

Drugs And Breast Feeding

Avoiding Complications

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1 - Introduction

Breast is best, and most infants are capable of being breast fed. With an ever-increasing number of drugs becoming available to an increasing number of women consumers, the topic of drug therapy and breast feeding is of the utmost practical importance.

Unless information to the contrary exists, it can be assumed that almost all drugs administered to the mother will be excreted, to a certain extent, in the breast milk, and thus the breast-fed baby is an unintended recipient of the drugs administered to the mother. Drug excretion will be influenced by milk production, milk composition, pH of the milk, and blood flow to the breast tissue.

Since drugs traverse membranes by passive diffusion, the final concentration will depend on the degree of ionization and protein binding of the particular drug molecule, and its molecular weight. Drugs that are weak bases will be present in breast milk at the same or higher concentrations than in plasma. Conversely, drugs that are weak acids will be present in breast milk at a much lower concentration than in the plasma.

One of the questions asked by any mother on long term drug therapy is whether to breast feed or not. Certain principles should be followed when prescribing drugs during breast feeding or advising on breast feeding during drug therapy.

1. No drugs should be prescribed while breast feeding, unless absolutely essential.
2. Drugs of doubtful safety or value, and drugs that are not normally used in neonates should never be considered: safer, well-established drugs should be used if a need for therapy arises during breast feeding.
3. Short acting drugs should be preferred to long acting or those with delayed excretion or accumulating effects.
4. Where possible, choose the drug that is excreted least in the breast milk. Breast feeding may have to be sacrificed either temporarily or permanently in certain cases.
5. Once or twice-daily dosage is preferable to 4-6 hourly regimens.
6. Infants should be breast fed before rather than just after the drug therapy, if it is practicable, and the doses should be scheduled so the least amount gets into the milk.
7. All infants should be monitored carefully for any adverse reactions while the mother is receiving drug therapy, and these should be reported.

2 - Specific Drug Effects

2.1 Analgesics

The commonly used analgesics include paracetamol, aspirin, and combinations of dextropropoxyphene plus paracetamol, and morphine plus aspirin. All these drugs are excreted in the breast milk.

Paracetamol is not known to cause any side effects in the infant and could be used safely if indications arise. Aspirin is excreted in moderate amounts and could cause a bleeding tendency in the infant. Although this is a minimal risk, aspirin should be avoided.

Dextropropoxyphene is excreted in breast milk. Drowsiness and difficulty in feeding could occur in these infants, especially if the mother is on long term therapy. Long term prescribing should therefore be avoided. Single occasional doses of a morphine and aspirin combination could be used without adverse effects, but continuous medication could produce an accumulative effect and should be avoided.

2.2 Cannabis

In marijuana one of the most important properties of cannabinoids is their fat solubility. After entering the blood by absorption through the lung membranes, they are taken up and held in the body's fat stores, and in organs with significant fat contents such as testes, ovaries, brain and mother's milk. Fat storage depots include the adrenals, the liver and other major organs; the protective cushion of fat that surround many major organs; the surface and internal membranes of every cell in the body.

What happens to offspring of THC exposed mice mothers?

I followed up through adulthood the pups I had given these drugs the day before they were to be delivered. The pups looked pretty normal in appearance and size when they were born. It wasn't until puberty that it was evident that they were underweight. We started to find hormonal imbalances that decreased testes weights, which started just before puberty but persisted up into the adult period of these animals who had only been exposed through their mother on the last day of her pregnancy or through her milk the first six days of the nursing period.

Is THC transmitted through milk in purer form?

If the mother was given THC, it comes through the milk 90% pure. Milk is so very fatty that it's a storage depot for unmetabolized cannabinoids. It has now been shown in monkeys, rats, sheep, and mice that THC definitely gets through milk in largely unchanged form.

2.3 Alcohol, Nicotine and Caffeine

Alcohol will pass into the breast milk and the concentration in the mother's milk is usually about equal to that in her blood. However, an occasional intake of alcohol in small quantities does not contraindicate breast feeding. Chronic alcoholics and occasional heavy drinkers should not breast feed, as their infants may suffer from >pseudo-Cushing's syndrome=. The characteristic findings of this syndrome in infancy are excessive weight, short stature, and moon-shaped face.

Nicotine will pass into the mother's breast milk, but no adverse effects on the infant have been noted. However, milk production is reduced in heavy smokers (>20 cigarettes per day). Excessive caffeine in breast milk can cause wakefulness and hyperactivity in the infant. A mother would need to consume 6 to 8 cups of caffeine-containing drinks before these effects are seen. Caffeine tends to accumulate in the infant. Caffeine and other xanthines are found in coffee, tea, cola, chocolate cocoa.

2.4 Anticonvulsants

All anti-epileptic drugs are excreted in breast milk, but anti-epileptic therapy should not be a contraindication to breast feeding. Periods of drowsiness have been noted in infants who are breast fed while the mother is on anti-convulsant therapy, but severe, acute effects are rare. However, phenytoin administered to breast-feeding mothers can cause methaemogloblinaemia in infants, who should be carefully monitored for any side effects.

2.5 Antibiotics

The penicillins, cephalosporins and aminoglycosides are safe and thus the preferred drugs if indications for their use arise.

Metronidazole should be used with caution, as it may produce decreased appetite, vomiting and, rarely, blood dyscrasia.

Chloramphenicol, tetracyclines and sulphonamides should not be used while breast feeding. Chloramphenicol can cause blood dyscrasia, tetracycline staining of the teeth and abnormalities of bone growth, and sulphonamide may cause jaundice in infants leading to kernicterus. Infants with glucose-6-phosphate dehydrogenase deficiency should never receive sulphonamides.

Naladixic acid should not be given to breastfeeding mothers. Nitrofuratoin may safely be prescribed as it is excreted in breast milk in only small quantities, but it may also cause haemolysis in G-6-PD infants.

2.6 Anticoagulants

Heparin, because of its high molecular weight, is not excreted in breast milk and is thus safe to use while breast feeding. All other anticoagulants except for warfarin, which has been found to be safe, are excreted to a certain extent in the breast milk, and are contraindicated as they may cause haemorrhagic tendencies in the infant.

2.7 Thyroid Preparations

Breast feeding is contraindicated while on antithyroid drugs, which are all excreted in the breast milk and may cause thyroid suppression and goitre. Women should be warned against self-medication with cough syrups which have iodides in them which may produce similar effects.

Physiological amounts of thyroxine are excreted by a normal breast feeding woman. A hypothyroid mother taking adequate thyroid supplement should have thyroxine levels the same as a normal woman. Breast feeding thus should not be discouraged. In the hypothyroid infant the amount of thyroxine in the human milk may delay clinical recognition of the disease. Although this exogenous source of thyroxine may alleviate the disease, it is insufficient to prevent the detrimental effects of hypothyroidism. It is thus best to monitor thyroid function in the children of hypothyroid mothers.

2.8 Antidiabetic Agents

Diabetes is not a contraindication to breast feeding, although the need for antidiabetic agents varies while breast feeding. Diabetic mothers, whether insulin-dependent or not, should be encouraged to breast feed.

2.9 Antihypertensive Agents

Most antihypertensive drugs in common use are excreted in breast milk, but it would appear that very few produce side effects in the infant which would contraindicate breast feeding. Methyldopa, for example, produces no side effects in the infant and can be used safely. Propranolol has also been found to be safe while breast feeding, but there is a lack of knowledge about the safety of other Beta-blockers in this respect. If used, the infant should be closely monitored for bradycardia and hypoglycaemia.

Use of diuretics should be discouraged as they have the potential to cause diuresis in the neonate and in turn dehydration, while chlorothiazide has been found to cause thrombocytopenia. Frusemide has been given to neonates, but only in situations where fluid electrolyte levels were closely monitored.

Reserpine is excreted freely in breast milk and causes nasal stuffiness, respiratory difficulty, bradycardia and feeding difficulties. It should not be used while breast feeding.

2.10 Antihistamines

All antihistamine drugs are excreted in breast milk, but most of them produce no severe adverse effects which would contraindicate breast feeding. Slight drowsiness with difficulty in feeding may be noted, mainly with long acting antihistamines, which should therefore be avoided.

2.11 Antidepressants and Other Psychotherapeutics

Barbiturates are excreted in breast milk, but in therapeutic doses produce no harmful side effects in the infant. Short acting barbiturates are preferable.

Benzodiazepines are excreted in the breast milk and may produce lethargy, difficulty in feeding and jaundice. Diazepam is well known to cause these effects and is contraindicated in breast feeding. If their administration is unavoidable, the lowest effective, single dose of a short half-life benzodiazepine would be most appropriate

Tricyclic antidepressants, although excreted in the breast milk, produce no harmful side effects in the infant and are preferable to any other agents.

Lithium is freely excreted in the breast milk and produces hypotonic, flaccid and difficult-to-feed neonates who would fail to thrive. Lithium is contraindicated during breast feeding.

2.12 Radioactive Pharmaceuticals

Radioactive iodine is contraindicated in the breast feeding mother, but with other radioactive diagnostic agents breast feeding may resume once the milk is clear of radioactivity. This usually takes 2 days for technetium 99 and 2 weeks for gallium 69. Throughout this period expression of milk will help to maintain flow.

Ergot and ergot derivatives, e.g. bromocriptine and neoplastic agents are definitely contraindicated.

Laxatives such as bran, methylcellulose, bisacodyl, senna and cascara may safely be used; but docusate sodium with danthron should be avoided as it can cause diarrhoea.

Breast feeding is contraindicated for mothers on gold salts and phenylbutazone which carry a theoretical risk. Although convulsions have been reported in the breast fed infant of a mother treated with large doses of indomethacin, only very small amounts of indomethacin appear in human breast milk. Ibuprofen, ketoprofen and flufenamic acid appear relatively safe to use in breast feeding, as amounts in breast milk are also negligible.

Further Reading References

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- Pagliaro, L.A., and Levin, R.H. (Eds): Problems in Paediatric Drug Therapy (Drug Intelligence Publications, Inc., Hamilton 1979)
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