

SOP for infusion of cytotoxic medication.

DOXORUBICIN, EPIRUBICIN, MITOXANTRONE & CARBOPLATIN

All of these drugs need to be infused to the patient over 20 minutes and should be administered concurrently with a free running saline drip in the same vein.

For animals over 20kg the drug should be delivered in a 20ml set to run at 60ml/hr.

For animals under 20kg the drug should be delivered in 10ml set to run at 30ml per hour.

PATIENT PREPARATION:

The patient should have a positively placed iv cannula appropriate to the size of the patient secured. The cannula should be flushed following placement with at least 10ml of saline to ensure patency and that there is no evidence of perivascular leakage. **THIS IS CRITICAL. IT THERE IS ANY DOUBT THE CANULA SHOULD BE WITHDRAWN AND ANOTHER VEIN USED.**

A pre filled double port needle free (Microclave) connector is attached and this should be bandaged lightly to the limb to prevent patient interference.

A 500ml bag of saline with “moduflo” giving set should be made ready for use.

DRUG PREPARATION:

The following should be placed in the containment cabinet

- 2 x 20ml luer lock syringes
- Narrow bore spiral extension
- Microclave connector
- A female to female (F-2-F) connector
- A SPIROS non return valve connector
- Vial spikes – one for each bottle of drug required. These are single use and once inserted into a vial of drug should under no circumstance be withdrawn from that vial
- Bottle – or bottles – of drug sufficient to make the total dose required
- 2 spirit soaked cloths (pre-packed)
- A syringe sufficient to contain the total volume of drug required. The smallest possible should be used. Do not use a 20ml syringe to draw up 1 ml for example.
- Absorbent mat
- A cytotoxic waste disposal bag
- Kidney dish. One for each patient and identified with patient name if there is more than one patient for treatment

The following should be in the cabinet at all times

- Bag of saline
- 19g needles
- “CYTOTOXIC” labels
- A pair of artery forceps
- Purple top sharps bin

PROCEDURE:

- Calculate the volume of drug required.
 - Gather equipment as above and place in the containment cabinet.
 - Turn on the Containment cabinet fan and light (See SOP for operation of the Biomat containment cabinet)
 - Lock the chemo room door. Access to the room should be denied to all persons not suitably attired during preparation and administration of cytotoxic medication
 - Gown and glove using suitable PPE. See separate SOP.
 - Ensure that the Biomat digital read out indicates that "airflow safe" before proceeding.
 - Open all the equipment and arrange tidily on the absorbent mat. DO NOT PIERCE DRUG VIALS UNTIL NEEDED.
 - Draw up 10 or 20mls of saline in a 20ml syringe.
 - Attach the Microclave connector to the female end of the spiral extension (The end distant to the patient).
 - Attach the saline syringe and prefill the spiral.
 - Without detaching, the syringe place in the kidney bowl.
 - Calculate to the nearest whole ml. the volume of saline required to make the drug infusion to 20 or 10 mls (as dictated by the size of the patient). (This clearly is 20 (or 10) MINUS the volume of drug required for the dose) and draw this into the second 20ml syringe. A "cytotoxic label should be attached to this syringe.
 - Fix the F-2-F connector to this syringe.
 - Open the vials of drug and pierce the vial of the drug with a vial spike, holding the vial firmly and flat on the work surface of the cabinet and on the absorbent mat.
- YOU SHOULD NOW NOT WITHDRAW YOUR HANDS FROM THE CONTAINMENT CABINET UNTILL YOU HAVE REMOVED OUTER GLOVES AT THE END OF THE DRUG PREPARATION**
- Attach the appropriate sized syringe to the vial spike and carefully withdraw the dose. You may need more than one bottle of drug in some circumstances and a separate vial spike should be used in each vial
 - Dispose of used vials and spikes in the purple top cyto bin
- UNDER NO CIRCUMSTANCES SHOULD THE VIAL SPIKE BE REMOVED FROM THE VIAL**
- When all the full dose of drug has been made up attach the syringe firmly to the free end of the F-2-F connector and mix the saline and drug to obtain 20 (or 10)ml of infusion. **ALWAYS MIX THE SMALLER SYRINGE INTO THE BIGGER ONE NEVER THE OTHER WAY ROUND "LITTLE INTO BIG"**
 - When suitably mixed disconnect the F-2-F connector using the forceps in the containment cabinet. The F-2-F connector should be removed from the syringe containing the prepared drug and should remain attached to the empty syringe.
 - Dispose of this immediately in the purple top cyto bin.

- Connect the Spiros non-return valve to the syringe containing the prepared drug. This should be twisted on until it “snaps” and cannot be removed.
- Place in the kidney bowl
- Open a spirit soaked cloth and wipe hands, forceps and the stock bag of saline. When used place on the absorbent mat.
- Remove sleeves and outer blue gloves ensuring they are reversed when removed. Wrap the gloves, sleeves and other waste in the absorbent pad and put in the cytowaste disposal bag
- You can now remove the prepared drug to the patient and remove your hands from the containment cabinet.

DRUG ADMINISTRATION:

- Place an inco pad on the table
- The patient should be restrained calmly but firmly on the table over the inco pad. THIS MAY MEAN SEDATION FOR SOME PATIENTS NOTABLY CATS.
- Remove bandaging materials from the patient’s leg. You should be able to see the taped-in catheter.
- Attach the saline drip from the bag to one of the ports of the double connector. And allow to run freely until you are satisfied that there is no leakage.
- Attach the spiral extension to the other port of the double connector.
- Detach the saline flush syringe and attach the syringe of prepared drug.
- Place the prepared drug on the syringe driver and start the infusion at the appropriate rate (60ml/hr for animals over 20kg and 30ml/hr for animals under 20kg).
- The animal and all connections should be monitored throughout the infusion.
- When finished disconnect the drug syringe from the spiral extension by separating the spiros connector from the microclave connector. **DO NOT DISCONNECT THE MICROCLAVE CONNECTOR FROM THE SPIRAL EXTENSION. THIS WILL ALLOW DRUG TO FLOW BACK FROM THE SPIRAL RESULTING IN A SPILL.**
- A spirit soaked cloth should be held underneath the area as it is disconnected and both the end of the spiros and the microclave connector should be wiped on the swab.
- Place the syringe and spirit cloth in the kidney bowl.
- Connect the saline flush syringe and load onto the syringe driver. The infusion should then recommence at the original rate and run until the spiral is completely free of drug. Allow 3 minutes.
- Remove the saline flush from the syringe driver and manually flush the system further to ensure all traces of drug from the spiral
- Stop the saline drip by clipping off the drip set and disconnect from the double port connector.
- Disconnect the spiral from the double port connector and place in the kidney bowl.
- Remove the cannula from the vein and apply a dressing to the cannula site.
- Place the removed cannula in the kidney bowl.
- Take the kidney bowl to the containment cabinet and place the syringes, spiral, cannula and double connector in the cyto waste disposal bag and seal the bag. Dispose of in the foot operated cyto waste bin next to kennels.
- Reverse sedation if given and replace animal back in kennel.
- Remove PPE cleanly and place in the pedal operated cyto waste bin.
- Wash hands with fairy soap and water.
- Door may now be unlocked.