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Helpline No. : +91 9654321400

Alzheimer's Disorder

Information for patients

Alzheimer's Disorder Treatment with Stem Cells from your own **Bone Marrow / Adipose Tissue**

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Alzheimer's Disorder

Alzheimer

Alzheimer is a slow progressive disease of the brain, characterized by impairment in memory which eventually hampers person's general IQ level, such as reasoning, planning, languages, perception, etc. It is thus known as the silent killer, spreading slowly and gradually. The other commonly known term for the same is Dementia.

The possibility of being affected by the disease increases with the increasing age generally over 70 yrs and currently the disease is affecting around 50% of the people over the age 85 yrs. Although some kind of memory loss is considered normal during the process of aging, the severity of the symptoms with the Alzheimer disease is so high that it can affect normal functioning of the person. There are as well genetic factors responsible for increasing the risk of disease development along with other possibilities such as age, high blood pressure, diabetes, elevated cholesterol etc.

Problems of memory, particularly for recent events are very common in the early course of the disease. For example the individual may on repeated occasion forget to turn off the light or fail to recall which of the daily doses of medicines he supposedly need to consume etc. Mild personality changes such as social withdrawal, less spontaneity may occur early in the illness. With the progression of the disease, problems in abstract thinking or in other intellectual function may develop.

The person may start to develop trouble identifying numbers, figures or sometimes colors with difficulty in understanding what is being read or organizing day's work out, etc. Further disturbance in behavior and appearance may start to develop such as agitation, irritability, untidy dressing sense etc. Later stages person may seem to be confused about the month or year or being unable to name himself or place he visited recently.

In the adverse stages of the disease, the person may totally incapable of caring himself; death can then follow, perhaps from pneumonia or some other problems that occur in severely deteriorated states of health.

The human brain is the chief functional organ, which is hugely interconnected with the three major parts of the brain and they are the cerebrum, cerebellum and brain stem. Our brain allows us to connect with the other organs with the help of its strong networking ability. It receives information from other body parts known as sensory information, acts on the information known as the motor system, and stores the results for future references known as memory.

Thus, in simpler terms our brain continuously receives and analyses responses collected from other organs, controls all body functions by responding to these responses and thus making life possible. Our brain is the center of high order thinking, learning, memory and give us the power to plan, speak, imagine, learn, dream, reason and experience emotions. Brain can manage these tasks with the help of an estimated 100 billion of neurons passing signals to each other via as many as 1,000 trillion synaptic connections.

When the functioning of neurons affected, the transmission of signals is stopped thereby impairing other body functions. Alzheimer is characterized by the development of protein flakes known as Beta Amyloid protein, leading to nerve cell death.

Due to the death of these neurons the process of signal transmission and signal acquisition is seriously hampered, due to which person develops difficulty in performing cognitive functions. As more and more neurons die, the severity of the disease progresses.

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What is the prognosis?

Unfortunately, there is no current cure for Alzheimer. An average amount of persons with this disease live eight to ten years after onset of symptoms . Alzheimer disease is a complex disease with no cure at the present state. So stem cell at present can be a boon to patients suffering from this disease.

Alzheimer's disease can occur as early as the age of 40 years, but it is most commonly found to affect those who are past the age of 60 years. The earliest signs of the disease are memory decline and loss of concentration. Many people do not give much thought to these symptoms because they are normally associated with aging, but it is preferable to see a physician to ensure that they are in fact results of natural aging and not signs of Alzheimer's disease. Due to the death of brain cells, the disease eventually reaches a state where everyday tasks such as cooking, cleaning, and self care become difficult to perform.

When the cell loss in the brain reaches a high level, the patient may no longer be able to walk or talk.

In the later stages, Alzheimer's disease damages parts of the brain that control breathing, swallowing, and the ability of the body to fight off infections.

It is important to note that the majority of Alzheimer's disease related deaths is due to infections such as pneumonia.

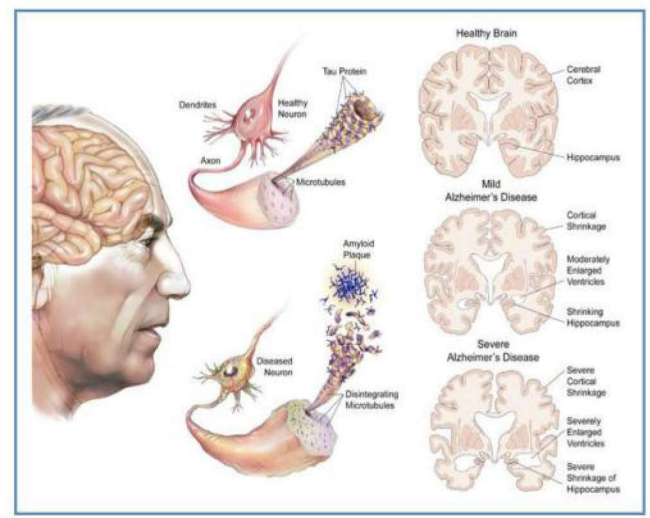
The progression of Alzheimer's Disease is usually measured through the patient's ability to perform cognitive exercises, such as counting backwards or copying a drawing of intersecting pentagons.

Is there any treatment?

Alzheimer treatment and Alzheimer care go hand in hand as there is no effective treatment available to alter the disease condition. The Supportive major may include some alternative medicine to control over mood swings, sensory therapy to improve the power to recall, complete home assistance, etc.

But due to the recent development of stem cell therapy, the person can seriously get control over his lost function and regain his independence back to the great extent.

Stem cells are known as the cells, which can differentiate to any cells of the body when guided properly. Thus, with the innovative, modern laboratory techniques it is possible to extract cell within your own body and guide them to be nerve cells, which will eventually restore brains lost function back.

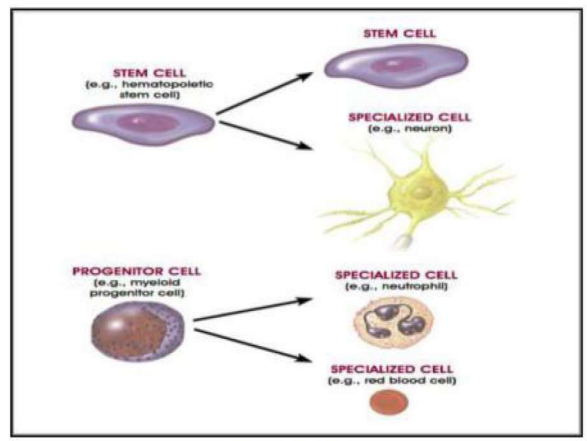


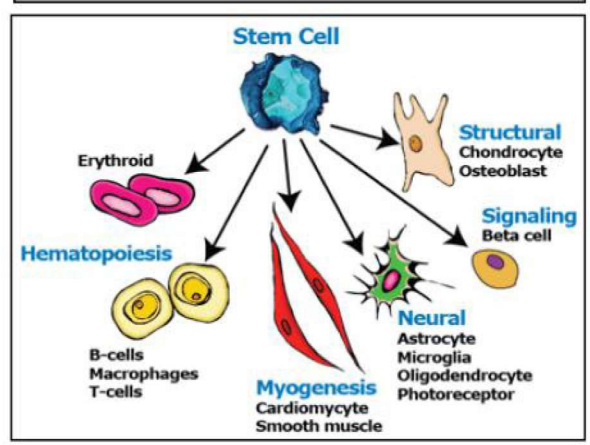
About Stem Cells

Stem cells are basically the "Master Cells" of the human body. These unspecialized cells lie dormant throughout the life and get activated when signals elicit from the site of injury. Upon enlivening they get navigated to the site of injury with the help of strong immune response stimulated by the body. At the site with the help of a programmed cell division they get differentiated into the specialized tissue specific cells. These newly formed daughter cells will be replaced for the damaged one, thus ceasing further progression of the diseased cells.

Thus, stem cells are known to be vital to the body due to their exclusive characteristics such as:

1. Undifferentiated cells capable of giving rise to any tissue specific cells.
2. Capability of prolonged self renewal having an unlimited life span and thus maintaining their number intact.
3. The ability to trigger the secretion of certain hormones and grow factors at the site of injury to facilitate damage repair.





Types of Stem Cells

With respect to their origin these Stem cells are broadly classified into two main naturally occurring cell types such as **Embryonic stem cells** and **Adult stem cells**. The third one is reprogrammed in the lab to satisfy ethical as well as scientific demands; they are named as **Induced Pluripotent stem cells.**

Embryonic Stem Cell

These cells are the most preliminary cells isolated from the inner cell mass of the blastocyst of pre-implantation stage embryos. With their unlimited expansion capacity and ability to differentiate into almost all cell types of the body; earlier they were considered as the potential sources of the regenerative medicines. But the increasing burden of ethical speculations and animal studies showing abnormal occurrence of tumor ex vivo rendered them ineffective for the therapeutic application.

Adult Stem Cells

These cells are settled in adult body organs. They are less controversial due to their ease of isolation

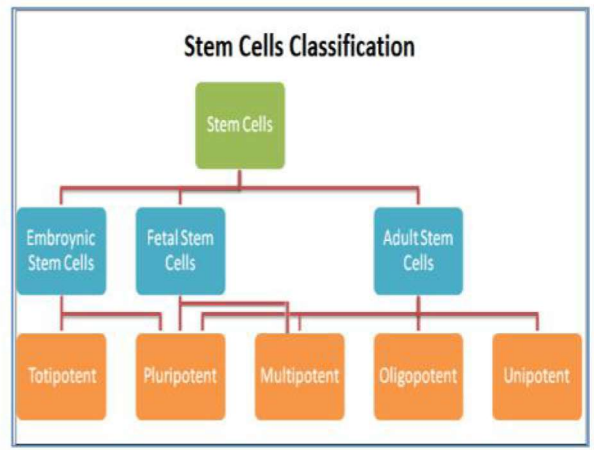
and their production does not require any destruction of embryo. These cells pose a very low or no risk of immune rejection when applied as therapeutic.

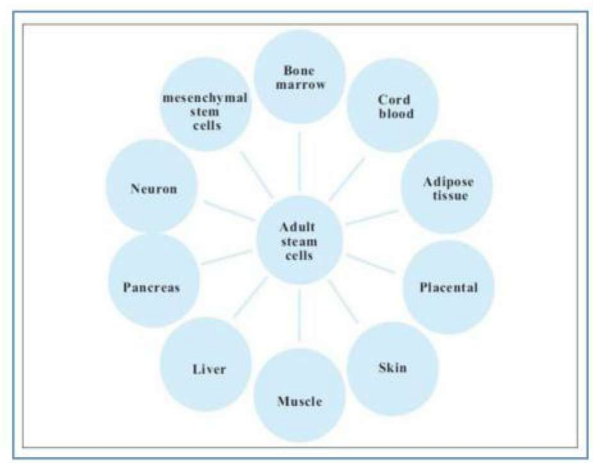
Since they are present in an adult fully grown organ, they are capable of differentiating cell of their lineage only contrary to the embryonic stem cells giving rise to all lineages. Apparently these cells can be directed to become specific cells with the addition of specific growth factors. These properties make them attractive candidates for the therapeutic application in the contemporary field of regenerative medicine.

Induced Pluripotent Stem Cells (iPSCs)

These are adult somatic cells genetically reprogrammed in vitro to an embryonic stem cell like state by being forced to express gene such as OCT-4; important for maintaining Pluripotent property of embryonic stem cells. Although the technology is still in a juvenile state; additional research is needed to use them in transplantation medicine.

Out of the different types mentioned above Adult Autologous Stem cells are known as the most potent and versatile. They are thus the most opted cell sources due to easy isolation, demonstrative plasticity and minimum ethical barricades.





Examples of Autologous stem cell sources are Bone Marrow, Adipose Tissue etc. and we have achieved ultimate expertise over it.

The Advancells Alzheimer Treatment

Advancells uses very comprehensive and individualized treatment pattern, by obtaining stem cell from two sources adipose-derived stem cells (ASCs) and bone marrow-derived stem cells (BMSCs). Through our multidisciplinary team of specialists; we are giving the best treatment possible to improve recovery.

The entire procedure consists of following phases:

Pre Treatment Assessments, Stem Cell Procedure, Stem cell implantation and follow up.

Objectives of the Treatment

Our main treatment objectives for Alzheimer are to provide a completely non surgical, risk free treatment for positive reinforcement of behavioral pattern, improved social behavior, cognitive skills, maximize independence and thus improving quality of life.

Type of Treatment

The procedure exploits the use of Autologous Stem Cells isolated from your own body.

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Being an Autologous they are not rejected by the body and hence are completely safe and risk free. At present we are isolating stem cells from two sources such as **"Bone Marrow"** and **"Adipose Tissue"**. Both these sources are available in abundance from where stem cells can be easily isolated without many manipulations.

Once you are enrolled with us for the treatment, we will intimate you regarding the date and time of the treatment. The entire treatment plan will be divided into three parts;

1. **Inductive Support**: - Complete assistance will be given to the patient in all pre treatment procedures such as consultation, hospitalization (If required), Assessments.

2. **Stem Cell Procedure**: - Generally the entire procedure takes around 7-8 hrs including 1-2 hrs of source aspiration, 2-3 hrs of stem cell isolation and injection of the isolated stem cells back into the body. The processing of sample is done in a state of the art class 10000 clean room facility wherein we strictly adhere to maintain quality of standards. Wherein the extracted sources undergo minimum manipulation such as been spun in a centrifuge to cull out a stem cells.

ADVANCELLS STEM CELL TREATMENTS

Adipose Tissue Extraction

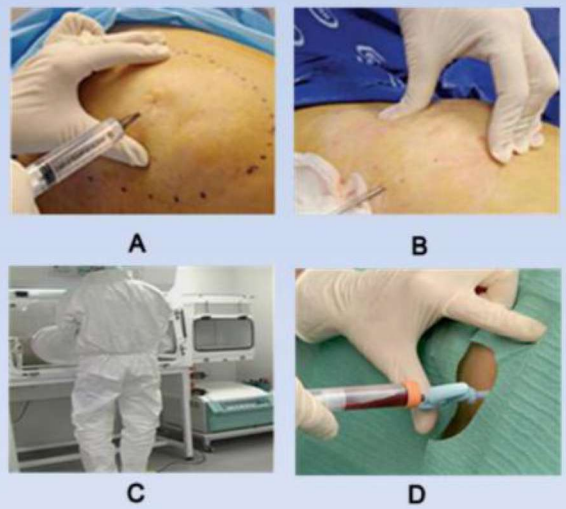


Figure 1: Adipose Tissue collection procedure

A. Application of tumescent anesthesia;
B. Adipose Tissue collection by lipoaspiration
C. Isolation of Stem Cells in the clean room
D. Intrathecal Injection of stem cells back into patient's body.

Bone Marrow Extraction

Figure 2: Bone Marrow collection procedure

A. Application of local anesthesia;
B. Bone Marrow collection by needle insertion in the hip bone
C. Isolation of Stem Cells in the clean room
D. Intrathecal Injection of stem cells back into the patient's body.

3. **Stem cell Implantation**: - Once isolated, intensified and ready for reinstalling back into the body, we work out different mode of implantation; depending upon patient's health condition.

4. **Rehabilitation**: - Post treatment, care involves reclamation therapies such as Physiotherapy, Occupational Therapy, Speech Therapy, patient's counselling etc. for accelerated recovery. The follow up schedule will be provided at the time of discharge.

4

ADVANCELLS STEM CELL TREATMENT

ELIGIBILITY CRITERIA	STEM CELL SOURCES	IMPLANTATION
Pre Treatment Assessments • Routine Blood Tests • Routine Urine Analysis • Infectious disease testing • Physical Examination • X Ray **Pre-op Procedures** • MRI • CT Scan • Neurophysiology • Medical Neurological Reports • Medical History **Counselling**	The source of stem cells can either be Bone Marrow or Adipose Tissue or Both depending upon the assessment. • **Bone Marrow:-** 100-120 ml of bone marrow is collected from iliac crest with the application of general anaesthesia. • **Adipose Tissue (Fat):-** 100 cc adipose tissue is collected from the belly area with application of local anaesthesia.	Specialists exercise various input options for implanting cells back into the body depending upon physical condition and treatment demand. •**Intravenous Injections (IV):-** Infusion through vein •**Intrathecal:-** Infusion through spinal cord popularly known as lumbar puncture

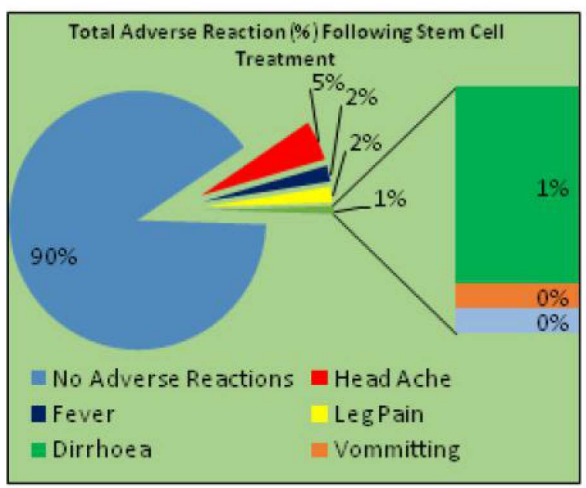
ADVANCELLS STEM CELL TREATMENTS

Quality Control Parameters	Post Treatment Care
Cell counting & Viability Assessments • Stem cell isolation and separation from unwanted cells • Number of cells recovered through Trypan Blue Viability Assessments • Percentage of Live cells • Documentation **Flow Analysis /characterisation of Bone Marrow Mononuclear Cells (BMMSCs)** • Total percentage of CD 34+ and CD45+ cells recovered **Flow Analysis /characterisation of Adipose Tissue (SVF Cells)** • Total percentage of CD 73+and CD90+ and CD 105+ cells recovered	**Rehabilitation** • Behaviour and emotional development • Communication & Social interaction • Self regulation, cognitive skills, academic skills and adaptive skills. • Psychological counselling • Evaluation and Follow up

Our client will get a third party certificate from an internationally accreditated lab for the cell count and viability.

Possible Adverse events from the treatments

Since stem cell therapy in minimally invasive and reasonable safe procedure none of our patients treated so far have observed any major offshoot from the transplant, but complaints are consistent with the expected reaction to routine IV/LP injections such as fever, headache, pain, diarrhea, vomiting and allergic reactions. Less than 5% of our patients have experienced any of these symptoms.



Follow Up

Once you have returned home, a member of our medical team will monitor your progress in given intervals via telephone and email. For your convenience, a telephone 'hotline' is always at your disposal.

General

No additional charges will be incurred unless you are required to extend your stay at the medical center as a result of complications. Costs do not include additional stem cell treatments. If another treatment is necessary, we will discuss potential options with you. You will receive an invoice one week prior to treatment. This invoice must be paid in-full before treatment can begin.

Note: If your bone marrow/adipose tissue sample is negative or the stem cells cannot be administered due to unforeseen medical circumstances, you will only be required to pay charges incurred to that point. In the case of a negative sample, it might be possible to schedule another collection.

Contact us

For more details visit: www.advancells.com or E-mail: info@advancells.com

A-102, Sector V, NOIDA-201 301

U.P – INDIA

Helpline

Helpline No. : +91 9654321400