TREATMENT OF PARASITIC INFESTATIONS AND EXOTIC DISEASE IN PREGNANCY

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INTRODUCTION

Doctors and pregnant women are rightly reluctant to use drugs during pregnancy unless absolutely necessary. The following factors need to be considered before advising drug therapy.

1. Will the mother's health be andangered by delaying or modifying treatment of the illness?
2. Is there a possibility of abortion, stillbirth, fetal damage or congenital illness due to the disease?
3. Is the drug to be used potentially damaging to the fetus?
4. Could treatment be safely delayed until after delivery?

Parasitic disease differs from bacterial and virus infections in several respects. Immunity is often less easily gained and is less effective. Parasitic infections are often recurrent and may last for years. Parasites resemble human cells in structure and metabolism more closely than do bacteria. Perhaps because of this similarity chemotherapeutic agents used against parasites tend to be more toxic than antibiotics used against bacteria.

Protozoal disease

Protozoa or single celled creatures increase by division like bacteria often with division times of 6-24 hours. This is slower than for many bacteria but significant protozoal populations can build up within several days and urgent treatment is often needed. Congenital disease is possible with circulating protozoa but the placenta does frequently provide a barrier.

Metazoal or Helminthic disease

In contrast to protozoa, helminths do not usually reproduce adult parasites in humans (exceptions include Strongyloides, Hymenolepis nana and Enterobius).

They produce eggs or larva which may be pathogenic. There is often repeated reinfection with a progressive build up of the worm population in the body. Severity of disease largely depends upon the worm load. Treatment is generally not urgent and can be delayed.

The treatment of protozoal disease in pregnancy

Table 1 summarises the effects and treatment needs of common protozoal infections in pregnancy excluding trichomoniasis. African and American trypanosomiasis and visceral Leishmaniasis are rare in this country, and will not be mentioned further. The most important protozoal disease on a global scale is falciparum malaria and the best drug for treatment is chloroquine if the parasites are sensitive to it.

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TABLE 1. — *Protozoal Parasitic Disease in Pregnancy.*

Disease	Danger to mother	Danger to fetus	Congenital diseases	Treatment urgent
Falciparum malaria	+++	++	Uncommon	Yes
Other forms malaria	++	+	Uncommon	Yes
Invasive amoebiasis	+++	±	No	Yes
Non-invasive amoebiasis	±	−	No	No
Giardiasis	+	−	No	Sometimes
* African trypanosomiasis	+++	++	Rare	Yes
* Visceral leishmaniasis	+++	++	Rare	Yes
* American trypanosomiasis	+	±	+	Not usually
Toxoplasmosis	+	++	++	Yes

* = rare in this country

Falciparum malaria

Falciparum malaria in non-immune patients is dangerous to mother and child and should be prevented or treated. Women already semi-immune through repeated infection lose some resistance to malaria during pregnancy (especially the first one). This leads to anaemia, placental malarial infection and low birth weight babies (Bray and Anderson, 1979). Malaria prophylaxis is therefore advised in pregnancy in semi-immune women. Chloroquine is generally regarded as safe in pregnancy. However, chloroquine has been suspected of causing neonatal deafness if used in the first trimester (Hart and Naunton, 1964).

Unfortunately, falciparum parasites are resistant to chloroquine in many parts of the world (S. E. Asia, parts of the Indian subcontinent, East Africa and South America). Then, quinine usually has to be administered. It has been used as a not very efficient abortifacient when given in toxic doses and indeed has some oxytocic effect which is more marked in late pregnancy. In Thailand the beneficial effect of quinine in lowering fever in malaria and preventing abortion or premature labour easily outweighed its potential oxytocic effect on the uterus. Various malformations of the fetus have been attributed to quinine in excessive toxic doses including auditory and optic nerve damage (Nishimura and Tanimura, 1976). Fansidar (pyrimethamine and sulphadoxine) is given (a single dose of 3 tablets) in combination with quinine. This antifolate compound is potentially hazardous to the fetus in the first trimester. New drugs for chloroquine resistant malaria are under trial. Mefloquine so far seems safe for use in pregnancy. Qinghaosu (Artemosine) is a Chinese drug – its safety in pregnancy is uncertain at the moment.

Chloroquine is effective in other varieties of malaria. Primaquine and mepacrine should not be used in pregnancy.

Malaria prophylaxis in pregnancy

Malarial prophylaxis is most important in pregnancy. In chloroquine sensitive areas chloroquine 300 mg base weekly is the best prophylactic.

TABLE 2. — *Metazoal (Helminthic) disease in pregnancy.*

Disease or organism	Comments
Ascariasis, hookworm trichuris	Treatment can usually be delayed.
Taenia saginata	Treatment can be delayed. Niclosamide safe.
Taenia solium	Treatment urgent. Niclosamide safe.
Schistosomiasis	Treatment can be delayed. Praziquantel safe. Oxamniquine and Metrifonate probably safe.
Filariasis	Treatment can usually be delayed. DEC safe but allergic reactions to it sometimes dangerous.
Intestinal + hepatic flatworms (flukes)	Treatment can be delayed. Praziquantel probably safe.

In chloroquine resistant areas chloroquine 300 mg base and Fansidar or Maloprim 1 tablet weekly are given. The latter drugs are best avoided in the first trimester and if used later folic acid supplementation should also be given.

Proguanil 200 mg daily may be substituted for Fansidar in early pregnancy but there is resistance to proguanil in many parts of the world.

Amoebiasis

Immunity to amoebiasis is sometimes diminished in pregnancy and fulminant invasive disease can occur and may end fatally. Invasive amoebiasis, as shown by the presence of active red cell containing amoebic trophozoites in the stools or hepatic amoebiasis must be treated urgently.

Metronidazole is the drug of choice using 800 mg three times daily for 5 days. Short high single dose regimens of 2G in one dose for 3 days should be avoided. Women passing amoebic cystis only (non-invasive amoebiasis) can be safely treated with entamide furoate 500 mg t.d.s. for 10 days but treatment can usually be delayed until after pregnancy. Carcinogenicity in rodents and mutagenicity in bacteria have been seen as a result of metronidazole but studies of pregnant women given metronidazole have failed to show teratogenic effects in pregnancy (Goldman, 1980). Emetine and its derivatives should not be given in pregnancy.

TABLE 3. — *Antiparasitic drugs considered safe in pregnancy.*

Chloroquine Amodiaquine Paludrine	Antimalarials
Diloxanide (Furamide)	Non-invasive amoebiasis
Bephenium (Alcopar)	Hookworm, ascariasis
Piperazine (Antepar)	Ascaris, enterobius
Niclosamide (Yomesan)	Taeniasis
Metrifonate (Bilarcil)	Schistosomiasis haematobium
Oxaminique (Vansil)	Schistosomiasis mansoni

TABLE 4. — *Antiparasitic drugs not used in pregnancy.*

Primaquine	Relapsing malaria
Mepacrine	Malaria
* Mebendazole	Intestinal roundworms Hydatid disease
Emetine and derivatives	Amoebiasis

* If used, postpone till the second trimester (Ledward and Hawkins, 1953)

Giardiasis

This is potentially much less serious than amoebiasis. Symptomatic cases may be treated with metronidazole.

Toxoplasmosis

Primary maternal infections in pregnancy can cross the placenta and result in abortion, still birth or congenital toxoplasmosis. Primary infections occur in 1/5,000-10,000 pregnancies in the UK but are much commoner in parts of Europe especially France. Women who acquire the infection during pregnancy need treatment. One regimen of treatment is shown below.

TABLE 5. — *Antiparasitic drugs. Some doubts about safety in pregnancy.*

Metronidazole	– Amoebiasis; Trichomoniasis If necessary avoid use of high dose short term regimes. Probably safe.
Praziquantel	– Schistosomiasis, intestinal flukes. Probably safe.
Mefloriquine	– Probably safe.
Fansidar, Maloprim	– Malaria prophylaxis. Avoid in first trimester, probably safe.
Pentostam	– Leishmaniasis, probably safe.

TABLE 6. — *"Exotic" bacterial, chlamydial or rickettsial diseases.*

"Exotic disease"	Hazardous antibiotic	Substitute drug
Relapsing fever	Tetracycline	Cotrimoxazole
Cholera	»	Erythromycin
Lymphogranuloma venereum	»	Erythromycin
Typhus	»	Chloramphenicol
Plague	Streptomycin	Shorten course to last 3 days after cessation of fever

It is realised that some of these substitutes are not entirely safe for the fetus or neonate.

Pyrimethamine 25-50 mg t.d.s. for 3-5 days
then 25-50 mg daily for 3-4 weeks
and sulphadiazine 4-6 G/day 3-4 weeks
and folinic acid 10 mg/day.

High doses of pyrimethamine should not be given in the first trimester. Spiramycin in a dose of 2-3 G/day in 4 divided doses for 3 weeks is advised during the first trimester (Kwantes, 1983). Pregnant women who have not been infected should not eat lightly cooked meat or look after cats, unless they take hygienic precautions.

Metazoal (Helminthic) disease in pregnancy

Many patients with helminthic infections do not require urgent treatment during pregnancy. If treatment is required there are some safe drugs but in other cases the effects of vermicides on the pregnancies are still uncertain.

Other exotic diseases (bacterial, viral and rickettsial)

In general these diseases are treated as in people who are not pregnant. Antibiotics with potential dangers in pregnancy are used in some of these infections. Sometimes other alternative drugs can be substituted. A brief summary is shown in table 6.

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