

POTENTIALLY HARMFUL DRUGS FOR MITOCHONDRIAL PATIENTS

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When the diagnosis of a mitochondrial disease is made, you (as a patient) may be confronted with medication/drugs to be used. Up to now there is no treatment for mitochondrial disorders. There are no therapies which can solve the primary problem: the lack of energy. However, it is possible to deal with specific complaints with so called symptomatic treatments. For example: a mitochondrial disorder can lead to epileptic seizures, which can be treated with anti-epileptics or in case of cardiomyopathy (when the heart muscle is affected) specific heart medication can be given. Additionally, you can be confronted with medication when you have to undergo surgery or medical investigation and need anaesthesia.

It is of the utmost importance to realise that certain drugs may be potentially harmful for patients with mitochondrial disorders. The cause of the possible larger risk of unwanted negative effects of certain drugs with mitochondrial disorders in general lies in the fact that the drugs have a negative impact on the mitochondrial function. The (group of) drugs of which it is scientifically known that there is an (possible) increased risk on harmful effects with mitochondrial patients are listed in the table below. The kind of scientific evidence for negative effects on the mitochondrial function differs per (group of) drugs. We labelled the (group of) drugs based on the kind of scientific evidence, while we do not aim to restrict important drugs in a condition where treatment options are already so limited. In the majority it concerns experimental data, marked as yellow. These drugs may be used under strict monitoring of side effects. For other drugs scientific evidence concerns experimental data and single case reports, marked as orange. These drugs should be used with caution, discuss with specialist. Or a few drugs scientific evidence is profound, marked as red. These drugs are contraindicated.

The list only covers drugs which are prescribed relatively often. For other drugs it is recommendable to strictly monitor the effects.

In order to prevent (seriously) harmful effects, you as a patient must communicate with your doctor and pharmacist that you have been diagnosed with a mitochondrial disorder. Only under this condition the responsible team which is treating you can make a deliberate and safe choice, if drugs need to be prescribed.

Category	Generic name	Brand name *
Analgesics - Antipyretics	acetaminophen	Paracetamol, Tylenol, Actamin
	salicylates	Aspirin, Aspegic
	tramadol	Tramal, Tramagetic
NSAIDs	diclofenac, indomethacin, naproxen	Voltaren, Indocin, Aleve
Antipsychotic neuroleptic drugs	chlorpromazine	Thorazine
	fluphenazine	Permitil, Prolixin
	haloperidol	Haldol, Decanoate
	risperidone	Risperdal
	clozapine	Clozaril, Clopine
Antidepressants	fluoxetine	Prozac
Antiepileptic drugs	valproic acid	Depakine, Depakote
	carbamazepine, oxcarbazepine, phenobarbital, zonisamide, topiramate, gabapentin, vigabatrin	Tegretol, Trileptal, Luminal, Zonegran, Topamax, Neurontin, Sabril
	phenytoin	Dilantin, Epanutin
(Local) anesthetics	bupivacaine	Marcaine
	lidocaine	Xylocaine
	propofol (longterm anesthesia > 48 hours)	Diprivan, Propoven
	thiopental	Pentothal
Inhalation anesthetics	isoflurane, sevoflurane	Forane, Ultane

Muscle relaxants	<i>Cis</i> -atracurium, mivacurium	No brand names
Antidiabetic drugs	biguanide drugs (metformin)	Glucophage
	thiazolidinedione (glitazones)	Avandia
Anticancer drugs	Mitomycin C, doxorubicin, cisplatin, cyclophosphamide	Mitosol, Platinol, Cytosan
Fibrate drugs	clofibrate, ciprofibrate	Modalim
Statins	cerivastatin, simvastatin	Lipobay, Zocor
Antiarrhythmics	amiodarone	Cordarone
	beta-blockers (metoprolol, propranolol)	Lopressor, Inderal
Antiretroviral drugs	zidovudine, abacavir	Retrovir, Ziagen
Antibiotics	aminoglycosides	Amikacin, Gentamicin
	chloramphenicol	Chloromycetin
	tetracyclines	Minocin, Sumycin
	linezolid	Zyvox
	quinolones	Floxin, Ciproxin
Corticosteroids	Hydrocortisone, dexamethason, prednisone	Cortef, Decadron

* The examples mentioned represent commercial branding names, which can change on a daily basis and varies between countries / parts of the world. Thus, this list is by no means complete. The active substances mentioned are leading.

** **Red** = contraindicated

Orange = use with caution, discuss with specialist

Yellow = may be used under strict monitoring

Sources:

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