High Intensity Chemotherapy Guidelines for Haematology Patients

This guideline covers high intensity in-patient chemotherapy for Acute Myeloid Leukaemia (AML), Mantle Cell Lymphoma (MCL), Salvage high grade Lymphoma and Primary CNS Lymphoma (PCNSL).

Example regimens commonly used include DA, FLAG, FLAG-Ida, High dose Ara-C (Cytarabine), Nordic, ESHAP and High dose methotrexate/AraC.

Treatment is administered as an inpatient on Onslow Ward except where patients require intensive care support or in other exceptional circumstances. These patients require multiple cycles of chemotherapy followed by a variable period of pancytopenia where close monitoring and support are required. They are usually discharged between cycles.

It is clinically of the utmost importance to avoid delays in treatment as this will affect treatment outcome and prognosis.

Admission:

Patient may be admitted as an emergency for a first treatment of new or progressive disease, or electively for subsequent courses.

All patients should be clerked in, with an up to date history taken, then examined.

Up to date height and weight should be recorded.

Investigations should be reviewed against the chemotherapy protocol to ensure appropriate up to date investigations have been performed. Chemotherapy protocols are available on the St Luke's Cancer Centre Website at http://stlukescanceralliance.co.uk/haematology-chemotherapy/.

Ensure appropriate access is in place. This is usually a PICC line. If a new PICC line is required, contact IV specialist nurse.

Prescribe anti emetics, VTE prophylaxis if appropriate, prophylactic anti-virals/antifungals, prophylactic eye drops (for regimens with high dose cytarabine) and GCSF if appropriate, plus any usual drugs on drug chart.

Chemotherapy is electronically prescribed and is prescribed by Specialist Registrars and Consultants only. Liaise with pharmacy and Specialist Registrar/attending Consultant over any concerns over chemotherapy prescription and consent. The final decision to commence the treatment rests with the Specialist Registrar or Consultant, who will authorise the chemotherapy prescription on the electronic prescription program, ARIA.

During chemotherapy:

Patients should be reviewed daily. Particular attention should be given to whether regimen proceeding well, iv access, nausea and vomiting, hydration, fluid balance, mouth care, sepsis, blood count and coagulation support, as well as dealing with any other issues consequent on chemotherapy, their underlying malignancy or other medical issues.

The chemotherapy protocol should be consulted for issues relating to that regimen and how to deal with them e.g.: methotrexate levels, fluids and folinic acid in High dose methotrexate; fluid overload in ESHAP.

During this period some can be very well, especially during consolidation cycles, and may even be able to go home for short periods between doses.

Others, especially patients with active disease, can be very unwell and need a lot of support as per "After chemotherapy" section that follows this.

Fevers in the context of a normal WBC should be taken seriously due to impending neutropenia. A source should be sought and the infection treated. PICC lines are often a source of infection during this period.

After chemotherapy

Patients on certain regimens e.g. salvage regimens for lymphoma can usually be discharged once their regimen is complete. Plans for blood monitoring, GCSF administration and readmission should be arranged prior to discharge.

Patients on salvage regimens who develop severe pancytopenia despite GCSF prophylaxis will be readmitted.

Patients on AML therapy will all develop pancytopenia a few days after treatment.

Once neutrophils are <1.0:

- They will be moved into protective isolation: follow instructions on side room door regarding infection control precautions.
- Avoid risk of introducing infection by avoiding procedures that may provoke infection e.g. rectal examinations and urinary catheters unless essential.
- All required prophylactic drugs should now be taken.
- GCSF should be started/continued unless there is a plan to avoid e.g. some AML patients in 1st cycle.
- Neutropenic sepsis should be treated urgently according to the neutropenic sepsis pathway (refer to Micro guide). Intravenous antibiotics are continued for 7 days whilst neutropenic. Please document indication and review date

on the drug chart. Once the count has recovered then a switch to oral antibiotics after 48hrs can be considered.

- Patients can become very sick very quickly at this stage, needing aggressive fluid resuscitation, and sometimes develop severe sepsis requiring ITU input. Contact senior team, Outreach Team and ITU team if there are these complications.
- Blood test should be checked daily: FBC, U&Es, Mg, LFT, Ca, PO4. Clotting should be checked twice weekly and if abnormal monitored daily until normal.
- Mouth care is important at this stage and mucositis guidelines should be followed if this becomes significant.
- Dietician should be involved to monitor nutrition and weight throughout the stay, and will often advise on supplements to prescribe.

Blood product support should be given as follows:

Platelets: give 1 pool:

- If plts < 50 and bleeding (clotting should also be corrected) or on anti-coagulation
- If plts <20 and febrile/ no bleeding
- If plts < 10 and well
- If plts not incrementing, do 1hr increment, send blood to NBS for HLA antibodies and liaise with team over need for HLA matched platelets.

Red Cells:

RBCs: Should be given to treat symptomatic anaemia and generally planned as Hb falls below 70g/l

Special requirements: please see poster on the ward.

Blood products should be irradiated in patients who:

- have received purine analogues (i.e. all FLAG patients, CLL/NHL patients who have had FC)
- have Hodgkin's disease
- post stem cell transplant
- have had ALG for aplastic anemia

CMV negative blood products are not a requirement any more in these patients.

Clotting: Not routinely deranged in our patients, unless unwell/septic/DIC

If clotting abnormal, especially if PTR and or APTTR >1.5, and/or bleeding, discuss with team who will advise on blood product replacement and/or Vitamin K.

Blood Count Recovery after chemotherapy (inpatients)

Blood counts are usually low for a variable period post intensive chemotherapy. For AML regimens it is usually 10-21 days post treatment.

The first sign of recovery is usually a rising WBC followed by neutrophils. Platelets and RBCs follow later. Usually once a neutrophil count is >0.2 it is the beginning of recovery. Once neutrophils are >0.5 the patient can be considered for discharge, although should still be in protective isolation whilst in hospital.

Once neutrophils >1, patient no longer needs protective isolation.

Discharge

Once patient is well enough for discharge, take home drugs and discharge summaries should be prepared. Ensure GSCF is included where needed.

Arrangements need to be made for any blood count monitoring or support needed, and for any investigations whilst at home e.g. bone marrow or imaging to assess response, as well as PICC line care. The SpR and CNS will guide the follow up plans.

Re-admission date if required needs to be agreed and added to the ward diary.

Contact numbers for chemotherapy hotline, CNS support etc. should be given to patient and family.