
A BRIEF OVERVIEW OF PSYCHIATRIC MEDICATION

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Abstract – This article gives a brief overview of the main groups of psychiatric medication.

Keywords: medication, psychiatry

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Introduction

Psychiatric medication is used to treat a broad range of conditions that affect mental processes. They can be useful in cases of anxiety disorder, panic attacks, obsessive-compulsive disorder, depression, bipolar disorder, schizophrenia and many other psychiatric disorders. However, they

are also used successfully in cases of eating disorder, borderline personality disorder and various other conditions. Frequently, they are also used for their side effects, such as the antidepressant mirtazapine or the neuroleptic olanzapine as sleeping aids. In the latter cases, it is especially important to know about the other potential side effects psychiatric medication can have in the short, but also in the long-run.

Many people who are “on medication” work in challenging jobs and take care of their families, work as artists and scientists, or are in a hospital waiting to get better. Medication can deliver miraculous breakthroughs in some cases, while leading to unbearable side effects in others. Knowledge about what a specific type of medication does and clinical experience can lead to more predictable outcomes. Selecting a drug should always be tailored to the specific case, not only the symptoms, but also the social and professional setting of the patient, as well as specific needs, wants and aspirations, such as a desire to have children or work in a job which requires a high degree of alertness.

An integrated concept

Medication should always be a component of an integrated therapy. Since mental processes are influenced by, and in turn influence, a wide spectrum of internal and external factors, the treatment of mental health conditions is by necessity complex. In most cases, it will include the following:

- Biological therapies, including medication
- Psychotherapy
- Social and life-style changes

They are not listed in the order of importance, but purely alphabetically. Even the sequence depends on the condition that presents itself to the clinician. In acute psychosis medication might be the only available starting point, while in an adjustment disorder often it requires the beginning of a strong therapeutic relationship to talk about medication. But in the end every case needs to be assessed individually. In more severe cases, especially if there are other medical conditions, this may require a multidisciplinary approach.

Usually when one speaks of psychiatric medication, one refers to synthetically made chemical substances, which influence the neurotransmitter makeup in the vast network of nerve cells (neurons) that make up the brain. But in a limited range of less severe psychiatric conditions also substances from plants are used, often in the form of highly concentrated extracts. St John's wort is an example of a 'natural' pharmaceutical used in some moderate forms of depression and anxiety. But at the present there is no substance with a clinically proven effect on a mental condition without side-effects, which also applies to plant extracts.

Medication and Psychotherapy

Medication and psychotherapy are not mutually exclusive. Psychiatric Medication has shown to be a great help at the beginning of a psychotherapy as a facilitator and support. Especially in cases where the symptoms make a psychotherapy impossible, for example, because the patient is mute or too agitated or too scared, medication makes outpatient treatment possible.

Medication has helped to treat conditions in outpatient settings that often required lifelong hospitalization not long ago. For the patient, less time spent in a hospital means more time spent in familiar surroundings at home or with the family. In many cases, except for the most severe ones, this helps the psychotherapeutic process, because the social setting the patient lives in is where most of the communication comes from that influences how the patient deals with his or her problems.

By lifting mood, increasing concentration or removing psychotic symptoms, medication can help in the psychotherapeutic process by increasing a patient's ability and motivation to think and feel more easily and, in the case of anxieties, with less fear. However, medication can also lead to increased sedation or a sense of emotional numbness (particularly some atypical antipsychotics, such as quetiapine and olanzapine) and other side effects, which can hinder the process of reconnecting the patients with the own emotions and the sense of self. It is important to keep this in mind and to readjust the medication as needed. Generally, medication, if it is needed, can be a very helpful tool in the psychotherapeutic process.

Side-Effects

Every (psychiatric) medication has potential side-effects. Even water does in high doses, as people have committed suicide with water. Also, interactions are possible between psychiatric drugs and with non-psychiatric drugs. Particularly in the case of psychiatric drugs whether the patient notices a side-effect, and often even its shape and form, can differ substantially among individuals. Even many years of clinical experience make it guesswork, which, however, tends to get back over time. For example, a patient with severe anxiety disorder can virtually be 'knocked out' by a regular dose of the medication of choice, a serotonin reuptake inhibiting (SSRI) antidepressant. The approach in these cases is to go slow. In some cases, it might mean starting with 1/8 of a tablet and increasing it to 1/4, 1/2 and 1 in daily or two-daily steps. This usually has to be done only once. Even after a pause of many years, in the case of most SSRIs, it seems easier to begin right away with the minimum maintenance dose (such as escitalopram 10mg or even 15mg, sertraline 50mg). Also, using very similar medication, such as citalopram vs escitalopram, often allows switching from one to the other at their maintenance doses.

Safety

While every drug has effects and side effects, psychiatric medication is frequently quite safe as compared to other non-psychiatric medication. One reason may be that it is much more difficult to get registration for a substance to treat a 'non-physical' condition than for one that is used to treat severe medical conditions, even if both would have similar side-effects. People generally expect medication to treat mental health conditions, especially moderate ones, to be as close to "safe" as possible.

Another reason for a high standard of safety is that the occurrence of adverse effects can potentially reduce drug compliance by the patient much more in cases of mental health conditions. This may not be entirely rational because the economic loss to the individual from sick leave or permanent disability in the area of mental health is greater than in any other medical field, not to mention the often very long suffering and reduction in quality of life that comes with psychiatric disorders.

Compliance

More than with most other medication, the patient's insight into the necessity for psychiatric medication and the willingness to take it regularly can be quite low.

One reason for low compliance may be the length of time patients are on psychiatric medication, sometimes a life-time. Prescribers should review the need for medication regularly and explain to patients why they are taking it. This can help to increase compliance. Also, explaining that the need for an antidepressant in a patient suffering from recurrent severe depressive episodes is not unlike the need for insulin in a diabetic may not be medically exact but can be helpful in explaining the underlying concept. Good communication and taking the time needed for it is key.

Another important reason for low compliance can be low-risk but for the patient subjectively very irritating side effects, such as sedation, 'emotional numbness', loss of libido and others. Weight gain, especially in the case of olanzapine and mirtazapine, can become also a medical problem. Again, the important principles to maintain compliance are

- Communication (good and long enough)
- Regular review of the medication

Lowering Side Effects

There may also be ways to deal with the side-effects effectively. Some adverse effects can be treated symptomatically by using adjunct medications such as anticholinergics (antimuscarinics). In other cases, exercise, cognitive training or other non-pharmaceutical approaches can help.

In some cases, it is merely an issue of how to begin or discontinue a medication. Some rebound or withdrawal adverse effects, such as the possibility of a sudden or severe emergence or re-emergence of psychosis in antipsychotic withdrawal, may appear when the drugs are discontinued, or discontinued too rapidly. [1] The antidepressant venlafaxine and the bipolar/antiepileptic drug lamotrigine should also be discontinued slowly.

Specific psychiatric conditions

Depression

Antidepressants are drugs used to treat clinical depression, and they are also often used for anxiety and other disorders. Most antidepressants interfere with the breakdown and ‘recycling’ of serotonin (SSRI) or norepinephrine (NRI) or both (SNRI). Some also have an effect on the dopamine neurotransmitter system. Most antidepressants have affinities for certain combinations of receptor classes. These patterns determine their effects and side-effects.

More modern antidepressants, such as the SSRI escitalopram, tend to show a higher selectivity for specific receptor subclasses. This might lead to less side-effects and in the best case also higher effectiveness.

SSRIs

A commonly used class of antidepressants are called selective serotonin reuptake inhibitors (SSRIs), which act on serotonin transporters in the brain that mediate the uptake and breakdown of these compounds. Since they reduce the recycling of serotonin they increase levels of serotonin in the synapse (the cleft between the nerve fibers from different cells). The SSRI revolution started with fluoxetine (Prozac®), which even made it on the cover of TIME magazine. The discussions and arguments that ensued, often about medical psychiatry in general rather than Prozac® in specific, were a result of it being prescribed in range and quantity unlike any medication before, maybe except for penicillin and Aspirin®. From today’s perspective, the national and international debate seemed to have its merits, not matter how superficial and irrational it might have been.

SSRIs will often take 3–5 weeks to have a noticeable effect, as the density (number) of receptors in the cell membrane has to be regulated to a new level. This change in protein density in the cell membrane also explains a positive effect that can last after discontinuing the medication.

There are multiple classes of antidepressants which have different mechanisms of action. They do not only help against depression, but also against anxieties and in a number of other situations which I discuss in a different article. However, one rule should be that in the case of anxieties it is

important to start with a low dose and that SSRIs are usually better tolerated by patients than NSRIs, which might even increase anxiety in the beginning.

Common antidepressants are (with common brands in the parentheses):

- Fluoxetine (Prozac®), SSRI
- Paroxetine (Paxil®, Seroxat®), SSRI
- Citalopram (Celexa®), SSRI
- Escitalopram (Lexapro®), SSRI
- Sertraline (Zoloft®), SSRI
- Duloxetine (Cymbalta®), SNRI
- Venlafaxine (Effexor®), SNRI
- Bupropion (Wellbutrin®), NDRI
- Mirtazapine (Remeron®), NaSSA
- Isocarboxazid (Marplan®), MAOI
- Phenelzine (Nardil®), MAOI
- Tranylcypromine (Parnate®), MAOI

Schizophrenia, Psychosis

Antipsychotics (Neuroleptic drugs) are drugs used to treat various symptoms of psychosis, such as those caused by psychotic disorders or schizophrenia.

Atypical antipsychotics are also used as mood stabilizers in the treatment of bipolar disorder, and they can augment the action of antidepressants in major depressive disorder.

There are two categories of antipsychotics: typical antipsychotics and atypical antipsychotics. The atypical psychotics are called "atypical" because they appear to have a lesser risk of developing some of the extrapyramidal side-effects associated with the (older) class of typical antipsychotics.

Common antipsychotics are:

Typical antipsychotics

- Chlorpromazine (Thorazine®)
- Haloperidol (Haldol®)
- Perphenazine (Trilafon®)
- Thioridazine (Melleril®)
- Thiothixene (Navane®)
- Flupenthixol (Fluanxol®)
- Trifluoperazine (Stelazine®)

Atypical antipsychotics:

- Aripiprazole (Abilify®)
- Clozapine (Clozaril®)
- Olanzapine (Zyprexa®)
- Paliperidone (Invega®)
- Quetiapine (Seroquel®)
- Risperidone (Risperdal®)
- Zotepine (Nipolept®)
- Ziprasidone (Geodon®)

Anxiety, Panic Attacks

Basically, medication with the same neurobiological mechanism is often used to help with sleep problems, anxieties and fears. They mostly belong to the group of benzodiazepines.

One problem with benzodiazepines is that they can be addictive and lead to withdrawal symptoms, although there is some discussion whether they are addictive in their own right or only in association with some other predisposing factors or negative behaviors. This is the reason why they are often only recommended for short term use. However, often an anxious patient can be helped by just carrying the tablet in his/her pocket. And benzodiazepines still play an important role in the treatment of anxieties and panic attacks. They are also used if first-line sleep medication, such as a sleep-inducing antidepressant or a z-drug in the short run, is not effective enough.

Some common benzodiazepines include:

- Alprazolam (Xanax®), anxiolytic
- Chlordiazepoxide (Librium®), anxiolytic
- Clonazepam (Klonopin®), anxiolytic
- Diazepam (Valium®), anxiolytic
- Lorazepam (Ativan®), anxiolytic
- Nitrazepam (Mogadon®), hypnotic
- Temazepam (Restoril®), hypnotic

Insomnia

The first line medication is a sleep-inducing antidepressant, especially if there are symptoms of depression and/or anxiety. Mirtazapine, for example, is an often prescribed sleep inducing antidepressant at lower doses (15 mg), but much less so at higher doses (45 mg).

The z-drugs are not benzodiazepines but seem to work on the same receptors in the brain and have similar effects as the benzodiazepines. They are mostly used to help with sleep, but are also potentially addictive, and should thus be only used in the short run.

Common Z-drugs include:

- Eszopiclone (Lunesta®)
- Zaleplon (Sonata®)
- Zolpidem (Ambien®, Stilnox®)
- Zopiclone (Imovan®)

Bipolar (manic-depressive conditions)

The history of the mood stabilizers is quite interesting. Famously, in 1949, the Australian John Cade discovered that lithium salts could control mania, reducing the frequency and severity of manic episodes. People living in a lithium rich area had a lower likelihood of manic-depressive

episodes (as bipolar disorder were called formerly). Lithium became the first mood stabilizer approved by the FDA (the U.S. Food & Drugs Administration).

In addition to lithium, several anticonvulsants and atypical antipsychotics have mood stabilizing activity.

Common mood stabilizers:

- Lithium carbonate (Carbolith®), first and typical mood stabilizer
- Carbamazepine (Tegretol®), anticonvulsant and mood stabilizer
- Oxcarbazepine (Trileptal®), anticonvulsant and mood stabilizer
- Valproic acid, and salts (Depakine®, Depakote®), anticonvulsant and mood stabilizer
- Lamotrigine (Lamictal®), atypical anticonvulsant and mood stabilizer
- Gabapentin, atypical GABA-related anticonvulsant and mood stabilizer
- Pregabalin, atypical GABAergic anticonvulsant and mood stabilizer
- Topiramate, GABA-receptor related anticonvulsant and mood-stabilizer
- Olanzapine, atypical antipsychotic and mood stabilizer

ADHD (formerly ADD)

Stimulants are frequently used to treat attention deficit-hyperactivity disorder. A stimulant is a drug that stimulates the central nervous system, increasing arousal, attention and endurance. Because the medications can be addictive, patients with a history of drug abuse are typically monitored closely or treated with a non-stimulant. It is argued that the risk of addiction in patients diagnosed with ADHD is much lower or even non-existent.

There are also some antidepressants that have stimulant effects. Methylphenidate is a noradrenaline-dopamine reuptake inhibitor

Common stimulants include:

- Methylphenidate (Ritalin®, Concerta®), a norepinephrine-dopamine reuptake inhibitor
- Dextroamphetamine (Dexedrine®), the dextro-enantiomer of amphetamine
- Dexamethylphenidate (Focalin®), the active dextro-enantiomer of methylphenidate

- Lisdexamfetamine (Vyvanse®), a prodrug containing the dextro-enantiomer of amphetamine

There are also mixed amphetamine salts, such as Adderall®, a 3:1 mix of dextro/levo-enantiomers of amphetamine.

The Combination with Psychotherapy

As mentioned, psychiatric drugs can support psychotherapy. Psychotherapy, if done correctly, is always more specific than any chemical compound that floods the brain and affects all information transmission mediated by a certain class of neurotransmitters and receptors. But in order for psychotherapy to work, the individual has to be receptive to the information and the interaction offered by the therapist, and if the condition is severe or in situations of psychological stress this may not be possible without proper medication.

If a patient suffering from depression cannot sleep anymore or has lost any motivation to communicate, psychotherapy may only be of limited effectiveness. If a patient is completely detached from reality because of a psychosis or from the after-effects of a severe trauma, medication may help to establish a rapport between patient and therapist.

Over the medium- and long-run the indication for medication, just like for psychotherapy, needs to be evaluated regularly. Also, as with any medication, a somatic inventory should be done, potential interactions kept in mind and certain blood and other tests, such as ECGs or even EEGs, carried out regularly, if the substance warrants it.

Into the Future

Psychiatric Medication needs to become more specific, but at the same time we have to find out more about the processes we want to target. Since the human brain is arguably the most complex piece of matter in the universe, decoding what leads to depression, anxiety or acoustic hallucinations, for example, is not that easy because practically all pathways in the brain interact. Also, synapses often use ‘cocktails’ of neurotransmitters and a variety of receptors and receptor

subclasses. Getting a better grasp of how this intricate network of pathways and receptors works is far from easy, because we need to be conscious of individual variations on the micro level, while getting a good idea of how the overall system works. It is truly a demanding task for the future.

We live in an environment where information reaches us all the time and where we continuously store experiences in our memory. This also changes the biology and physiology of our brain as the information is stored in the neural network itself. It is impossible to see the brain fully disconnected from its environment, which makes the process of finding out about the brain even more challenging.



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