Data Based Medicine Paper: The Antipsychotics for Takers

Author: Dr. David Healy

Date Last Revised: 7 June 2012

Contents

The Antipsychotics

Until recently the antipsychotic drugs were regarded as too toxic to take unless the person taking them had a severe illness, such as schizophrenia or old style manic-depressive illness. Since then they have become one of the cash cows for the pharmaceutical industry, given to children as young as 1. Many of those taking or prescribing them believe that most things we need to know about them are known and that they must be safe and effective.

These drugs were originally called neuroleptics in Europe and major tranquilizers in the USA. The term antipsychotic is misleading in that these drugs do not cure psychosis or stabilize moods (See DBM Guidance on Mood Stabilizers). They are more effective for nausea or itch than for psychosis or mood stabilization. Other terms, such as atypical antipsychotics or Second Generation Antipsychotics, are entirely marketing terms and essentially meaningless[1].

The antipsychotics are however a valuable group of drugs. The authors of this guideline prescribe some of them regularly. But we believe their safe use is threatened by misinformation and complacency. This guidance highlights the poor quality of the evidence underpinning their use. Other guidelines are based on the published scientific evidence. As things stand this is a recipe for handing medical care over to pharmaceutical companies.

This guidance in contrast involves judgment calls but we outline the principles that underpin our judgments so that readers can see where further evidence may in due course reduce the need for clinical discretion and where the need for discretion is likely to remain. Safe and effective treatment needs an observant patient and a wise doctor - a team like this should turn to the "evidence" with caution.

General issues

Drugs and chemicals

Drugs are chemicals that may be useful in the management of a medical condition. It used to be doctors and patients who decided what were "diseases" and what needed treating – it is increasingly drug companies who shape this. Clinical trials were discovered by doctors in the 1950s as a means to weed out ineffective treatments. Our parents and grandparents took the risks of trying out possibly dangerous new drugs in these trials on behalf of their families, and the communities from which they came and in so doing they freed us from many scourges that for millennia had been killing children prematurely or leaving people crippled. In other words, companies make chemicals, we make drugs.

This worked so well at first that clinical trials were adopted as a gateway to the marketplace for candidate drugs. What should happen is that informed of the risks, patients who volunteer get given the candidate drug, an old drug or placebo. The outcome of the study – positive or negative - then gets written up in an academic article, with the raw data publicly available to

[1] Healy D (2002). The Creation of Psychopharmacology. Harvard University Press, Cambridge Ma.

other investigators to scrutinize. Companies submit the outcome of a series of trials to national regulators (such as FDA) seeking a license to market drug X as a treatment for condition Y. The regulator's brief is to monitor marketing claims – it is not to make sure the drug is good for you or is as good as other drugs on the market. No one seems to have that brief.

What studies have been done on these drugs?

Almost all studies on the antipsychotics have been carried out or commissioned by the pharmaceutical companies that produce them. There are a small number of independent studies, which have in general shown that older drugs at least as good as and cheaper than newer ones. No government agency or independent authority runs studies.

What data underpin the use of these drugs?

The data from clinical trials of the antipsychotics is almost universally unavailable, even though no-one has given their consent to this. For this reason practicing properly Data Based Medicine (DBM) is impossible and needs to be supplemented with clinical judgment.

Has anyone access to all the data?

No-one has seen or has had access to all the data, not even regulators such as FDA.

What publications are there on the use of these drugs?

There have been hundreds of publications from hundreds of clinical trials involving antipsychotics.

Of the published studies most - 50-90% - appear likely to have been ghostwritten – that is written by a professional writer on behalf of a pharmaceutical company and published under the name of eminent physicians who may not have read the text.

For the most commonly prescribed antipsychotics more studies undertaken are published than is the case for the antidepressants because it's close to impossible not to show some tranquilization with these drugs[2].

But for many published studies there are multiple publications – the record appears to be 234 publications from 4 Zyprexa (olanzapine) studies, none of which contain a clear picture of the weight gain, raised lipid levels, or glucose levels or rates of suicide this drug can cause – in other words the benefits are published on multiple occasions but the problems are hidden.

In the 1980s, many of the studies that brought current antipsychotics on the market were run through a center where it is known that not all the patients actually existed. The drugs were still approved and non-existent patient data likely is included in some publications. More recently studies have moved to Eastern Europe and Asia and the ability of regulators to oversee what is happening is even more limited.

For example in a study looking at the long-term benefits of Abilify (aripiprazole) the drug failed to distinguish from placebo in over 30 centers in the US, but showed a big difference from placebo in two centers in Mexico. Adding in the data from the Mexican centers made Abilify look slightly

[2] Turner EH, Knoepflmacher D, Shapley L (2012). Publication bias in antipsychotic trials. PLoS Med 9, e1001 189.

better in terms of relapse overall. In none of the articles about this study or the benefits of Abilify is this aspect of the data revealed. FDA were aware of the issue but chose not to investigate[3].

Many articles outlining the risks of antipsychotics have not been published owing to the concerns of medical journals that they will be sued by pharmaceutical companies and a general bias against publishing even convincing case studies that outline the hazards of treatment.

What studies have been done on these drugs?

Even if all studies were published by real authors, there would be a problem. Almost all the trials done have lasted only a few weeks. They do not look at outcomes that matter to patients such as whether I live or die, get back to work, or have a better quality of life. The rating scales used to decide if the drugs work in fact can show an improvement in your clinical state even if all that is happening is that you are suffering from side effects.

Some of the claims that antipsychotics work are based on recent studies that have stabilized patients on treatment and then randomized some to continue with treatment and others to placebo. Those remaining on the drugs do better. But all the drugs in this group are linked to dependence and withdrawal syndromes, and common sense suggests that what's going on here is that those remaining on drug are not doing better – they just aren't going into withdrawal.

The short duration of these studies mean that anyone on these drugs for more than a few weeks is flying blind. We don't know what could happen. There are discoveries to be made – another illness or problem might unexpectedly clear up or appear or there may be changes in personality.

It is as if around week 8 or so you were switched from a drug to a chemical. Drugs are chemicals that come with information. Chemicals are chemicals.

Are there any problems if my doctor keeps to recognized guidelines?

Our criterion for a good Quality guideline is that it is based on data rather than published evidence. Based on this criterion, there are no guidelines for the treatment of psychosis that warrant a Quality Mark greater than 1 out of 10.

It is customary to think that independent guidelines are superior to guidelines linked to pharmaceutical companies. But in fact the guidelines tend to be identical and independent guidelines may be more dangerous by virtue of their apparent independence.

When the Cochrane Center reviewed the antidepressants, they concluded that Sertraline (Zoloft) was among the most effective and safest, but taking unpublished data into account it ranks among the least effective.

---

[3] Rosenlicht N, Tsai AC, Parry PI, Spielmans G, Jureidini J, Healy D (2012). Aripriprazole in the maintenance treatment of bipolar disorder: A critical review of the evidence and its dissemination into the scientific literature. PLoS Medicine, 8, e10000434.

When the Cochrane Center first reviewed the use of antidepressants for children, they concluded these drugs were safe and effective but when unpublished data became available it was clear they weren't.

When the Cochrane Center first reviewed the evidence on Tamiflu they concluded it was beneficial but when unpublished data became available they had to revise their view [4].

The benefits of antipsychotics

Do antipsychotics work?

Unequivocally yes if the question is do they tranquilize and can this with appropriate teamwork between doctor and patient be put to useful purposes. But possibly not if the question is what have controlled trials shown.

Other than for safety purposes controlled trials aren't needed when a treatment obviously does something either good – for instance using coal tar for strychnine poisoning or the right antibiotic for a life-threatening infection, or less good – for instance inhibiting sexual function with an SSRI. Trials are primarily done when there is a real doubt as to whether something either good or bad is happening.

In the case of the antipsychotics, trials aren't needed to show they are tranquilizing or helpful for delirium or mania. But it is quite a different matter to establish that these drugs produce a benefit in psychoses in the longer run.

For most people saying a treatment "works" suggests it saves lives, or enables people to return to work, or makes the chances of an illness returning in the future less likely.

As of 2012, all the evidence points to the fact that antipsychotics increased rates of mortality when given over the longer term. Death rates in schizophrenia and other psychoses are - uniquely for any medical illness - higher than they were 100 years ago. These are acceptable risks to take in some cases of psychosis but much less so for manic-depressive illness, depression, anxiety or for children.

The evidence that antipsychotics get people back to work is limited – doctors believe it happens but trials have not shown it. One of the better and more independent studies from 1988 showed that patients on antipsychotics were less likely to be readmitted to hospital if taking their medication continuously but also less likely to get a job or get married[5].

It has never seemed a good idea to companies to use Quality of Life rating scales in trials of the antipsychotics – because these drugs do not offer a feel-good factor.

---

[4] Jefferson R, Doshi P et al (2011). Ensuring safe and effective drugs: who can do what it takes? BMJ 342, 148-151.

[5] Johnstone EC, Crow TJ, Frith CD, et al. The Northwick Park 'functional' psychosis study: diagnosis and treatment. Lancet 1988; ii:119–125.

The biggest problem with the antipsychotic studies is this. They clearly show that up to 33% of people with schizophrenia do not benefit or are made worse by treatment. But the trials appear to show the drugs "work". This means that a doctor faced with a patient who is clearly doing worse on antipsychotics is likely to get the sack for not prescribing drugs that "work" to patients with such a terrible disease.

Another problem is that many people who do well in these trials have acute and transient psychoses – a condition that would clear up anyway even if not medicated. The problem for any patients with acute and transient conditions is that because of these trials the system will force them to remain on treatment even after recovery, sometimes by means of forced treatment orders, when in fact these drugs can impair quality of life more than almost anything else short of cancer chemotherapy.

What do antipsychotics do?

The antipsychotics all have a common action to block dopamine receptors. But each also blocks a variety of other receptors and these other actions may lead to different profiles in terms of weight gain, sedation, or neurological effects.

Blocking D-2 receptors can produce a useful tranquilizing effect, but depending on dose can unhelpfully immobilize, or demotivate.

At present the antipsychotics are divided into two groups – first and second generation antipsychotics. First generation drugs were marketed before 1990, second generation since then. It was clear from the outset that there was unlikely to be much difference between these two groups of drugs but company marketing that was particularly successful in America made it seem like the second generation drugs were better. Second generation drugs except for clozapine can only be distinguished from first generation drug in terms of much greater costs.

For new onset schizophrenia clozapine is no better than first generation drugs. But for patients who are unable to tolerate other antipsychotics it is worth a trial as some people benefit from it where they have not benefited from anything else.

What overall impact will antipsychotics have on how I function?

An antipsychotic may dramatically shorten a psychotic, delirious or manic episode, save your life and get you back to work but when used chronically there can be risks.

If you have been ill for a relatively brief period of time and improve, your recovery is likely to be due to some combination of time, placebo or acute drug effects and your problem is then ensuring you can get off treatment. If you can identify a very clear benefit – such as an anxiolytic effect – there is a chance the antipsychotic rather than placebo factors is making a difference and the key thing is then to make sure you are on the lowest effective dose.

If you are chronically psychotic, the treatments are more likely to give you side effects than do anything useful. Unless you can identify a clear benefit there may be a case for not being on drugs that do not work for you.

In terms of function, doctors or others should ask themselves this question – if I were on this cocktail of drugs in this dose, how would I function – and if the answer is I probably wouldn't be able to do much, the dose or number of drugs should be reduced.

Acute trials & chronic treatment

In the 1960s the first trials of the antipsychotics assumed they were like antibiotics and as a result the trials only lasted a few weeks. Trials today still only last a few weeks, even though many people are likely to be on treatment for years. Trials this short produce a sign the drugs may work rather than evidence they are helpful long term. If the drug gets through trials like this and gets on the market, this is the point at which the research to work out who benefits from this drug should start – but this research doesn't happen.

Antipsychotics are commonly given for extended periods of time. Having any drug chronically is a recipe for extensive changes elsewhere in the body that will almost certainly not have been investigated. In the case of the antipsychotics this leads to diabetes, raised cholesterol levels, and an increased rate of heart attacks and strokes – the list of complications is growing. As the examples of nicotine, HRT, alcohol or other drugs taken over time show, it is all but certain that other problems will emerge in some who take antipsychotics for years.

Are the effects of antipsychotics all in the mind?

Absolutely not. Because the results in placebo controlled trials are not impressive, some may think the effects are all in the mind. But what the data from clinical trials shows is that a surprising number of us with psychosis can do better off medication or therapy than has often been thought.

If the question in these trials had been do antipsychotics tranquilize, the answer would have been clearcut. They unequivocally do.

It may make sense to take the risks of treatment if you are getting a clear benefit from the drug you are on. But what the trials show is that many doctors when they see a patient improve on treatment assume that it is the treatment that has produced the benefit – without asking the patient whether they can detect anything useful the treatment is doing. In contrast if there are side effects they attribute these to the illness rather than the pill.

How do I know which drug to take?

Before starting treatment, unless you have been on something before, neither your doctor nor you can know whether you will respond to it. Lots of work could have been done to match people to treatments but this hasn't been done – probably because research like this would have greatly reduced market share for blockbusters.

If put on an antipsychotic, you should clearly be able to identify a benefit in the first few hours or days. The drug should make you feel less bothered and if this feels good to you, it may be useful over the longer run. The first antipsychotic you are put on might feel extremely uncomfortable where another might feel quite good. If you do not detect a benefit, and in particular if you feel worse in any way, you are likely on the wrong drug for you, or on too high a

dose of the drug. The problem will rarely be because you are on too low a dose and you should resist pressure to have the dose increased.

If severely ill what treatment should I take?

For severe psychoses or psychoses failing to respond to other drugs, the usual story is to turn to clozapine. This is not because clozapine is better than other drugs but because it is different and some who don't respond to conventional treatments may respond to it – but overall it has a higher mortality profile than other drugs and therefore needs to be used with caution.

Many doctors have favorite combinations - adding different psychotropics to an antipsychotic. None of these combinations have ever been shown in controlled trials to work reliably.

If you do not show a rapid response to the addition of another drug, you should probably not remain on any combined treatment for long. It is more likely that something in the combination of treatments you are on is holding you back than it is that the combination will suddenly start helping.

Are there any problems with treatment combinations?

Yes. The reason combinations are prescribed is that each drug has been supposedly shown to work in clinical trials. But in fact all these trials have shown is that it is not right to say the drugs do nothing.

If you aren't getting better it might make sense to be on 4-5 drugs all of which work. But it makes little sense to be on 4-5 drugs about which we in fact know very little other than that no-one has investigated the effect of combining them.

What will get me better?

In the case of psychosis, the first thing to establish is whether you have schizophrenia rather than an acute and transient psychosis (brief reactive psychosis). These latter psychoses, roughly 15-20% of psychoses, recover fully even without treatment, although antipsychotics may speed this process up.

If you have schizophrenia, it is more a matter of finding a treatment that suits passably well, and makes you more functional and then remaining on this in a dose that helps you function. It may be a low dose of one antipsychotic will produce the best effects but that these effects don't amount to a lot. In this case, the antipsychotic needs to be supplemented by an entirely different approach.

Other uses of antipsychotics - neuroleptics

These drugs are in general more effective for the treatment of itch, nausea and vomiting and for tics than they are for psychosis. Drugs like metoclopramide and prochlorperazine are marketed for this purpose and when given for this reason can lead to all of the side effects of the antipsychotics.

Myths about antipsychotics

1. Antipsychotics are neuroprotective.

This quite extraordinary claim is used to justify early intervention, even in children. The antipsychotics in particular are associated with much more obvious and visible brain damage than can be found with ECT. This is not a recipe for not using them but does suggest using just the same caution as you would take to having ECT. Children seem most at risk from the harmful neurological effects of mood-stabilizers.

2. Suicide on antipsychotics stems from patients not being on a high enough dose.

The leading cause of death in schizophrenia is suicide – over 50% of the deaths in the first 5 years of treatment. Despite the fact that antipsychotics cause severe akathisia which causes suicide, and controlled trials show an excess of suicides on active treatment, the field instead prefers to believe schizophrenia causes suicide (even though it didn't in the 19th and early 20th century), or that the drugs restore insight and this leads to suicide or that the drugs were not given in a high enough dose so that full insight would have been restored and the person would have just realized that in order to stay well all they needed to do was continue to take their antipsychotics.

The facts are that even healthy volunteers can become suicidal on antipsychotics and suicide rates in schizophrenia are now 20 times higher than they were before the antipsychotics were introduced.

3. There is something wrong with the dopamine system in psychosis.

No one knows what is wrong in schizophrenia or other psychoses – but there is nothing wrong with the dopamine system. The antipsychotics would not produce any useful clinical effects if there were something wrong. When these drugs reduce vomiting we don't say vomiting is caused by excess dopamine.

4. Antipsychotics do not cause Addiction

All antipsychotics cause physical dependence – it becomes difficult to stop because of how bad the person feels on stopping and the relief from restarting treatment. It is likely that some antipsychotics are worse than others (for instance clozapine) but because companies have denied there is any problem, it is difficult to know which drugs are the worst offenders and how to manage the problem.

Companies and their experts refer to discontinuation syndromes – another term for withdrawal or being hooked. It is not uncommon to hear people say it is harder to get off antipsychotics than off opiates, or benzodiazepines.

It is in areas like these – mythologies about chemical imbalances and addiction - that doctors need to help patients and patients need to help doctors to escape the clutches of company marketing that has been so successful that many will be astonished to know that things they have taken for granted have no basis in science.

Questions for your doctor

What do you know of my pros & cons?

About the risks I might be happy to live with and the one's I wouldn't, and how important improvement is to me compared to other things in my life? Based on what you know of the drugs, can you help me explore these?

What are my options?

You need to establish if you have a reactive psychosis in which case you should not be on treatment permanently. Even if chronically ill, someone needs to work with you to find out whether in fact you are better off drug free and psychotic or drugged and psychotic.

What happens if I don't take treatment?

You need to establish if your doctor will still engage with you. Some people would be better off without treatment.

Do the people in the studies of these drugs resemble me?

Many of the people in antipsychotic trials were recruited by advert, a lot were volunteered by their doctor rather volunteered themselves, none gave informed consent, some didn't exist. There were very few average people in these trials. If you are being treated for another condition in addition to psychosis, there were few people like you in the trials.

How do you know which antipsychotic to give me?

There is no research on this important question. It can only be established by trial and error and your doctor should be prepared to switch drugs around to find one that suits you best.

How long do i have to be on treatment?

Half of those put on an antipsychotic stop within weeks – in great part because of side effects. The most worrying problem at the moment is that through compulsory treatment orders or other means it is becoming more and more difficult for people put on antipsychotics to get off them. This makes it doubly important to have clinicians who listen to you.

What are the risks?

The standard list of side effects in the manufacturers information leaflets include motor problems such as Parkinson's syndrome, a range of abnormal motor movements (dyskinesias), and painful muscle cramping (dystonias), some of which can be permanent, a state of intense inner restlessness (akathisia), marked weight gain, sexual dysfunction, sedation, constipation, fainting, palpitations, sweating, tremulousness, headache, blurred vision, rashes, and many more.

Depending on the Drug, antipsychotics can also cause:

- Dependence leading to significant withdrawal problems (up to 50%),
- Anxiety or agitation – severe in 20% of cases

- Diabetes – all antipsychotics can cause diabetes but some like olanzapine are more likely to do so.
- Suicide – up to 1 in 100 will engage in a suicidal act, and a large number will succeed.
- Violence, aggression and irritability – this affects an unknown number of people.
- Neuroleptic malignant syndrome – a potentially lethal complication of treatment
- Tardive dyskinesia – probably as common in new as in old antipsychotics and likely to happen in children if they are put on antipsychotics
- Demotivation – antipsychotics are profoundly demotivating. They take the colour out of life and leave someone much less likely to do anything. Doctors and other healthcare workers should ideally try these drugs themselves and find out how difficult it is to do much while on them.

How likely are the listed side effects of antipsychotics to happen?

No one knows. Company answers are that if they have happened even once we have to list them. This implies they are rare. But in fact side effect data are not collected properly. There is almost no-one put on an antipsychotic who will not have significant side effects. Anyone put on them needs a chance to balance the benefits they get against the problems the treatment may cause.

The cause word

Companies typically deny their drug causes any problems and are close to allergic to the word cause. You should use it where possible. One company tactic is to claim that there is no evidence their drug causes a problem unless a clinical trial has shown that their drug is statistically significantly more often linked to the problem than placebo. When a company fails to do the trials to investigate potential problems they can deny a link for ever – even in the face of convincing evidence of a problem emerging on treatment, clearing when the treatment is stopped and reappearing when treatment is restarted.

When an event like diabetes happens, company strategies have been to say that their drugs do not cause it, that it is caused by weight gain which their drugs also do not cause. They may concede their drug increases appetite but lay the blame for giving in to your appetites on you or imply it's your failure to exercise that leads to weight gain and diabetes.

Companies will go to extraordinary lengths to avoid linking their brand to a problem – a key defense is to direct the questioner to a medical academic. Academics unlike companies can say whatever they want – and can be depended on to say the drugs do not cause any problems.

Finally faced with enquiries on risks from dependence to diabetes, companies will typically suggest you Talk to your Doctor. But your doctor will only have the public domain information that denies a link to problems and will be completely unaware that internal company determinations in many cases will have decided their drug causes the problem you have. This is a way to pin legal liability for problems on the doctor.

What unacknowledged risks can reasonably be suspected?

On launch the antipsychotics should have come with clear statements about the risks of dependence, withdrawal, suicide, diabetes and other difficulties. We simply do not know what other effects chronic actions on the brain systems these drugs work on might trigger for good or bad.

Periods of risk

Just as for space shuttles, many of the dramatic problems antipsychotics cause cluster around take-off and landing (starting and stopping). The first few days of exposure to an antipsychotic is associated with agitation up to and including suicide. Problems also emerge when the dose is being reduced or shortly after the treatment is stopped. Difficulties also arise in the course of treatment when the dose is changed.

Aside from risk periods like these that are associated with agitation and dependence, there are a range of problems that may appear in the course of treatment and in some instances endure long after treatment stops – see list below.

Stopping?

Taking and stopping antipsychotics is not the same as never-taking. Antipsychotics come with significant withdrawal and legacy effects.

Depending on the antipsychotic up to 50% of people may have difficulties with withdrawal (See DBM Stress Syndromes and DBM Dependence & Withdrawal). Clozapine is probably the worst to stop. It may be possible to minimize withdrawal problems by tapering the drug very slowly using liquid formulations. But this doesn't work for all and for many withdrawal may be impossible.

The issue may be complicated by legacy effects of antipsychotics. Some people seem to develop a dysthymia that becomes manifest as they try to stop treatment. This does not seem to be withdrawal. Some features such as dysthymia, an intolerance for stress or memory difficulties can endure for years after treatment stops.

Antipsychotics can blunt normal emotions such as anger. Stopping them can lead to a resurgence of these emotions causing problems in anyone who is no longer used to dealing with them.

Coda

Until quite recently all drugs were regarded as poisons to be used with care, ensuring that the risks of the illness being treated outweighed the unquestioned risks of the poison you were about to take. Company marketing has changed perceptions so that these chemicals are now regarded more like fertilizers to be sprinkled liberally everywhere. This switch has been brought about in part by a marketing of fear and risk – we are told that left untreated our conditions or those of our children will lead to alcoholism, drug abuse, suicide, divorce, career failure and other problems. This is rarely true – for an increasing number of us the worry is that the treatment is more likely to produce this outcome than the illness.

Our doctors should be our allies at this point but prescription only privileges have meant they may become our captors. If antidepressants were available over the counter they would be sold to as chill-pills or tonics like St John's wort or Buckfast Wine, but in order to give us Prozac or drugs like this, our doctors have to give us depression or bipolar disorder or some other illness first. And once they give us a disease, we supposedly have all the risks that go with the worst form of that disease.

The dynamics of treatment

Stockholm syndrome was described after a hostage drama in a bank in 1973. This happens when a person's life is in danger, when they are isolated and when their captor in kind. They end up identifying with their captor and wanting to keep him/her happy.

Illness puts someone in danger and isolates them and doctors today are increasingly trained to be nice. But medical training does not take into account that when asked about problems even the most sophisticated patients who are having grave difficulties from treatment will likely tell their captor that everything is going wonderfully.

A further problem is this. When we are ill we want to hand over our care to a parent who knows best (this is called delegated narcissism). Doctors also want to feel there is someone out there looking after them. They think this is the regulator – but this is not the job of the regulator. Companies hold most doctors hostage these days through the favors they dish out and guidelines they control. No one knows how to help doctors out of this bind.

This is why your questions are important but also why you need to treat your doctor as carefully as you would hope they will treat you. Rather than see all of us as victims, your doctor may regard you and this guidance as the persecutor and see himself as the victim.

Commonly used antipsychotics

	Trade Names
Chlorpromazine	Thorazine, Largactil
Perphenazine	Fentazine
Trifluoperazine	Stelazine
Haloperidol	Haldol, Serenace
Flupenthixol	Fluanxol, Depixol
Pericyazine	Neulactil
Sulpiride	Sulpitil, Dolmatil
Molindone	Moban, Lidone
Tetrabenazine	Xenazine
Amisulpiride	Solian

Aripiprazole	Abilify
Olanzapine	Zyprexa
Risperidone	Risperdal
Ziprasidone	Geodon
Quetiapine	Seroquel
Paliperidone	Invega
Zotepine	Zoleptil