CHAPTER 11: MALNUTRITION AND HIV

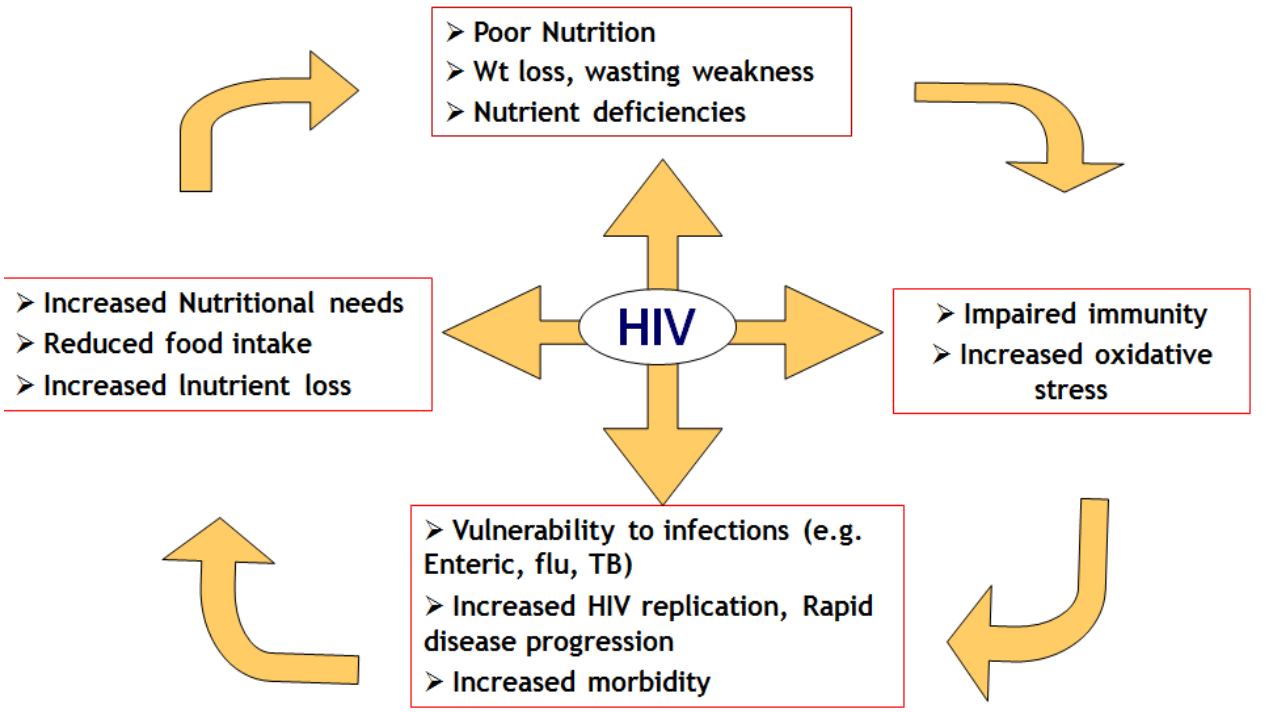

Figure 103: Interaction between HIV infection and nutritional status in children

Malnutrition is high among HIV-infected children especially in developing countries, where it is already endemic. Severe malnutrition is predictive of HIV; 30—50% of severely malnourished children are HIV-infected in settings where both conditions are endemic.

Stunting (low height for age) is a more prominent feature than wasting in HIV-associated malnutrition. Micronutrient deficiencies (low serum levels of zinc, selenium, vitamins A, E, B6, B12 and C) is also common among HIV-infected children. HIV-related malnutrition could result from reduced food intake (poor appetite, oral infections such as candidiasis), increased metabolism and poor absorption of nutrients mainly due to diarrhoeal diseases.

Unexplained moderate malnutrition not adequately responding to standard therapy is classified as stage 3 disease. Unexplained severe wasting, stunting or severe malnutrition not responding to standard therapy is a clinical stage 4 disease.

Diagnosis

1. Weight, height and occipitofrontal circumference (OFC) should be plotted on available growth charts (WHO growth standards available at *www.who.int/childgrowth/training/en).*

   SD Z scores for weight, height/length, OFC (from -2SD to -3SD is severe)
2. Severe wasting can also be demonstrated by measuring the mid upper arm circumference (MUAC):
   - <11.5 cm from 6 - 59 months of age:
   - <13.5 cm from 5-9 years
   - <16.0 cm from 10-14 years

Treatment

It is recommended that children with severe acute malnutrition (SAM) are managed in the institution until there is nutritional recovery, ≥90% weight for height. Generally, this would require admission for up to 4 weeks.

Children can be discharged once they have achieved >10 g/day weight gain, are taking a solid diet, have a good appetite, show no oedema.

Ready to use foods (RTUF) e.g. plump nuts, a new peanut butter based F100 preparation is useful as therapeutic and supplemental feed in the management of severe malnutrition.

Complications

Mortality is five times higher in severely malnourished HIV-infected than in uninfected children.

Further reading

1. WHO. Antiretroviral Therapy for HIV infection in children and infants: Toward Universal Access. Recommendations for a public health approach. 2010 revision. Available from: http://whqlibdoc.who.int/publications/2010/9789241599801_eng.pdf.
2. Duggal S, Chugh TS, Duggal AS. HIV and Malnutrition: Effects on Immune System. Clinical and Developmental Immunology 2012; 1-8.

Figure 104: Plump nuts.

Figure 105: Severe malnutrition: MUAC 10.5 cm.

Figure 106 a and b: (a) Severe wasting, (b) Marasmus with gluteal skin folds ("baggy pants" sign).

Figure 107: Severe wasting with hair changes in HIV infection.

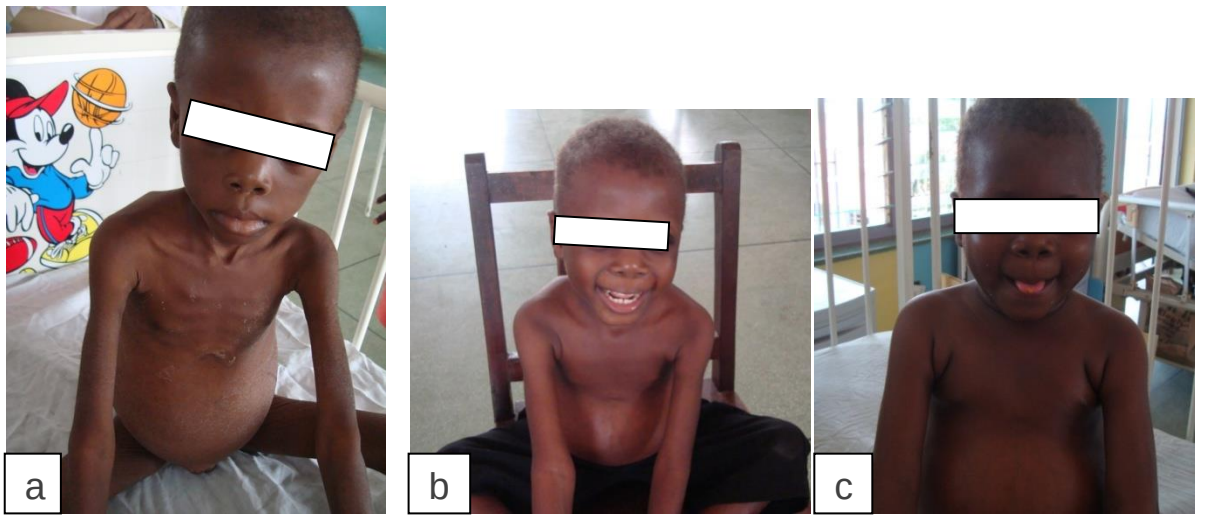

Figure 108a, b and c: (a) At first diagnosis (b) After 2 weeks on care (c) After 4 weeks on care.

Figure 109a and b: (a, b) Severe wasting and flaky paint desquamation on the lower limbs of an HIV-infected child.

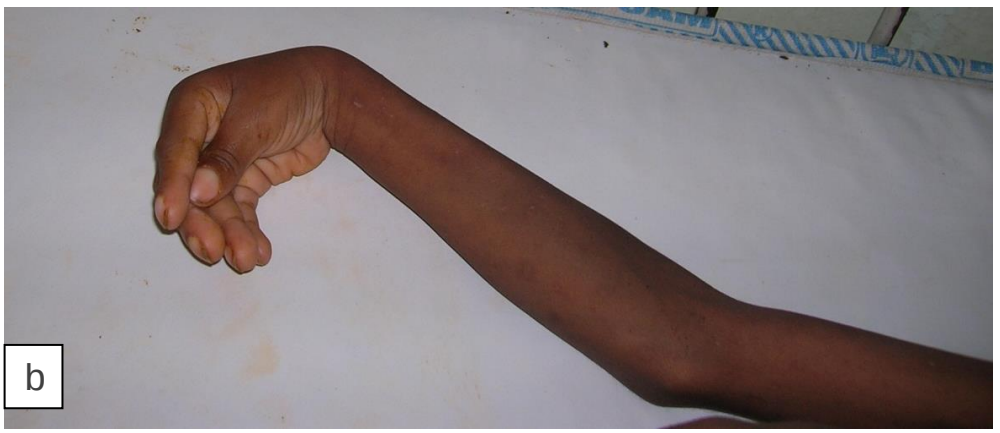

Figure 110a and b: 8-year-old boy with severe acute malnutrition plus oedema. He had symptomatic hypocalcaemia with carpal spasm demonstrated. The spasm resolved with intravenous calcium gluconate.

Figure 111: Angular stomatitis due to riboflavin (vitamin B2) deficiency.