

Alpha -7- Nicotinic Acetylcholine Receptor and Neurodegenerative Diseases: A Review

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ABSTRACT

Nowadays the diseases related to the brain due to changed lifestyles is increasing day by day. It can affect the brain and other behavioural response like mood, anxiety, severe aggressive mood and so on. This type of disorder can also be regulated and the treatment for the abnormalities of the brain can be done by the acetylcholine nicotinic receptor which is otherwise known as (nAChRs). This can be applied as a circuit to regulate the cognitive behavior in the human. Preclinical trials have been carried on this nicotinic receptor by using animals and all of the results are positive. Due to the use of a perfect dose of this receptor agonist the cognitive disorder can be regulated and controlled and it is clinically proven. It protects the membrane of the brain and controls the behaviour pattern. Few agonists of these are also studied under clinical trial research. According to the researchers and doctors, acetylcholine nicotine receptor is clinically effective for controlling diseases like schizophrenia, Huntington disease and Parkinson disease and most importantly the Alzheimer's disease of the brain. Thus as only few treatments are available for Alzheimer's disease these can play an important role in controlling brain neurodegeneration.

Keywords: Acetylcholine Nicotine Receptor, Parkinson's disease, Alzheimer's Disease, Schizophrenia, Huntington disease.

Introduction

Background

The brain is the complex part of human being it is interconnected with so many cells that help in the motor movement, cognitive functions and other functioning of the body. Starting from blood flowing, breathing, beating of heart to daily activities like playing, moving the hand, walking, writing, speaking, studying etc are connected to the functions of the brain [1,2]. The brain contains neurons and the neurons bring information from outside the environment to the body through passage of brain and spinal cord and reactions are projected back to the environment through the same process [3,4,5,6]. For instance when a mosquito bites our hand it immediately responds by hitting the mosquito. It might seem a lengthy process but it takes a fraction of second to respond through the neural firing [7]. The neurons are interconnected, which helps in the functioning of the brain. However when any serious damage occurs in the neurons it can affect the health. As the functioning is so complex as well interconnected any damage in the single cell can affect the whole passage resulting in neurodegenerative diseases. Miscommunication can break down the functioning of human beings to an extent where they would not be able to perform certain actions in their life.

Neurodegenerative arises out of two particular words, neuro means brain and degenerative means dead. Hence Neurodegenerative simply implies death of the cells or neurons in the brain. The causes of the death is a mystery as there are millions of neurons in the brain and predicting the damage is quite uncertain [8]. Thus the degenerative could lead to break down in speech, movement, cognition etc.

- The psychological symptoms are as follows-
- Forgetting things
- Fatigue
- Emotional detachment
- Low self esteem
- Frequent Mood swings
- Partial memory loss
- Sleeplessness
- Apathy

About Acetylcholine Receptor

Acetylcholine is one of the earliest neurotransmitters discovered by Otto Loewi. At first it was called "vagus stuff" as it could easily replicate the electrical stimulus of the vagus nerve (Hasselmo *et al*; 2009). Later the name was changed as per its structure; it is the mixture of acetic acid and choline- known as Acetylcholine. It is present in the CNS (Central Nervous System) and PNS (Peripheral Nervous System). Acetylcholine is an integral part of the Parasympathetic Nervous system. It works in the brain and body of human beings and animals. The neurotransmitter includes a chemical that triggers information from the nerve cell to transmit signals to other cells present in the body.

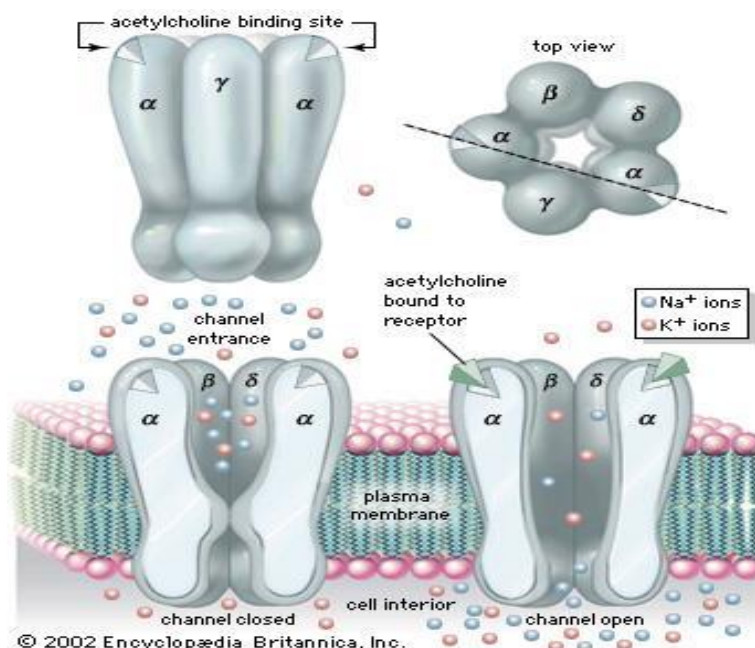


Fig 1: Acetylcholine receptor

Source-<https://www.britannica.com/science/acetylcholine-receptor>

Acetylcholine acts as neurotransmitter of the Parasympathetic Nervous systems. In human brain the Acetylcholine acts neuromodulators that helps in arousal, remembering, learning and motivation. In the CNS Acetylcholine serves supporting the cognitive related functions. Acetylcholine is also helpful in the sleep cycle [37].

The Acetylcholine receptors bind the Acetylcholine neurotransmitters. There are two main types of receptors - nicotinic and muscarinic [38]. Acetylcholine helps in the activeness of the muscles, enhancing the secretion and lowering the heart rates. This acts best to the addiction of Nicotine in neutralizing the heart rate. The Acetylcholine receptor links the brain and muscles and blockage in it can lead to paralysis or blocking the motor actions [39]. The higher secretion of Acetylcholine leads to joints and bones causing cramps and muscle pain, blurry vision, etc. However if there is less Acetylcholine, it tends to have impairment in the cognitive functions- learning and memory get severely affected [40].

The Alpha- 7 Nicotinic Acetylcholine Receptors -

The Alpha- 7 Nicotinic Acetylcholine Receptors are known as $\alpha 7$ nAChR, an integral part of the Nervous system associated with the brain [41]. They are connected with the cholinergic pathway in the parasympathetic nervous system. $\alpha 7$ nAChR is the main focus of the pharmacological industry as it is best suited for curing dysfunctional cognition and neurodegenerative diseases [42]. It can be used as neuromodulators that can influence the entire body system [6]. The human body is interconnected, thus a defect in one membrane can affect the entire system causing dysfunctional damage to the body, and in such situations neuromodulators can alter the effects and provide relief. Previously $\alpha 7$ nAChR was found in the CNS as per recent studies it has been found that the immune system and PNS are also recognized as having $\alpha 7$ nAChR[43].

Situation in Present Scenario

The Role of Neuronal Nicotinic Acetylcholine Receptors in Acute and Chronic Neurodegeneration

During last five to seven years there has been a remarkable improvement in the field of treatment of neuronal diseases by the help of the acetylcholine receptor. This Alpha7nAChR is basically used for eradicating the toxicity so called the beta-amyloid [44]. Now it is almost famous all over the world as this complex of A β 42 with Alpha nAChR can releases the calcium flux in order to cover up the cell deaths in the case of vulnerable neuronal degeneration diseases [45]. However the microglia can create and exaggerate the aging problem in the brain. The diseases associated with these are Parkinson's diseases and neuronal disorders. Sometimes inflammation in the cell membrane of the brain also can happen due to homeostasis. The toxic items like cytokines are responsible for the inflammation in brain tissues. However, by the help of alpha7nAChRs receptors treatment can be executed [47]. In this treatment the basic element microglia and astrocytes can be reactivated by this neurotransmitter. This receptor regularize the activities and controls the systematic action. The alpha7nAChR is targeted to implement therapeutic treatment [10]. This theory has already been applied on a mouse and as a result the alpha7nAChR should be limited as too much use can create over expression problems. Schizophrenia can also be cured somehow by the use of alpha7nAChR. This receptor basically does desensitization to create potentiality within the patient [48]. According to some research the alpha7nAChR increases the sensitivity, working capacity, attention power and healthy attitudes in the brain, but the use should be partial, if a high dose is prescribed then the level of nicotine is very high in that dose. Sometimes these high doses also have side effects [46]. This creates the dopamine within the blood and cell. Besides all these the fatal hyperthermia and neuronal muscle paralysis are also cured by this receptor, though the dose should be partial. The α 7nAChR can penetrate by the blood in the cells of the brain, curing the patient for sometime instantly. This receptor is nothing to cure and increase the cognitive function of the brain. So many toxins in a proper manner are used in this receptor that's why the compounds of this receptor are all in a heterogeneous group [11]. Bungarotoxin is the most basic and useful component of α 7nAChR which basically holds the elements like GABA β 3 that creates the immunitive genes for autoimmune antibodies. However in this way the α 7nAChR is used in several neuronal disorders or diseases to cure the diseases [49]. As the basic item of this receptor is nicotine so this should be used in a partial manner especially in case of Schizophrenia and Alzheimer's. Although these drugs are somehow dangerous for health still they have good primary consequences [50].

Effect of Alpha-7-Nicotinic Acetylcholine Receptor on Alzheimer's disease:

The α 7nAChRs have a transformational role in neurodegenerative problems. The research has shown significant loss of nicotinic alpha-7-acetylcholine receptors in the patient of Alzheimer and Parkinson disease. The receptors provide a protective control to the vitro cells and absence of that could severely affect the brain. However the study focused on how α 7nAChRs enable cognitive functions [12]. The Nicotinic receptors have resemblance with the Acetylcholine receptors, thus the nicotinic subunits are found in CNS as well as have the expression in the PNS and immune system as well. The role of these receptors varies from

location to location. Thus nicotinic receptors are studied and used as per their different pathologies in the therapeutic programs. Alpha-7-nicotinic acetylcholine receptors remarked as the highest concern of pharmacological industry in functioning or regeneration of the degenerating cells. The pathological problems in the neurological disorders affect the CNS, thus activation of neurotransmitters could possibly provide relief to the patients. The Alpha-7 receptors could help in targeting the engaging and reducing of the target cell. However as per several experimental studies it is quite clear as a result that the $\alpha 7$ subtype agonist like nicotine is very useful in Alzheimer's disease treatment and this $\alpha 7$ subtype of nicotinic receptor is really a helping hand tool for the researchers. [13]. So basically the present and advanced model for the cholinergic deficiency occurred in the brain, which is basically seen in the brain during the time of Alzheimer's disease. This mechanism is however the misfolded model or structure of beta-amyloid that can do dysfunctional support in the phenotype situation, which can be manifested as well as captured by the acetylene receptor.

Symptoms of Parkinson's disease due to Alpha-7-Nicotinic:

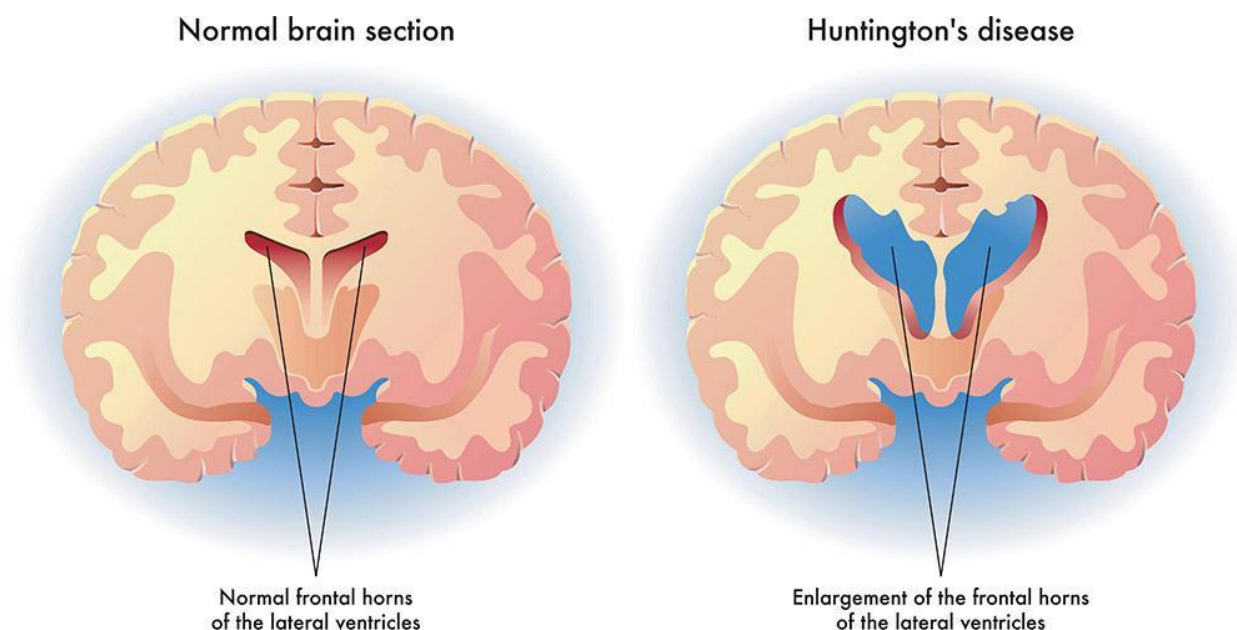
So basically the major or important symptoms of parkinson's disease depend upon the degeneration of dopamine hormone which is helpful and useful to increase the happiness and responsiveness in the patient's brain [51]. In other words this disease is basically considered as the pathopsychological disease in the human body. There are several features regarding this disease, and the basic and bad effects of this disease are like noradrenergic, serotonergic and well as the monoaminergic neuron based populations in the human brain. These characteristics are due to the deficiency of cholinergic items which the brain needs very much in order to make the nerve system more active and strong. Most importantly the neuro psychological route in the human body is however clinically as well as internally co related with each other through cognitive function [52]. There are several and a greater amount of proofs and evidence which includes the symptoms like less sleeping, automatic dysfunctional activity in the human brain, PD motor symptoms etc. This type of pathophysiology is neuro related function in the human brain, but these are not shown outside as the symptoms are like pedunculopontine nucleus as well as nucleus basal [53]. As per the usefulness of this research, this type of PD symptoms is also the deficiency of acetylcholinesterase which is used for the treatment of dementia in the brain. It is nothing but a type of protein which the brain needs to sleep. It has been seen that during the time of Alzheimer's disease the scarcity of proper and deep sleep decreases, however it decreases the level of reminding or remembering any data or even [54],[14].

Huntington's disease:

Huntington disorder severely affects the brain cell further damaging the motor actions, cognitive functionality - thinking, perception etc. It is one of the neurological conditions inherited from defective genes [68]. However it can also cause any environmental impact causing dysfunctional of the brain cells. Huntington diseases collect toxic protein from the faulty cell or neurons [24]. The disease was traced back in 1869 in England, studied by George Huntington and his forefathers. The disease was found in the immigrants from Bures.

Another set of evidence shows the disease was traced among the Dutch settlers in the South African region [69].

The disease is autosomal that arises in the mid - life , one of the rarest disease with a progressive breakdown of nerve cells in the brain caused by individual defective cells or chromosome 4 that constitute human being entire gene code [55].The individual inheriting the defective genes from their parents is likely to develop the disease in the future. The progression of the disease differs from person to person. The individual after being diagnosed with the disorder tends to live for 15 to 20 years [25].



Source- (<https://www.healthdirect.gov.au/huntingtons-disease>)

Fig 2: Huntingtons-disease

The symptoms for Huntington's diseases-

- Hallucinations and problems in decision making.
- Poor coordination in the physical activities.
- Dysfunctionality in cognition.
- Confusion and memory loss.

Discussion

Relationship of A-beta with cell membrane which is the cause of Alzheimer's disease:

Alzheimer is one of the common neurological problems that is caused due to continuous degeneration of the human brain affecting the cognition functionality and memory. Every year around 5 million people are diagnosed with the disorder and in every 7 second one is diagnosed with Alzheimer's [15]. In this condition the brain cells shrink and die leading to continuous impairment in the thinking abilities, cognitive functions and social activities that

hampers the daily activities of human beings. The early symptoms of Alzheimer's begin with forgetting immediate things or actions and it gets severe with time with complete forgetting of everything that happened in the past [56]. The person suffering from Alzheimer faces difficulties in the decision making, performing any tasks or planning things etc.

The physical symptoms are -

- Memory loss
- Stressful condition
- Depression and Apathy
- Unable to trust
- Frequent mood swings
- Delusional perception

There is no exact cause to the disease however researches have shown the proteins in the brain fails to function resulting in poor connections between the neurons leading to damaging or death of the cell. The damage usually begins in the part of the brain that controls the memory and the end stage shrinks the brain completely. The old age people are more prone to Alzheimer, as people start to forget things in aging. Apart from that individuals with parents genes or family history are more likely to be diagnosed with Alzheimer's [57]. Apart from that other factors like pollution, down syndrome, alcohol or drug addiction leads to the disorder. Alzheimer's is more likely to affect women more than men [16].

Neurodegenerative diseases:

There are so many types of nerve disorder which ultimately affects the human body in a very bad way. These in turn cause abnormal activities which include walking, talking and running and also breathing problems [17]. These neuro related diseases are sometimes chronic and sometimes these are not chronic. Sometimes these are caused by toxic items like cigarettes, alcohol, and toxins etc. These chemicals, toxins are the main reason for neuro related diseases.

The diseases are like;

- Alzheimer's disease
- Huntington disease
- Parkinson's disease
- Spinal muscular Disease. And
- Lewy body disease.

These types of diseases are sometimes non-curable and life risking. However, the brain is connected with other organs by the medium of the nerve, when there is too much increase in having toxins and toxin related food items then there is a high chance of the damage of the nerve system in the body. Moreover the process of aging is nothing but the time of degradation of neuro related disease [58]. However the brain obeys the universal pattern of the high modular variability, in the region of the brain by the form of meta cognitive. So the brain tries to maintain the segmented and visible disease like parkinson's, lewy bodies etc [18].

Effects of Aging in the brain due to Nicotine and Acetylene:

As per a recent report nearly 70% of people especially in the age group between 20 to 50 affected by Brain tumor and due to the excess intake of nicotine. This nicotine can affect the brain and create symptoms like cognitive diseases which have honorable side effects [59]. This leads to Alzheimer and Parkinson diseases at a young age [20]. The nicotine is distributed in the bloodstream of the human brain even in 10 to 20 secs, after entering into the brain its main aim is to bind the nicotine acetylcholine receptor in the brain. However in the nerve system it affects the beta type subunits, which are the immunity to the brain. It affects the lymphocytes into the body and can damage the nervous system [60]. From time to time this disease can affect the cholinergic system in the body. Generally the acetylcholine nicotine receptor and the neurotransmitter system can reduce the effectiveness of these cognitive symptoms which is otherwise known as dementia. Alzheimer disease is one of the most effective problems of inhaling nicotine to the brain. On the other hand, the dimension is also a very complicated and non curable disease for the adults who are characterized by this aging problem and their quality of life has become shorter. Generally in this disease the man or woman has lost attentive mind and also the working memory. As per the recent report the researcher has found that the acetylcholine nicotine receptor can be subjective as it has an important role in normalizing cognitive disease to some extent [21]. Normally the person can lose the vocabulary abilities and general knowledge, intelligence, decision making problem arises and most importantly it increases the aging gap. In dementia nicotine is normally related with the dysfunctional system of the nervous system as the structural integrity is being affected because the receptor has to maintain the treatment of this disease especially in the adult group with the help of an improved MCI system [70]. This treatment can go through after 6 months and has four phases. According to the researchers the longer the treatment the more beneficial for the patient. Nicotine has CBR bad effects for the brain in the aging still nicotine receptor (nAChR) is the only hope for the doctors to cure this disease. On the other hand the development in nicotine radioligands is helpful in using polythene which is the normal medicine for the ageing system.

Abnormalities caused by the neurotransmitter:

The abnormalities in the neurotransmitters is an exceptional condition having been traced in childhood, in general the defective enzymes affect the genes and completely or partially damage the functioning of the neurotransmitters. The neurological conditions are pressurized due to the deficiency of dopamine, serotonin in the cerebral cortex of the brain. The metabolic defects occur due to lack of CSF fluids. The chemical imbalance in the brain or lack of neurotransmitters leads to sadness, depression or loss of appetite in human beings [28]. The mental illness also results due to miss communication or breakdown in the connection between neurons and brain. When the serotonin level is low in human beings they are likely to suffer from depression. Monoamine disorder occurred due to lack of neurotransmitters norepinephrine, dopamine affecting the metabolism [29]. These are autosomal recessive disorders. These can occur at stage of life but are most commonly seen in infancy and childhood. Measuring the neuro metabolites are helpful to diagnose the defects in neurons. The causes of the abnormalities could happen due to biological inheritance, environmental factors or faulty genes making excessive or low productions of the

neurochemicals. The balance is prevalent through the psychological or physiological symptoms. As the neurotransmitters are present in the brain - high or low productions lead to affects the behavior such as frequent mood swings or depression [31]. Once the chemical imbalance occurs it takes around 12 to 15 months for balancing. The research shows people with low dopamine tend to suffer from ADHD or GAD. However there are several treatments for balancing the neurotransmitters in human beings. Balancing the neurotransmitters could be done naturally as well as with treatment. Thus individual needs to more protein rich food and have healthy lifestyle for reducing the fear of abnormalities in the neurotransmitters or avoiding the neurological problems in their life. However when there is a matter to discuss about the mental disorder it is almost difficult to diagnose about the real cause [32]. Domain Carriers of message to the Brain are basically dependent on the chemical hormones which are disappointed by the use of neurotransmitters too much. These mental illnesses can be exaggerated and cause depression and hyper anxiety among people because of the use of neurotransmitters to a large extent [33]. It is quite true that neurotransmitters can regulate the toxic and the alcohol tendency in the human brain but still it can happen to the brain adversely that may affect the behavioral pattern of a human being. There is an example that so many neurotransmitters can exist in the brain but they are directly connected with the mental problems and they regulate the hormone formation and distribution of so called dopamine disorder and also the acetylcholine nicotine in the brain [34]. However neurotransmitters' main action is to give better treatment to a mental patient who is suffering with depression and schizophrenia-like diseases. In general the nervous system along with long cellular structure are basically associated with membranes and those membranes are houses of neurotransmitters; they have free space and they can be regulated by the receptors [35]. The neurotransmitter normally collects neurons and secretes the hormone like serotonin which is the cause of depression and anxiety disorders. Sometimes due to the regular use or the excess [36].

Acetylcholine 'the non neuronal cholinergic system in human

The neurological disorders have no particular treatment or a person suffering from neurological problems needs to be proactive in changing his or her lifestyle so that he or she can live a balanced life [61]. The neuro-degenerative problems cannot be completely but the treatment would lead to minimal pain. Studies have shown that neurodegenerative diseases are not curable because they lead to complete damage of the nerve system or the cell dies inside the brain. Thus all these damages are irreplaceable [67]. Thus changing the lifestyle and diet can balance the effects of the neurological conditions in human beings. Acetylcholine contains molecular substances that are released by non neuronal cells. The neurotransmitters contain certain characteristics that can be used in treatment of different disorders such as Alzheimer, Parkinson etc. The pharmacological industry is conducting extensive research in using the Ach neurotransmitter to activate motor actions [62].

The Alpha-7-nicotinic acetylcholine receptors could be used in developing therapies for treating Parkinson diseases. The deficiency in the motor disabilities and cognitive functionality leads to the pathological problems [64]. The L- dopa has been evolved as an effective medical treatment for Parkinson diseases especially in the early stages. Researchers have shown that α -7-NChRs enable protection against the damaged cells. Thus it can be used

in the modification of Parkinson diseases. The nAChRs enable in creating neuroprotective effects in the patients suffering from neuro-degenerative problems. However the doses needed to be monitored while given to the patients- overdose might worsen the health conditions [63].

Life is controlled by cholinergic neurons in human beings as well as in animals. They release Ach that is responsible for integrative progress. Therefore the human being responds to the external or internal stimulus in survival. This also affects the moods. Any blockage in the cholinergic pathway can lead to serious problems that might cause death of the organism [66]. The interaction of the cholinergic neurons has been seen from the beginning of life such as bacteria, algae etc. Dysfunctional in these neurological pathways leads to various diseases in human beings [65]. They have a connection with different parts of the body. Adding to this information it is quite important to consider that the supplements of the acetylcholine receptor is something that can be benefitted to consider the bipolar situation in a human body. As per the research and studies almost 90-95% women after pregnancy are facing this kind of depression and this receptor is also helpful in handling that type of depression by generating the dopamine in a human body.

Related Studies

Title	Result
Synaptopathies	Dysfunctions in Neurological disorder due to Alpha-07-Nicotine
Emphasis is also given to recent advances in the potential therapeutic applications of non-competitive mGlu5 receptor antagonists.	Recent advances in non-competitive mGlu5 receptor antagonists and their potential therapeutic applications
Neurological basis of drug dependence and its effects on the immune system	This review summarizes some of the major points discussed by participants in the symposium session on effects of drugs of abuse on both neurologic and immune systems.
Polycyclic propargylamine and acetylene derivatives as multifunctional neuroprotective agents	The aim of this study was to design drug-like molecules with multiple neuroprotective mechanisms which would ultimately inhibit N-methyl-d-aspartate (NMDA) receptors
Nicotine and nicotinic receptors; relevance to Parkinson's disease	The development of nicotinic agonists for therapy in neurodegenerative disorders such as Parkinson's disease is an area currently receiving considerable attention.

Findings

Studies have shown only selective nAChRs could be helpful in treatment of Parkinson disease. The Alpha-7-nicotinic acetylcholine receptors contain specific conditions that would help in the treatment procedure. Other important neurotransmitters are Alpha 4 Beta 2 and Alpha 6 beta 2. The Alpha-7- subtype contains therapeutic benefits with limited side effects. So it is advised to use Alpha- 7- within a certain amount. The $\alpha 7$ nAChR has different types present in the membrane of the cell that are included in the process of genesis and atherosclerosis progressions.

Alzheimer's is a serious disorder for the old age people. The $\alpha 7$ nAChR contributes to the major role in the treatment of Alzheimer disease. The ions in the receptors are responsible for the cognitive functions in the brain. The receptors are also served in treatment of Schizophrenia patients. The treatments are available for positive symptoms of Schizophrenia. As per the clinical trials, the nicotinic acetylcholine receptors especially the alpha 7 beta 2 subtypes have been targeted in the therapeutic programs designed for the Schizophrenia patients. From the earliest time nicotine was used as medical treatment for overcoming the addiction or treatment of several diseases. In recent times, neurological disorders have become increasingly hampering human beings. The medical science have found that Alpha 7 receptors could be helpful in providing reliefs to the patients. As most neurodegenerative diseases affect the brain and motor movement due to cell damage or dysfunctionality of the neurons- alpha – 7- helps in regeneration of the degenerating cells to some extent. The radio immunization developed out of Alpha- 7 receptors for the treatment of diseases like Alzheimer, Parkinson and Schizophrenia or other psychological disorders.

It should be taken into consideration that there are so many essential qualities of acetylcholine nicotinic receptors in order to give treatment for the brain specially for brain disorders and neuro problem. However in this receptor the main ingredients are amino acid and methionine and also most importantly saline acid. These are the essential chemical ingredients which are helpful to increase the dopamine hormone in the brain and to the increase of this hormone the quality like satisfaction, pleasure, happiness, and social nature will increase. Among these seeds amino acid is the most common acid that everyone can gather from food such as chicken, cheese, in yoghurt, in sunflower seeds, and in legumes etc. The conjunction of 20 acids will increase the powerful glutathione in the body which is the best antioxidant for the brain. Therefore amino acid is also helpful for recovering chronic respiratory problems and can increase the fertility rate and also keep the brain healthy. However, following are the most useful benefits of using acetylcholine nicotine receptors during the treatment of brain disorders and weak nervous systems.

1. The use of this receptor has the most primary function is the increase of antioxidants in the body. Amino acid which is present in this receptor is helpful to increase the glutamine and glycine in the body and together they will create glutathione. This is the most important antioxidant that helps to neutralize free radicals and repair damaged cells and tissues in the body. It increases the immune system and helps to fight with other diseases. According to some researchers this will however increase the longevity of a human. It is also helpful to reduce stress and create oxidation in the body. Problems like infertility and psychiatric problems can be cured.

2. The acetylcholine nicotinic receptor helps in the detoxification process in order to reduce the chances of kidney damage and also the Liver damage. This receptor prevents the dangerous side effects of nicotine and drugs which are very harmful for the kidney. According to the doctors the overdose can also be harmful so it should be taken as per the suggestion of the doctor. In the liver this receptor increases the antioxidant level which is beneficial to handle the inflammatory diseases of the liver.
3. The acetylcholine nicotinic receptor (nAChRs) helps to generate glutamate level in the blood and that is the most important element of this neurotransmitter especially for the brain. In the normal brain the glutamate is something that can reduce any damage and helps to handle diseases like bipolar disorder, schizophrenia, addictive behaviour, over anxiety level, and obsessive compulsive disorder. According to the researchers this receptor has also been tested on animals like rats and monkeys and the result is quite positive. it minimises the negative effects of these diseases and increase the social nature. Maro Bhar as per the preliminary study the receptor decreases the Mari javana and nicotine use and the craving.
4. Besides the brain the receptor can also give relief from the respiratory conditions by increasing the antioxidant label which will help to reduce the mucus in the body. Aditya increases the glutathione level in the body, the lungs get protected and diseases like inflammation in the lungs, tubes and tissues can be reduced. Especially the people who are suffering from the chronic pulmonary diseases by the use of the statement for the long term benefit. According to the study the use of this receptor in a day for 2 times the amount of 600 mg is sufficient for the patient. The beauty of coughing and who is going and asthma can be eradicated.
5. The use of this receptor (nAChRs) helps to generate glutamate that is the most important ingredient to boost the power of brain health. Due to the use of this neurotransmitter the circulation of blood in the brain will increase that will however increase the memory actions and learning power. This antioxidant however reduces the chances of oxidative damage and aging problems of the brain especially in between the age group of 25 to 40. The neurological disorder in the brain like Alzheimer disease and Parkinson disease can be detected. As per the studies of the use of the transmitter in the animals concludes that the use of this nicotine receptor helps to decrease the loss of cognitive abilities and increase the dopamine hormone in the body.
6. Lastly the use of this acetylcholine nicotine receptor can prevent the oxidative damage of the cells and it is not only helpful for the brain damage but also helpful to reduce the heart issues like cardiac arrest or any other serious conditions boost of the tissues of the heart that decrease the possibility of had diseases. It increases the circulation of blood in the veins, expedites the transit of the blood and lowers the risk of heart attacks. As per the study the complexion of green tea will decrease the chances of increasing the cholesterol in the body.
7. The acetylcholine nicotine receptor liberated the vagus nerve and stimulate it liberate the transmitter system of the brain muscles and vertebrates to stop the neuronal diseases like having that and pumpkin son can be e controlled and characterized to stop the addition of a nicotine is somehow very much that for the help in the other hand the use of the nicotine receptor decrease the the addiction behaviour of the nicotine.

Conclusion

So basically in recent years the use of acid to silent receptors is increasing day by day. Due to its popularity it should be taken into consideration that pay use and benefits and also the side effects of the acetylcholine receptor should be known to everyone. However the acetylcholine receptor is basically used to characterize the mental performance of a human being. This is otherwise known as the neurotransmitter that helps to generate the chemical in the brain so that the hormonal disorder can be solved. So basically the person who are suffered from depression and over anxiety they are lack of dopamine hormone which is very much useful increase the happiness and pleasure in a body system these transmitter is used to control these hormone and regulate the function of the brain so called the memory power and the thinking power. Also the learning power of the brain can be signified by the help of this neurotransmitter. While using the acetylcholine receptor it should be taken into consideration that the use of these neurotransmitters should be in control so that a person can only benefit from it and don't get any side effects. It is however the molecule which is injected in the human brain or in the human body that produces coenzymes in the brain which increase the sugar molecule and glucose in the blood. The main importance of using this neurotransmitter lies in the movement of the muscle as well as working memory and on the function of the brain. The treatment of Alzheimer and brain disorder and also the treatment of schizophrenia can be done by the use of this receptor. This acetylcholine nicotine have an important role in giving the supplements to the brain in the form of nootropics. Supplements release the choline in the brain. It cannot be taken in the oral form rather it can only be taken by the form of injection and it increases the label of acetylcholine which is the brain nutrient. However, according to the researchers and the doctors, milk, kidney beans, broccoli, and soya beans have a small quantity of this little bit. It increases the working power of memory as well as the power to remember everything and also it gives support to mental health in order to handle every situation in life. As per the study it is observed that the acetylcholine nicotine receptor is basically used to handle the depressive symptoms and to handle Parkinson disease.

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