

# Sustained low-efficiency daily diafiltration (SLEDD-f)

## BEFORE ALL TREATMENTS

- Ensure blood borne virus screen performed once
- Send bloods first thing in the morning (FBC, U&E, LFT, Calcium, Phosphate, Albumin, Bicarbonate). Check blood glucose if diabetic.
- Contact acute dialysis team for dialysis machine arrangements (x4174) to ensure appropriate machine for blood borne virus status
- Ensure patient in a bedspace plumbed for dialysis
- Acute dialysis team to ensure RO machine in bedspace and turned on
- Check patient weight (if possible) and BP
- If serum sodium >148mmol/L or <128 consult renal registrar/consultant
- If potassium >6.0 use A335 acid concentrate (not A511)
- ITU/renal team to decide on fluid removal goal for treatment
- ITU/renal registrar/consultant to complete SLEDD-f prescription
- Ensure all consumables available ensuring correct concentrate bottle

## BLOOD BORNE VIRUS SCREEN (PERFORM ONCE)

- Hepatitis B core antibody
- Hepatitis B surface antigen
- Hepatitis C antibody
- HIV antibody
- PCR for Hepatitis C RNA if iv drug use or from high risk area

## CONSUMABLE REQUIREMENTS

- FX 60 Cordiax dialyzer
- A511 concentrate can if blood potassium <6mmol/L. This will make with 3mmol/L potassium, 1.75mmol/L calcium dialysis fluid.
- A335 concentrate can if blood potassium ≥6mmol/L. This will make 2mmol/L potassium, 1.25mmol/L calcium dialysis fluid
- Bicarbonate BiBag 650g
- Blood line set (AV Set Online Plus 5008-R)
- Equipment for connection/disconnection of dialysis catheter aseptically
- Sterile saline for dialysis catheter flush
- Catheter locking solution (eg. heparin 1000 units/ml)
- 1000ml 0.9% normal saline and giving set for fluid boluses

## MACHINE SETUP

- Acute dialysis team to support as required
- Turn on dialysis machine, select treatment ("Online")
- Connect concentrate cannister (A511) and Bibag
- After T1 test, set up blood lines
- **Select online settings.** Set HDF Pre Dilution, AutoSub as OFF, Sub Rate as 100ml/min
- **Prime circuit.** When indicated connect HDF line (Safeline) to PREDILUTION port
- **Dialysate menu:** set acid concentrate to correct can (A335 of A511). Set dialysis fluid flow to Auto Flow OFF. Set flow rate to 200ml/min.
- **Pre-preparation menu:** Set dialyser to FX60. Set UF goal as per desired fluid removal (ml). Set treatment time (UF time) to 6 hours
- **Set up saline bag and prime giving set:** Connect to arterial side circuit iv giving port.

## START OF TREATMENT

- Ensure appropriate PPE (eye protection worn for all patients)
- When machine ready, aseptically aspirate line lock from dialysis catheter. If blood not freely aspirated from dialysis catheter do not start treatment and consult ITU/renal registrar.
- Connect patient to dialysis circuit. Blood lines MUST be visible all times
- Administer anticoagulation as per ITU prescription chart, usually dalteparin given into extracorporeal circuit in "arterial" port, ie pre-filter.

## DURING TREATMENT

- Start at blood pump speed 100ml/min and build up to 200-350ml/min
- Observations every 30 minutes minimum (BP, resp rate, O2 sats, pulse)

## END OF TREATMENT

- Check temperature, BP, resp rate, O2 sats, pulse, glucose (if diabetic)
- Perform washback procedure
- Disconnect dialysis catheters aseptically, lock with heparin 1000 units/ml

## AFTER TREATMENT

- Dispose of blood lines
- Visually inspect machine for blood spillage and clean surface with Clearsurf
- Perform **heat disinfect**
- Complete record of prescription and file in ITU notes.
- ITU nurse to discuss next treatment timing with acute dialysis team

## MACHINE STANDARD SETTINGS for SLEDD-f

- FX 60 Cordiax dialyzer
- **Blood flow 200-350ml/min ideally, but lower possible**
- **6 hour treatment duration**
- **Dialysis fluid AutoFlow OFF**
- **Dialysis fluid flow rate 200ml/min**
- Dialysis fluid temperature 36°C
- Dialysis fluid sodium 138mmol/L if blood sodium in range 128-148. Otherwise consult renal team.
- Dialysis fluid bicarbonate 32mmol/L
- **HDF AutoSub function OFF**
- **HDF replacement fluid set as PRE DILUTION**
- **HDF replacement fluid rate set as 100ml/min FIXED RATE**

## DIALYSIS MACHINE ALLOCATION / ISOLATION:

- Acute renal team to manage this

## RENAL TEAM CONTACTS:

- Acute dialysis team extension 4174
- Ward 6B 5063/4068/5064
- Outlier Renal registrar bleep 4946 or mobile phone via switchboard
- Renal consultant on call via switchboard

## PROCEDURE FOR URGENT FLUID BOLUS IF HYPOTENSION

### For an urgent fluid bolus:

- Release clamp and roller on normal saline giving set attached to arterial side of extracorporeal circuit (set up before dialysis commences)
- Clamp or pinch blood flow from patient arterial dialysis line (red lumen) to ensure saline infused rapidly.
- Infuse fluid as desired, eg. 100ml
- When appropriate volume given, release patient dialysis arterial dialysis line and clamp off saline giving set.
- Administer further fluid boluses as required

## ANTICOAGULATION FOR SLEDD-f

### Standard anticoagulation for patients WITHOUT coagulopathy who are not on anticoagulation (except DVT prophylaxis)

If there is bleeding risk discuss with renal team.

Dalteparin injected into dialysis circuit arterial port (pre-filter)

≤65kg 2500iu dalteparin at start of dialysis.

65-90kg 5000 iu dalteparin.

>90kg 7500iu dalteparin.

A second dose of 2500iu dalteparin may be required after 3h if circuit clotting is seen to commence.

Prescribe dalteparin on ITU chart with route of delivery as “extracorporeal circuit”

### Anticoagulation for patients with coagulopathy

- Anticoagulation may not be required at all and if the patient has coagulopathy and it is reasonable to perform a trial of SLEDD-f without anticoagulation
- If anticoagulation is needed, bolus heparin dose of 500 iu injected into dialysis circuit arterial port (pre-filter). Further bolus 500iu every 1 hour.

### Patients on full anticoagulation

- If the patient is on full anticoagulation (heparin, LMWH, warfarin, NOAC) then SLEDD-f without anticoagulation is likely to be successful
- Check the INR of APTT ratio of the patient is in the therapeutic range before dialysis (INR>2 or APTT-R>2.0). If not then additional dalteparin is likely to be required or heparin likely to be required.
- If any anticoagulation is needed, bolus heparin dose of 500 iu injected into dialysis circuit arterial port (pre-filter). Further bolus 500iu every 1 hour.

### Recurrent problems with circuit clotting

- Give 100ml saline flushes through extracorporeal circuit every 30 mins and remove equivalent amount of fluid.
- If recurrent clotting, heparin infusion is recommended. Consult renal team.
- A typical regime would be 1000 iu heparin bolus at the start of dialysis and 1000 iu per hour maintenance infusion throughout dialysis. This is given using the dialysis machine heparin pump.

### Heparin Induced Thrombocytopenia

- Discuss with renal team. Low molecular weight heparin, standard heparin and heparin line lock not to be used. Line lock to be heparin free. Use Taurolidine citrate (Taurolock) line lock (ensure you don't use Taurolock Hep 500 which has heparin).
- Single dose fondaparinux 2.5mg injected into dialysis circuit arterial port (pre-filter) irrespective of body weight may be used with further dosing likely to be needed after 3h.
- Other alternatives such as argatroban and danaparoid exist.