JAUNDICE IN CHILDREN - SUMMARY

HAEMOLYSIS OR HEPATITIS

Although testing the urine for bile usually distinguishes between haemolysis (no bile) and hepatitis (bile present), further tests are occasionally needed in difficult cases (eg when both are present together):

- urine for bile and urobilinogen
- Hb, reticulocytes
- serum bilirubin (direct and indirect)
- serum ALT.

Haemolysis is suggested by:

- a stable or falling Hb level with reticulocyte count 2% or more in the absence of blood loss
- a lack of bile in the urine
- increased urobilinogen in FRESH urine (but this may be normal)
- a raised total serum bilirubin (over 17 mmol/l) which is mainly due to an increase (over 12 mmol/l) in indirect or unconjugated bilirubin. There may be a small rise in direct or conjugated bilirubin (normal 2-5 mmol/l)
- an ALT less than 30 U/ml (in children aged 1-16 yrs).

Hepatitis is suggested by:

- the presence of bile in the urine
- a normal urinary urobilinogen, except in severe hepatitis
- a raised total serum bilirubin (over 17 mmol/l) with an increase in direct or conjugated bilirubin (normal 2-5 mmol/l) as well as indirect or unconjugated bilirubin (normal 3-12 mmol/l)
- an ALT of more than 30 U/ml (aged 1-16 yrs).

OBSTRUCTIVE JAUNDICE

This is rare in children, so it is not discussed here in detail. The urine contains bile with no urobilinogen, direct and indirect serum bilirubin are high, ALT is normal (under 40 U/ml) or moderately raised, and the serum alkaline phosphatase is raised. It is sometimes hard to distinguish between obstructive jaundice and hepatitis.

Obstructive jaundice does occur in neonates as a result of biliary atresia or more rare congenital causes of obstruction of the biliary system.

JAUNDICE IN CHILDREN - HAEMOLYSIS

See also Neonates - Jaundice (p.254)

In a jaundiced child, test the urine for bile:
- present = hepatitis
- absent = haemolysis

A JAUNDICED CHILD WITH NO BILE IN THE URINE HAS HAEMOLYSIS. Give a course of antimalarials (after taking blood slide).

TESTS

- Blood slide
- FBE and reticulocytes
- G6PD screen (but this may be falsely negative during a haemolytic crisis)
- Blood culture if the child looks sick
- Crossmatch packed cells if the Hb is less than 6 g/dl.

1. **Malaria**
   Give a course of antimalarials. Give treatment for severe malaria if the child is very ill.
2. **Gram negative sepsis**
   If the child looks sick, give IV chloramphenicol OR ampicillin and gentamicin without waiting for the blood culture result.
3. **Autoimmune haemolytic anaemia**
   A positive Coombs test suggests the presence of auto-antibodies against red cells. Give prednisolone. Auto-antibodies may be secondary to malaria, sepsis, tuberculosis (NEJM 299:488,1978), lymphoma, penicillin or methyldopa.

PROGRESS

Monitor twice a week:
- Hb: it should rise.
- Reticulocytes: they should gradually fall.

A stable or falling Hb with a reticulocyte count of 2% or more suggests persistent haemolysis.

If haemolysis persists or recurs:
- Do a Hb electrophoresis for thalassaemia (which is common in malarious areas), and a G6PD screen (but this may be falsely negative during a haemolytic crisis). These tests should not be done for 3 months after a blood transfusion.

JAUNDICE IN CHILDREN - HEPATITIS

In a jaundiced child, test the urine for bile
- present = hepatitis
- absent = haemolysis

HEPATITIS

This usually presents as a jaundiced child with bile in the urine. Take a blood slide and give antimalarials for 3 days. Most children with hepatitis can be treated as outpatients. Only admit children who look ill.

If a child is admitted because he looks ill, do a:
- blood slide
- blood culture
- chest x-ray
- Hb, WCC, and reticulocyte count. A reticulocyte count of more than 2% suggests that the child has haemolysis as well as hepatitis.

Pneumonia

Pneumococcal pneumonia is a common cause of jaundice in Papua New Guinea particularly in older children and adults.

Septicaemia

This is a serious cause of jaundice from both hepatitis and haemolysis. There may be no fever. Any child with jaundice who looks ill should have a blood culture taken, and IV chloramphenicol OR ampicillin and gentamicin commenced. Do not wait for the result of the blood culture before starting antibiotics.

Malaria

Always treat any jaundiced patient with antimalarials. Patients may have another cause for jaundice in addition to having malaria. Malaria itself can cause hepatitis.

Viral hepatitis

This is a common cause of hepatitis, but the above causes must be excluded before making this diagnosis in a child that looks ill. There is a high incidence of G6PD deficiency in patients with viral hepatitis (these patients may have hepatitis AND haemolysis). Hepatitis A is spread by the faecal-oral route. It is endemic in Papua New Guinea and usually causes a mild illness - though it may also present with a fulminating course. A vaccine is available but is not currently routinely used in the country. Hepatitis B acquired perinatally or by blood/serum contamination in early infancy is likely to be associated with chronic carriage and an increased risk of cirrhosis and hepatoma in adult life. It should be prevented by immunisation (see p.163).

Amoebiasis

Amoebic liver abscess may cause mild jaundice. This is rare. There is usually fever, very painful hepatomegaly and leucocytosis. Chest X-ray may show distortion of the right diaphragm or a pleural effusion. Treatment is with metronidazole or tinidazole. If the abscess is very large or on the point of rupture, needle aspiration under ultrasound guidance is indicated. Other causes of a mass in the liver are pyogenic abscess, tuberculoma and hepatoma.

Drugs

Dapsone, rifampicin, isoniazid, pryazinamide, chlorpromazine, phenytoin, halothane, methyldopa, sulphonamides and hydrochlorothiazide may cause jaundice.

Chronic familial jaundice

This is common in some regions of developing countries. See PNG Med J 12:128-129,1969.

REFERENCES

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Nemba K, Babona D, Vince JD. Annals Trop Paed/Int Child Health 13:237-241,1993. Age specific prevalence of hepatitis B surface antigen in hospitalised children at Port Moresby, Papua New Guinea.

JOURNALS

Consider getting the following journals sent to you:

- The Papua New Guinea Medical Journal
- ARI News (a newsletter about acute respiratory infections), 85 Marylebone High Street, London W1M 3DE, England (free)
- Bulletin International Union Against Tuberculosis, 3 rue Georges Ville, 75116, Paris, France (quarterly, free to doctors in developing countries)
- Diarrhoea Dialogue, 85 Marylebone High Street, London WlM 3DE, England (quarterly, free)
- Pediatric Alert, PO Box 338, Newton Highlands, MA 02161, USA. A fortnightly 4 page summary of important paediatric articles
- Salubritas, 1015 Fifteenth Street, NW, Washington, DC 2000J, USA. Published by the American Public Health Association for doctors in the developing world (quarterly, free)
- TALC Newsletter, TALC, PO Box 49, St Albans, Herts AL1 5TX, UK. Fax: 054 41 727 846852. E-mail: talc@talcuk.org. Website: www.talcuk.org (occasional, free)
- The Lancet, 7 Adam Street, London WC2N 6AD, England. The best coverage of medicine in developing countries of the major medical journals
- Tropical Doctor, Academic Press Ltd., 24-28 Oval Road, London NWl 7DX, England (quarterly, US$40 seamail)
- Current Opinion in Pediatrics, Rapid Science Publications, 2-6 Boundary Road London SE1 8HN, England. 6 issues per year covering the range of “western” paediatrics. Expensive (about 500 Kina/year) but reasonable value.
- Paediatrics Current Medical Literature Royal Society of Medicine. Carfax Publishing Company, PO Box 352, Cammeray, NSW 2062, Australia. About 75 Kina/year, reasonable value.

The medical library will send you photocopies of the Table of Contents of a selection of medical journals, so that you can ask them to send you copies of interesting articles (for example, you might ask to be sent the contents pages of Annals Trop Pediatr, Arch Dis Child, J Trop Paediatrics, Lancet, Brit Med J, J Pediatr, New Eng J Med and Pediatrics).

Although not readily available to everyone yet, access to the Internet allows access to Medline and to journal home pages. Several hospitals should already have Internet access. A very useful web site is www.healthinternetwork.net. This site gives free access to over 100 medical journals online.

LACTATION - DRUGS CROSSING INTO BREAST MILK

On rare occasions, drugs given to a mother may affect her breast-fed baby:

1. Drugs known to affect the baby:

   - large amounts of alcohol
   - narcotics (withdrawal symptoms)
   - warfarin (if surgery on child)
   - meprobamate
   - phenytoin
   - sulphonamides (G6PD haemolysis, kernicterus)
   - heavy smoking
   - high doses of aspirin
   - diazepam
   - phenobarbitone
   - reserpine

   Chloramphenicol, propranolol, isoniazid and metronidazole are present in high concentrations in breast milk, but are not usually harmful.

2. Potent drugs (even small amounts are dangerous in breast milk):

   - antithyroid drugs (methimazole, thiouracil)
   - cimetidine
   - ergots
   - iodides
   - phenindione
   - high doses of steroids
   - bromocriptine
   - cytotoxic drugs
   - gold salts
   - meprobamate
   - tetracycline
   - drugs causing G6PD haemolysis

3. If the mother has renal or hepatic failure, drugs excreted by these routes may accumulate in the plasma and be excreted in the breast milk.

A useful chart entitled “A Guide to Drugs in Breast Milk” by Dr M D Read can be obtained free of charge from Boehringer Ingelheim Ltd, Southern Industrial Estate, Bracknell, Berks RGl2 4YS, England.

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Busser J, Schultz J. Frontiers in Foetal Health 3(2):11-22 (readily available on Internet). Drugs in breast milk 2000.
Wilson JT. Drugs in breast milk, Adis, 1981.

LACTATION INDUCTION

It is often necessary to induce lactation in a mother who has absent or inadequate amounts of breast milk, or when a child has been adopted. It is much easier to induce lactation in a woman who has delivered a child but it is often possible to induce lactation in a nulliparous woman providing that she desires to breastfeed.

1. Prime the breast.

   If the woman has no milk at all, give ethinyloestradiol 50 microgram tablet 3 times a day for 1 week. If ethinyloestradiol is not available, give medroxyprogesterone (Depo-Provera) 100 mg (2 ml) IM once. If the woman already has some breast milk, do not give ethinyloestradiol or medroxyprogesterone, but give metoclopramide or chlorpromazine straight away.

2. Stimulate prolactin production.

   If the woman has lactated in the past or already has some breast milk, give metoclopramide (Maxolon) 10 mg 4 times a day OR chlorpromazine (Largactil) 25 mg 4 times a day until an adequate milk supply is established (usually within one week).

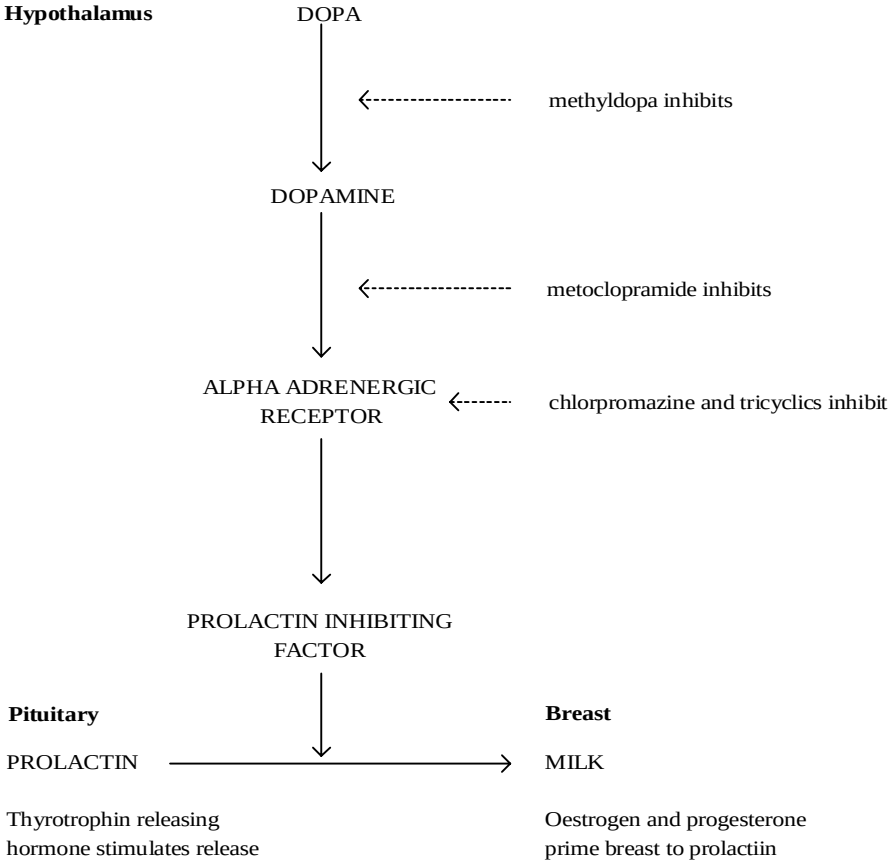
   If the woman has never lactated and has no milk at all, give metoclopramide (Maxolon) 10 mg 4 times a day AND chlorpromazine (Largactil) 25 mg 4 times a day until an adequate milk supply is established. If there is not enough milk after 2 weeks of metoclopramide and chlorpromazine, add methyldopa (Aldomet) 125 mg 4 times a day.

3. Frequent suckling.

   At the time you start metoclopramide and/or chlorpromazine, encourage the mother to suckle the child AS MUCH AS POSSIBLE. This is an essential part of the procedure. Have the ward staff, other mothers and yourself encourage her as much as possible. Giving the mother frequent drinks of milk is good psychology.

Note: The above regimen is very intensive. Side effects such as drowsiness are common and may necessitate reducing the drug doses. Less intensive regimens are also successful. The key to the whole process of relactation is the desire of the mother to breastfeed. Support and encouragement are vital.

THE PHYSIOLOGY OF LACTATION



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