

## A Review on Antidepressant Drugs

Jhansi Konduru<sup>1\*</sup>, Vanita P<sup>1\*</sup>, Lavanya Sabbavarapu<sup>1</sup> and Satya Varali M<sup>2</sup>

<sup>1</sup>Department of Biochemistry, Dr. L.B. College, Visakhapatnam, India

<sup>2</sup>Department of Human genetics, Andhra University, Visakhapatnam, India

\*Corresponding authors: Jhansi Rani Konduru, Department of Biochemistry, Dr. L.B. College, Visakhapatnam, India, Tel: 9885352429; E-mail: kondurujhansi68@gmail.com

Vanita Pudata, Department of Biochemistry, Dr. L.B. College, Visakhapatnam, India, Tel: 9885352429; E-mail: vani.vnt1@gmail.com

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### Abstract

Antidepressant drugs are those which can reduce the symptoms in depression. Even though they do not cure the disorder but can relieve the symptoms. Usage of these drugs without proper prescription from Psychiatrists, overdoses may cause side effects, even in some cases death may occur. So we can use these drugs within limit, proper suggestion from doctors only.

**Keywords** Antidepressant drugs; Depression; Neurotransmitters; Symptoms

### Introduction

Antidepressants are a category of drugs used to treat the symptoms of depressive disorders by correcting chemical imbalances of neurotransmitters within the brain. Chemical imbalances could also be chargeable for changes in mood and behavior [1]. Antidepressants are available in a range of forms, however all of them work by impacting bound neurotransmitters in brain, like serotonin and norepinephrine. Antidepressants are useful to treat many conditions. They are depression, dysthymia, anxiety, anxiety disorders, obsessive compulsive disorder, eating disorders, chronic pain, neuropathic pain and, in some cases, dysmenorrhoea, snoring, migraines, attention-deficit hyperactivity disorder (ADHD), substance abuse and sleep disorders. They can be used alone or together with alternative medications (Figure 1).



Figure 1: Antidepressants

Antidepressants play a major role in the treatment for those with moderate or severe depression. Though antidepressants might not

cure depression, they will cut back the symptoms. The primary antidepressant drug attempts to fit well during the initial stage of treatment. However if it does not relieve the symptoms, it causes adverse effects on the individual [2]. So first we have to find the right antidepressant based on the symptoms and the patient health condition. Spectrophotometric and chromatographic methods have been developed for determination of the antidepressant drug sulphuride (SUL) in pharmaceutical formulation and plasmas [3-7].

### Classification

There are many antidepressant drugs available in the market. The key role is played by the time that might be required for a particular outcome of the drug on the individual i.e. the response time of a drug can be known in the due course. The commonly used antidepressants are

- Selective serotonin re-uptake inhibitors (SSRIs)
- Serotonin and norepinephrine re-uptake inhibitors (SNRIs)
- Monoamine oxidase inhibitors (MAOIs)
- Tricyclic antidepressants (TCAs)
- Tetracyclic antidepressants
- Serotonin receptor modulators (SRMs)
- Lithium Salts

### Mechanism

Neurotransmitters are endogenous chemicals that transmit signals across a synapse from one neuron to another 'target' neuron. Brain neurotransmitters might not be secreted in adequate amounts to alleviate mood disorders. The chemical's like serotonin, melatonin, and dopamine are the most important in brain for sense. Once the nerves are robbed of those neurotransmitters, they can't send messages to different nerves which leads to depression [8]. The messages that are passed through the neurons are exhibited as emotions, behavior, temperature, appetite, or several alternative functions. The information sent depends on that neurons area unit activated and what a part of the brain is excited.

Low levels of serotonin and norepinephrine within the conjunction area leads to depression. Hence medications like antidepressant used to treat this works by increasing the number of bound neurotransmitters in that particular part of the brain which enables to transmit the message.

Each type of antidepressant works on brain with little difference, all antidepressant medications influence the neurotransmitters how to work in the brain, especially serotonin and norepinephrine, [9] thus controlling the balance of the neurotransmitters [10].

SSRIs (selective serotonin reuptake inhibitors) and SNRIs (serotonin norepinephrine reuptake inhibitors) have different mechanisms of action. SSRI has three different serotonin reuptake inhibitors those are fluoxetine, paroxetine and sertraline [11]. These have selective effect for both citalopram and fluvoxamine on the serotonin reuptake pump. It leads to primary increase in serotonin at the cell body and dendrites. So, SSRIs act by blocking the serotonin reuptake pump (5-HTT). [12] Whereas SNRIs presumably block both 5-HTT and the norepinephrine transporter (NET). Blocking these transporters prevents the neuron from vacuuming up excess neurotransmitters, permitting a lot of to stay within the synapse and stimulate postsynaptic receptors. SSRIs have important effect on NE as well, and the SNRIs behave much more like SSRIs.

We extend levels of all 3 monoamines (serotonin, monoamine neurotransmitter, and dopamine), ought to be prescribing MAOIs (monoamine enzyme inhibitors). MAOIs aren't re-uptake blockers at all; they increase neurotransmitter levels by inhibiting MAO, associate enzyme that breaks down all 3 monoamines. Thus, MAOIs increase the amount of all 3 neurotransmitters thought crucial in depression, these are efficacy advantage over others.

Tricyclic and tetracyclic antidepressants ease depression by affecting naturally occurring chemical messengers. [13] Cyclic antidepressants usually block the results of 2 neurotransmitters known as serotonin and norepinephrine these are available in the brain. This looks to assist brain cells send and receive messages. The roles these chemicals have treat the depression [14].

Serotonin receptor modulators utilized in the treatment of irritable intestine syndrome. Serotonin plays a major role within the initiation of peristaltic and humour reflexes, and in modulation of visceral sensations. [15].

Lithium is used for manic depression. Manic-depressive patients expertise severe mood changes, starting from associate degree excited or frenzied state to depression or unhappiness [16].

Until higher models of depression area unit devised, establishing the mode of action of antidepressants are trouble. The present focus has been on alterations to straightforward vegetative cell models primarily based around monoamine neurotransmitter and vasoconstrictive. Clearly, these models don't seem to be sufficient to fully make a case for the clinical effects of antidepressants. Additional complicated models, taking under consideration alternative transmitters, adaptive changes at the amount of the sequence.

## Side Effects

Antidepressants cause include nausea, vomiting, dizziness, headache, irritability, sleep disturbance, nightmares, psychosis, and seizures. Don't use to children and adolescents without doctor's suggestion. Antidepressants leads to psychiatric disorders. Antidepressants accrued to change the behavior and thinking in children and adolescents.

Although antidepressants might not cure depression, they will scale back your symptoms. The primary medicament you are attempting may fit fine. However if it does not relieve your symptoms, or it causes aspect effects that hassle you, you will have to be compelled to strive another. , thus selecting the proper one typically involves refined variations.

## Conclusion

Even though the antidepressant drugs can treat the disorders like depression, but they have side effects too. Upon doctor's suggestion only it is better to use within the limit and also use the appropriate drug in order to reduce the symptoms.

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