharps in sharps container.	

8. After blood sample is obtained, restart blood pump (if not already done yet) and complete reinfusion; disconnect afterwards as per unit procedure.	
9. Check patient's two unique identifiers and affix laboratory labels to specimen tube prior to sending to laboratory as per protocol	This eliminates risk of error and ensures correct patient to the right specimen; therefore correct result is reported to the right patient

Documentation

Cerner Site: Inter Active View I & O – Post Hemodialysis section under Post HD Assessment Screening

Non-Cerner Sites: Hemodialysis Log form. Indicate post-HD urea drawn under post HD bloodwork

Patient and Family Education

1. Bloodwork is drawn every six weeks. The results of this blood work assist the Nephrology Team to determine whether changes need to be made to the patient's dialysis prescriptions to ensure optimal dialysis.
2. Post-dialysis bloodwork is one of the tools used to determine dialysis adequacy.
3. The amount of blood drawn is minimal

Related Documents

1. B-00-13-10104 – Hemodialysis: Central Venous Catheter (CVC) Blood Sampling
2. Occupational Health and Safety – Cytotoxic/Hazardous Drugs

References

1. Fresenius Medical Care 5008 Hemodialysis Operating Instructions (2013). (Software Version: 4.50)
2. Henrich, W. & Burkart, J. (2022). Literature Review: Patient Survival and maintenance dialysis. UpToDate. Retrieved on July 26, 2022 from https://www.uptodate.com
3. Qunibi, W. (Author) & Schwab, S. & Taylor, E. (2021). Literature Review: Prescribing and assessing adequate hemodialysis. UpToDate. Retrieved on September 21, 2022 from http://www.uptodate.com/
4. Pierratos, A. (Author), Schwab, S. & Taylor, E. (Editors). (2022). Literature Review: Outcomes associated with nocturnal hemodialysis. UpToDate. Retrieved on September 21, 2022 from https://www.uptodate.com
5. Providence Health Care (2018). Occupational Health and Safety. My Safety at Work-Cytotoxic/hazardousdrugs. https://connect.phcnet.ca/clinical/occupational-health-safety/cytotoxic-hazardous-drugs .
6. National Kidney Foundation Dialysis Outcomes Initiative (KDOQI Guidelines, 2006)

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Persons and Groups Consulted

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