Fever +/- Neutropenia is a Medical Emergency

Definition:
Oral temperature >38.5°C (or >38°C x 2 readings taken 1 hour apart)
ANC <1 x 10⁹/L

Triage:
It is recommended that the BCCH Clinical Pathway be followed and the recommendations for empiric antibiotic use be implemented. (CAVEAT: Individual Hospital Infection Control Policy may dictate other treatment based on their own antibiotic sensitivity profile).

The treating pediatric oncologist (after hours, the oncologist on call) should always be notified when a child on active anticancer therapy develops a fever and neutropenia.

Please see the following pages for Practice Guidelines for Fever and Neutropenia patients.
Clinical Practice Guideline for FEVER & NEUTROPENIA
For patients seen outside of BCCH
(On Active Therapy: Chemotherapy, Radiation Therapy, &/or Post BMT)

Physician-on-Call or Clinic receives call from parent:
Child has Fever

Information collected:
Name, Age, Phone number
Diagnosis
Symptoms (rash)
Temperature
Time of Last Acetaminophen
Stage of treatment
Date of last Chemo/Radiation/BMT
Most recent count
On GCSF
Central line
Estimated time of arrival
Bring Patient Information Binder

Within 5 minutes:
- Vital Signs (HR, RR, BP)
- ± 02 Sat
- LOC
- Isolate if possible

* No Rectal Temperatures *
* Wash Hands *
* Isolate patient in single room *

On Chemotherapy, Radiation, or Post-BMT?
Yes
- Vital Signs (HR, RR, BP)
- Temperature
- ± 02 Sat
- LOC
- Isolate if possible

No
- Treat as regular patient

Triage as Level I:
Assessed by ER Physician
VS with BP q 5-15 min.
If CVL, access all lumens
Draw blood Stat:
- C&S from all lumens
- CBC & diff
- Lytes, BUN, Cr, Glucose
- Coag studies
- Group & Screen
- Venous Gas
- CRP
- Lactate
If no CVL, start IV & draw above bloodwork.

Weight

If CVL blocked, see Withdrawal Occlusion Guidelines but do not delay treatment. Start peripheral IV STAT

Within 10 minutes:
IV - NS bolus over half an hour at 10 mL/kg
Consider Dopamine

High Risk Features
- Post BMT
- Currently on a relapse protocol
- AML on therapy
- Down syndrome
- Previous sepsis in last 4 weeks
- Mucositis
- Suspected typhlitis

Low Risk Features
- ANC >0.5 x 10^9/L
- Platelets >20 x 10^9/L
- Clinically well with viral symptoms
- CRP <10 (if available)
- Reliable parents and easy access to return to hospital

Notify BC Children’s Hospital Oncologist-on-call
604-875-2161

Other cultures as clinically indicated:
- urine
- stool
- throat
- NPW
- CXray

Other cultures as clinically indicated:
- antibiotics as per High Risk Features (see Empiric Antibiotic Protocol)
- Gentamicin
- Vancomycin
- Meropenem

Blood work results and clinical assessment determine care

Is ANC < 0.5?

No

Consider Outpatient Ceftriaxone IV in patients with low risk features only and clinically stable

Yes

If renal impairment or on cisplatinum protocol, Pip/Tazo alone (unless high risk features require additional antibiotics)

Arrange for return within 24H

Risk of Communicable Infection?

Yes

Admit & Isolate

No

Admit to private room
EMPIRIC ANTIBIOTIC PROTOCOL FOR FEVER AND NEUTROPENIA - COMMUNITY

These are only guidelines and full clinical evaluation is required for all febrile patients.

LOW RISK
Treat in OPD
(only for patients seen at BC Children’s Hospital or in consultation with a pediatric oncologist at BC Children’s)

Features:
- ANC >0.5 x 10^9/L
- Platelets >20 x 10^9/L
- Clinically well with viral symptoms
- CRP <10 (if available)
- Reliable parents and easy access to return to hospital
- No high risk features**

Ceftriaxone IV (in outpatient clinic, ER or inpatient) x 3 days and re-evaluate daily

**HIGH RISK FEATURES
- Post BMT
- Currently on a relapse protocol
- AML on therapy
- Down syndrome
- Previous sepsis in last 4 weeks
- Mucositis
- Suspected typhlitis

FEBRILE NEUTROPENIC PATIENT
ANC <1 x 10^9/L
Oral temperature >38.5°C (or >38°C x 2 readings 1 hour apart)

INTERMEDIATE / HIGH RISK
Admit

Piperacillin/tazobactam (monotherapy is adequate in most situations) + gentamicin (if clinically unstable). Avoid gentamicin if renal impairment* or cisplatin treatment

Blood Culture result

Culture Positive

Gram Positive
- Repeat cultures and add vancomycin
- Low-risk patients: admit

Gram Negative
- Low-risk patients: admit (concurrent gentamicin recommended)

Culture Negative

Afebrile
- Discontinue antibiotics after 48 hours if ANC >0.5 and rising.

Still Febrile
- Add amphotericin B after 4-6 days

Septic Shock or Admission to ICU
Vancomycin + meropenem + gentamicin

DOSES

AMPHOTERICIN B (liposomal)
5 mg/kg/day

CEFTRIAXONE
100 mg/kg IV daily
Max 2 g/24 h

VANCOMYCIN
60 mg/kg/day q8h
Max 4 g/day
Baseline creatinine then twice weekly. Trough level 30 minutes before 3rd-5th dose

PIPERACILLIN / TAZOBACTAM
300 mg/kg/day of pipercillin q8h
Max 4 g/dose of pipercillin

GENTAMICIN
“Once daily dose” - recommended at BCCH 7 mg/kg/day given once daily over 30 minutes Creatinine at baseline and twice weekly Trough level 18-24 hours after second dose then weekly
- If level < 1 mg/L, continue same dosing
- If level > 1mg/L consult pharmacy

GENTAMICIN “Divided dose”
7.5 mg/kg/day q8h
Levels pre/post 3rd dose then pre-level only once/week

MEROPENEM
60 mg/kg/24 hours IV q8h

Rationalize antibiotics based on sensitivities and maintain broad-spectrum coverage.