Management of Fever in the Neutropenic Paediatric Oncology Patient

All children presenting with cancer with a neutrophil count <1.0 who develop a fever (≥38.5°C x1 or ≥38°C x2) must have a rapid, comprehensive assessment. Children presenting to the Emergency Department should be triaged as Category 2 as a minimum. Antibiotics should be commenced within 30-60 minutes of presentation depending on acuity.

**Medical Management of Febrile Neutropenia:**

1. Establish Intravenous Access - use central venous access device (CVAD) as first option, if there are no staff competent in CVAD access insert peripheral line. Intraosseous access may be required if there are no other options.
2. Collect blood samples - Full Blood Count + Blood Culture from each lumen of CVAD (peripheral blood cultures NOT required), CRP, ELFTs
3. Commence intravenous (IV) fluids and broad spectrum antibiotics as per Empiric Antibiotic Therapy
4. Request other investigations as clinically indicated i.e. ± CXR, urine and stool cultures, NPA (after antibiotics have commenced)
5. Discuss with the Paediatric Oncologist whether children receiving oral chemotherapy should continue to receive this treatment.

**Empiric Antibiotic Therapy for the Febrile Neutropenic Paediatric Oncology Patient**

**Piperacillin/Tazobactam:**

- Dose = 100mg/kg (of piperacillin component) q8h (Maximum 4000mg/500mg per dose)
- Administer undiluted (200mg/mL of piperacillin component) as an IV bolus over 3-5 minutes via CVAD. Can be diluted to 20mg/mL of piperacillin component for infusion over 20 minutes via peripheral IV

If proven resistance to Tazocin (r) or gram positive bacteraemia is suspected clinically i.e. CVAD infection or post-surgical, add Vancomycin* Dose = 15mg/kg (max dose 500mg) every 6 hours

If critically ill add: Gentamicin AND Vancomycin

**Gentamicin:**

- Dose = <10years: 7.5mg/kg q24h; >10years: 6mg/kg q24h (max 360mg)
- **Wait one hour after Piperacillin/Tazobactam dose then administer the Gentamicin**
- Infuse IV in total volume of 30mL (in sodium chloride 0.9%) over 30 minutes
- Document time of administration- may need levels taken at 2 hours and 6 hours after the dose

**Vancomycin:**

- Dose = 15mg/kg (max dose 500mg) every 6 hours (Perform therapeutic drug monitoring as advised by pharmacy)
- Administer once flush following Gentamicin is complete
- Dilute to 5 mg/mL or less and infuse over 120 minutes (2 hours)
- Patients with documented previous red man syndrome will require prolonged infusion
- Perform therapeutic drug monitoring for Vancomycin as advised by Pharmacy

**Alert**

- Do NOT wait for blood results before initiating treatment.
- Antibiotics MUST be commenced before undertaking other investigations i.e. CXRAY, NPA. Children who have an abnormal CXR should be discussed with the Paediatric Oncologist at the Queensland Children’s Cancer Centre immediately as they may have a possible fungal infection.

- **Discontinue Gentamicin and Vancomycin 48 hours after commencement if cultures are negative and/or there is no clinical indication for ongoing use.**
- **Note:** Piperacillin/tazobactam has gram positive activity, fever alone after 48 hours with negative cultures is not a reasonable indication to continue Vancomycin
- If ongoing fevers >96hrs after commencing antibiotics contact the Paediatric Oncologist at QCCC via RCH switch: (07) 3646 3777

Management of Fever in the Paediatric Oncology Patient

Authorised by QPHON Executive October 2012: QPHON@health.qld.gov.au
Document No: 2.8