

# SECTION 7: OTHER CONDITIONS AND

## Cryptococcal meningitis

This presents with signs of meningitis, either acute or with a chronic headache. Often it presents with cranial nerve palsy and usually in older children. It may occur as a result of Immunologic Restitution Inflammatory Syndrome (IRIS). Suspect cryptococcal meningitis when these signs occur in any HIV-infected child.

**N.B.**

**When a lumbar puncture is done the CSF pressure should be measured. Always request laboratories to do India ink stain and cryptococcal antigen on all CSF specimens from HIV-infected children with suspected meningitis.**

## Other investigations

- Chest X-ray
- Ophthalmologic assessment
- Fungal culture of blood and urine

## Treatment

All children with suspected cryptococcal meningitis need to be treated initially as inpatients:

- Treat with amphotericin B (0.75–1.0 mg/kg, IV, once daily) for 14 days and/or until there is appropriate clinical improvement. Thereafter change to oral fluconazole (6–12 mg/kg per day, maximum 400 mg) to complete 8–10 week course. Acetazolamide and furosemide and serial spinal tap relieve CSF pressure.

## Prevention of recurrence

- After therapy, secondary prophylaxis should be continued indefinitely. Fluconazole (3–6 mg/kg per day, maximum 200 mg) may be effective. For adolescents receiving ART, maintenance fluconazole may be stopped if immune reconstitution occurs: CD4 count increases to between 100–200 cells. There is no evidence available to confirm that stopping maintenance therapy in children is safe.

## OPPORTUNISTIC INFECTIONS

### Cytomegalovirus (CMV) infection

Disseminated disease can present with hepatosplenomegaly, generalised lymphadenopathy, fever and respiratory involvement. Retinitis, CNS manifestations, and infection of the gastrointestinal tract are important additional manifestations. It may also manifest as part of IRIS.

Diagnosis can be difficult as presence of antibodies to CMV does not necessarily imply infection. Histological diagnosis is the most helpful.

### Treatment

All children with CMV infection need to be treated as inpatients (tertiary):

- Ganciclovir IV if available (10 mg/kg per day in 2 divided doses over 1–2 hours for 14–21 days, followed by lifelong maintenance therapy with 5 mg/kg per day, IV, 5 days per week). (Specialist team should make the decision whether to treat with ganciclovir.)

### Disseminated infection with *Mycobacterium avium* complex (MAC)

MAC usually presents with disseminated disease in children with HIV-infection. Patients may have pancytopenia from bone marrow depression and have non-specific signs. Isolated organ disease, especially pulmonary, GIT or skin disease occur less commonly.

### Diagnosis

MAC may be isolated from blood (Bactec®), bone marrow, lymph node, and other fluids and tissues.

## OTHER CONDITIONS AND OPPORTUNISTIC INFECTIONS

### Treatment

All children need to be referred to a specialist centre for management.

**Treatment:** combination of at least two drugs e.g. clarithromycin + ethambutol or azithromycin + ethambutol (clarithromycin 15 mg/kg/day orally 12 hourly, azithromycin 20 mg/kg/day orally 12 hourly, ethambutol 15–20 mg/kg/day orally once a day). Rifabutin (if available) or amikacin may be added. Ciprofloxacin may be of additional benefit. It is advisable to always use 3 or 4 drugs for disseminated disease.

Most patients show substantial improvement within first 4–6 weeks. Therapy should be continued lifelong, irrespective of the extent of improvement. However, if on ART, MAC therapy can be stopped if CD4 percentage has been more than 15% for 6 months and ART has been continued for more than 12 months and the child is asymptomatic.

### Toxoplasmosis

Occurs rarely in children. Maternal toxoplasmosis should be sought. Usually presents with encephalitis, with focal neurological abnormalities occurring in association with headache. Outside of the CNS, ocular and pulmonary involvement is the most common.

### Diagnosis

Diagnosis may be made on blood and CSF serology. CSF PCR for toxoplasmosis may also be helpful, as is culture of the organism from blood or body fluids. CT scan usually reveals multiple bilateral, focal hypodense ring-enhancing lesions.

Placental pathology is helpful if congenital toxoplasmosis is suspected.

### Treatment

- Depends on the extent of CNS involvement and should be individualised. In patients with extensive CNS damage palliative care is recommended.
- Pyremethamine, sulfadiazine, and leukovorin may be used if available. Management decisions will need to be made by a specialist team.
- Lifelong treatment is recommended for toxoplasma encephalitis.

## **HIV encephalopathy**

HIV-infected monocytes can cross the blood-brain barrier and thus infect the brain. Any part of the nervous system may be affected but in children it is predominantly the brain. It has been estimated that  $\pm 20\%$  of HIV-infected children may be affected.

HIV encephalopathy indicates advanced clinical disease.

Diagnosis depends on the presence of at least one of the following findings for at least 2 months:

- Failure to attain or regression of developmental milestones or loss of intellectual ability verified by standard developmental scale or neuropsychological tests.
- Impaired brain growth, or acquired microcephaly demonstrated by head circumference measurements, or brain atrophy demonstrated by CT scan.
- Acquired symmetric motor deficit manifested by two or more of the following: paresis, abnormal reflexes, ataxia or gait disturbances.

## **Management**

This is multidisciplinary and includes the provision of a child dependency grant to support the caregiver.

Highly active antiretroviral therapy (HAART) may reverse some of the features of HIV encephalopathy.

## **Seizures**

These may occur in any neurological illness in the HIV-infected child. At times there is no other additional pathology.

## **Attention deficit disorder and hyperactivity**

This is commonly seen and requires specialist attention.

## OTHER CONDITIONS AND OPPORTUNISTIC INFECTIONS

### Wasting syndrome

Wasting syndrome indicates advanced clinical AIDS.

### Diagnosis

In the absence of concurrent illness other than HIV-infection or poor access to food that could explain the following features:

- persistent weight loss >10% of baseline **OR**
- downward crossing of at least two of the following percentile lines on the weight-for-age chart (e.g. 95th, 75th, 50th, 25th, 5th) in a child 1 year and over **OR**
- <5th percentile on weight-for-height chart on two consecutive measurements, more than 30 days apart

### PLUS

- chronic diarrhoea (i.e. at least two loose stools per day  $\geq$ 30 days)

### OR

- documented fever (for  $\geq$ 30 days, intermittent or constant)

### Comment

Wasting syndrome is a rigorously defined entity. A more practical approach to evaluating the severity of growth and nutritional status is to use the WHO guidelines (Appendix 1).

### Management

- For nutrition advice see Section 5 above.
- Highly active antiretroviral therapy (HAART) may reverse some of the features of HIV wasting syndrome.

## **Malignancies**

Non-Hodgkin's lymphomata (NHL) are the most frequent group of malignancies in children with HIV-infection. These include CNS lymphoma and Burkitt's lymphoma.

Kaposi's sarcoma is not uncommon in children with HIV-infection. It has been seen in infants and young children presenting with generalised lymphadenopathy and notably with black/purple lesions on the mucosa of the mouth or on the skin. In some centres it is more common than NHL.

Other malignancies include leiomyoma and leiomyosarcoma.

## **Management**

- Refer all children to a specialist centre if malignancy is suspected.
- Manage the child in association with a paediatric oncologist.
- Treatment may include HAART and chemotherapy.

## SECTION 8: PAEDIATRIC

Palliative care is no longer defined as care for those in whom cure is not possible. The expanded definition being promoted in South Africa is: 'The active, comprehensive care for the physical, emotional and psychosocial needs of the child and the family.'

It starts when any illness is first diagnosed and continues for the duration of the illness. If and when cure is no longer possible, palliative care will assume the major or total role in the care of the child.

Pain and other symptoms are the physical component of palliative care. Pain may be difficult to identify in children. Appendix 2 contains helpful pain scales.

### Painful conditions

Conditions that cause pain are frequently found in children with HIV disease. HIV-associated conditions that can cause pain include:

- Medical procedures
- Severe and/or chronic bacterial, viral, fungal and parasitic infections
- Encephalopathy with spasticity
- Dental disease
- Diffuse lymphadenopathy
- Neuropathy
- Chronic diarrhoea
- Lymphoma

### Recommendations for pain control in children

- Establish the cause of the pain.
- Effectively manage the underlying condition.
- Developmental appropriate pain scales are available (see Appendix 2). Involve the parent/caregiver when assessing whether pain is present. If in doubt, treat the child and observe the response.

## PALLIATIVE CARE

- Pain caused by medical procedures should be anticipated and managed as for HIV-uninfected children.
- Give medication orally if possible.
- Give adequate regular analgesic doses, not 'p.r.n.' (as required) doses. Adequate analgesic doses allow children to sleep through the night.
- Assess pain at regular intervals (2–4 hourly).
- Anticipate side effects due to analgesic medication (e.g. constipation) and manage accordingly.
- Use opioids in doses that effectively control the pain. These doses do not usually result in addiction. When opioids are reduced or stopped, doses should be gradually tapered to prevent severe pain flare-up.
- Provide palliative care for dying children at home if possible; the local primary health-care service must be able to provide this care or assist NGOs who are providing this care, e.g. in providing essential drug supplies.

### The 'analgesic ladder'

Step 1 – Mild pain

Step 2 – Moderate pain

Step 3 – Severe pain

## PAEDIATRIC PALLIATIVE CARE

### Step 1

- Paracetamol, oral, 4–6 hourly, when required to a maximum of four doses daily
- Paracetamol syrup 5 ml/8 kg (In between dose for in between weights)

**Table 8: Paracetamol**

Paracetamol 120 mg/5 ml syrup; 500 mg tablet				
Weight kg	Dose mg	Syrup 120 mg/5 ml	Tab 500 mg	Approx Age years
6 to 10 kg	60	2.5 ml	—	3 to 12 months
10 to 18 kg	120	5 ml	—	1 to 5 years
18 to 25 kg	240	10 ml	—	5 to 8 years
25 to 50 kg	500	—	1	8 to 14 years
over 50 kg and adult	1000	—	2	14 years and older children

Ibuprofen, oral, 4–6 hourly with food, 4–10 mg/kg/24 hours.  
Do not exceed 500 mg per day. Not indicated for children under 5 years.

### Step 2

- Add codeine phosphate syrup to Step 1.

**Table 9: Paracetamol and codeine phosphate**

Weight	Age*	Chronic pain Paracetamol 4–6 hrly	Chronic severe pain Add codeine phosphate syrup 4 hrly	
			Min dose	Max dose
2–<3 kg	0–3 months	2 ml	0.2 ml	1.0 ml
3–<6 kg		2.5 ml	0.3 ml	2.0 ml
6–<10 kg	3–12 months	2.5–5 ml	0.5 ml	3 ml
10–<12 kg	12 up to 24 years	5–7.5 ml	1.0 ml	5 ml
12–<16 kg	24 up to 48 years	7.5–10 ml	1.5 ml	6 ml
16–<25 kg	Over 48 months	10–12.5 ml	2 ml	8 ml

\* Use age only if weight not available.

Codeine phosphate syrup is given 4 hourly, 0.5 mg/kg (syrup 25 mg/5 ml). This can be increased to 1–2 mg/kg per dose.

It is doctor initiated.

### Step 3

- Paracetamol or ibuprofen can be used with morphine in Step 3.
- Morphine is doctor initiated.

**N.B.**

**There is no maximum dose for morphine – dose is adjusted upward according to the effect on pain. Morphine is given orally 4 hourly according to severity of the pain.**

- Start with 0.1–0.3 mg/kg/dose
- Adjust the dose and frequency according to the effect on pain.

## PAEDIATRIC PALLIATIVE CARE

### Breakthrough pain

Breakthrough pain is pain that occurs before the next regular dose of analgesia. This is due to an inadequate regular dose.

- It is recommended that the full dose equivalent to a 4-hourly dose of morphine be administered for breakthrough pain, but it is important that the next dose of morphine be given at the prescribed time, and not be delayed because of the intervening dose.
- The dosage should be titrated upward against the effect on pain in the following way:
  - Add up the amount of 'breakthrough morphine' needed in 24 hours.
  - Divide this amount by 6 (the number of 4-hourly doses in 24 hours)
  - The next day increase each dose by that amount.

#### Example:

- Patient gets 10 mg morphine every four hours.  
 $3 \times 10 \text{ mg} = 30 \text{ mg}$
- The patient has 3 episodes of breakthrough pain.  
 $30 \text{ mg} \div 6 = 5 \text{ mg}$
- The regular 4 hourly dose of 10 mg will be increased by 5 mg.  
i.e.  $10 \text{ mg} + 5 \text{ mg} = 15 \text{ mg}$
- The increased morphine dose will be 15 mg 4 hourly.



### **Referral**

- Uncontrolled pain
- Pain uncontrolled by Step 1 if no doctor available
- Severe emotional or other distress which may aggravate the perception of pain

### **Notes regarding morphine use:**

- Use lower starting doses for younger children (within the age range).
- Allow 24 hours before considering a dose increase; increase dose by 30–50%.
- No maximum dose – titrate to analgesic response.
- If patient has pain within dosing interval, extra ‘breakthrough’ doses must be prescribed.
- Intravenous morphine should only be used in a hospital or hospice setting.
- Opioids have other advantages i.e. they can alleviate intractable diarrhoea and cough.

## SECTION 9: CARING FOR THE

### General management

The management of a child who is imminently terminal (death suspected to occur within a few days or weeks) should include:

- Relieving distress in the child
- Treating easily manageable complications
- Limiting hospital admissions
- Reducing the duration of hospital stay
- Ensuring that parents/caregivers are adequately counselled, and that staff are sympathetic to individual needs

The aims are as follows:

- Maintain good quality of life.
- Keep the patient as comfortable as possible.
- Provide emotional support to a dying child and the grieving family.

### Supportive care

The decision to begin supportive (terminal) care is difficult and should be made on a case-by-case basis preferably by a team of professionals with the family's involvement. Once this decision has been made, it should be clearly communicated to other health-care workers involved in the care of the child. This communication can take the form of a letter, which the family may be able to present to other health workers.

# TERMINAL CHILD

## Indications for inpatient management

- Hypoxia and respiratory distress
- IV/nasogastric fluid requirement (beware prolonged use of nasogastric tubes)
- Carer(s) unable to cope at home

Investigations should be kept to a minimum. They should only be done if it is believed that doing these will shorten the duration of hospital stay or in some way contribute to the child's ultimate comfort.

Simple oral antibiotic therapy may be started, where it is thought that a course of antibiotics could shorten the duration of discomfort or hospital stay.

## Home care

- Home care of the terminally ill child should be encouraged if the parent(s) or caregiver(s) are able to care for the child at home.
- There should be no need for intravenous fluids or other intensive treatment.
- Reassure the parent(s)/caregiver(s) that the child has not been abandoned by the health service, and that they can re-visit the clinic and have the child readmitted to the hospital at any time.
- Discussions and decisions regarding the institution of home care should be clearly recorded in the child's records.
- The possibility of chronic/terminal care at a hospice facility should be discussed with parent(s)/caregiver(s) if there are inadequate resources for the care of the child at home.