NeuroGen Brain & Spine Institute

Centre for Stem Cell Therapy and Neurorehabilitation

ISO 9001:2015 Certified

Over 7000 Patients
Treated from 65 Countries

Leading the way in Patient Care
Leading in Research

86 Scientific Papers &
14 Published Books

International Centre of Excellence For Neurological Disorders

Awards of Excellence National

Excellence in Stem Cell Therapy in Maharashtra
by India Today Excellence Health Care Award at Mumbai
(June 2018)

International Excellence Award for Service to Disabilities
by Hon'ble Minister of Government of India Minister of Social Justice and Empowerment, Delhi
(August 2017)

Best Stem Cell Therapy Centre in Maharashtra
by Navbharat Health Care Excellence Award, Mumbai
(June 2017)

Quality Health Services in Neuro Sciences
by International Excellence Awards, Goa
(March 2017)

Best Super Speciality Hospital of the year
by International Excellence Awards, Delhi
(January 2017)

Emerging Stem Cell and Neurology Centre of the year (India) by Healthcare Excellence Awards, Delhi
(December 2016)

Best Stem Cell Therapy Centre in India by National Healthcare Excellence Award at New Delhi
(September 2016)

Awards of Excellence International

European Award of Best Practices
at Brussels, Europe
(May 2018)

Inspirational Company
by World Confederation of Business at St Thomas, Virgin Islands, USA
(July 2017)

Best Hospital
Europe Business Assembly (EBA) at Dubai
(January 2017)

The Rose of Paracelsus Award
by European Medical Association (EMA) and Socrates Nomination Committee
(Oxford, UK) at Cannes, France
(October 2016)

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About NeuroGen Brain & Spine Institute

NeuroGen Brain and Spine Institute is a 11th Floor building located in the serene surroundings of Seawoods adjacent to a lake and the Arabian Sea. It is Located just off the prestigious Palm Beach road and next to India's largest railway station complex "The Seawoods Grand Central Station. It is easily accessible by road and local train service and close to prestigious 5 star hotels such as Four Point sheraton, Tunga, IBIS and large shopping complexes such as D-Mart and Inorbit.

Seawoods Grand Central Station

NeuroGen Brain & Spine Institute has been set up to help patients with incurable neurological disorders such as autism, cerebral palsy, mental retardation, muscular dystrophy, spinal cord injury, head injury, stroke, etc. We use a multidisciplinary approach to relieve the symptoms and improve quality of life of such patients.

We are the pioneers of introduction to Stem Cell Therapy for neurological disorders. We make use of holistic, comprehensive approach to treat our patients with a combination of Stem cell Therapy and Neuro-Rehabilitation.

We use adult stem cells derived from the patient's own bone marrow, as they are the safest and most feasible type of cells. Since every patient is different, our treatment protocol is customized according to the patient's requirement.

Along with treating our patients, there is also a strong emphasis on Research as we constantly endeavor to offer our patients the latest and the best medical treatments. The clinical results of our treatments are all published in peer reviewed medical journals and are easily accessible to both the medical fraternity as well as the patient.

Actual View of the Arabian sea and lake from the rooms in NeuroGen

NeuroGen Accreditations

ISO 9001:2015

Good Laboratory Practice

Good Manufacturing Practice

NeuroGen Brain and Spine Institute is recommended by the European Medical Assocation (EMA) Brussels, Beligium as a reliable Healthcare provider, and is included on the official “Best Medical Practice” register of the EMA and EBA.

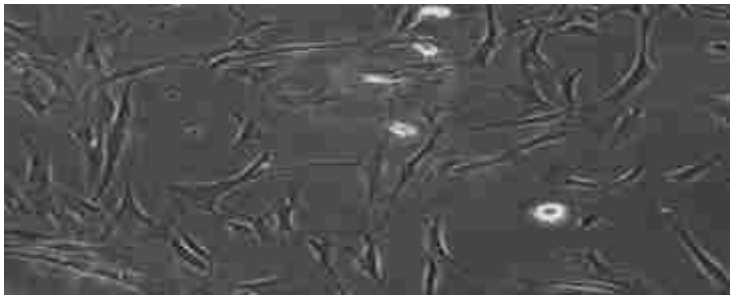
About Stem Cells and Treatment Protocol

WHAT WE DO?

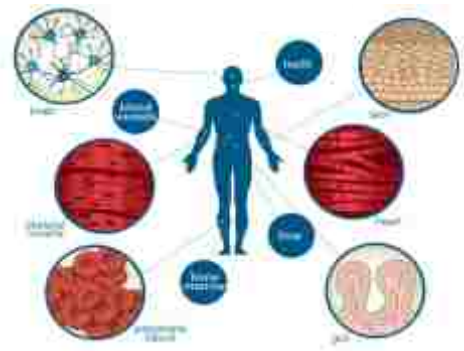
Our approach consists of using a combination of:

1. Stem Cell Therapy
2. NeuroRehabilitation
3. Other Medical and Surgical treatment

WHAT ARE STEM CELLS?



Stem cells are the building blocks of our body. These are very unique cells which have the property to multiply many times and form different types of cells and tissues of our body. Hence these stem cells can be used to regenerate & repair the damaged parts of our body, for e.g., these cells have been used to form neural cells in patients with brain damage. heart cells in cardiac patients, insulin producing cells in diabetic patients, corneal cells in patients with blindness.



HOW DO STEM CELLS WORK?

Stem cells work by following mechanisms:

1. They release growth factors which have a healing and regenerative effects on damaged tissue.
2. They cause angiogenesis or increase in the blood supply of damaged tissue thereby helping in their repair process.
3. They convert into the tissue type of cells into which they are implanted, thereby replacing non-funtioning tissue.

TYPES OF STEM CELLS?

There are two main types of stem cells:

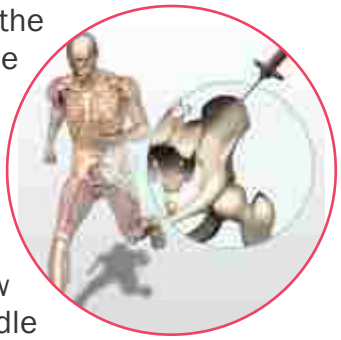
a) Autologous stem cells: These are the stem cells derived from the patient's own body, such as bone marrow stem cells. Since these cells are obtained from the patients themselves they are absolutely safe and have no compatibility issue. Hence rejection is not a possibility. Also they are available in abundance and can be isolated easily. They are therefore the safest option.

b) Allogenic Stem cells: These are the stem cells taken from another person hence compatibility issues have to be taken into account. The sources of these stem cells could be from the embryo or unborn fetus. These are know as embryonic stem cells & are obtained from spare embryos from IVF clinics. The other source is Allogenic stem cells from the umbilical cord of a new born baby.

At NeuroGen Brain and Spine Institute we use patient's own bone marrow derived stem cells making it the safest cell type to use

Treatment Protocol at NeuroGen

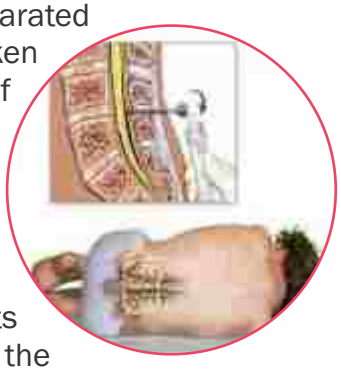
The procedure for stem cell transplantation is minimally invasive, with extremely simple steps. There is no major surgery or incision required. The procedure is carried out in only three steps.



Bone marrow aspiration: Bone marrow is the place where blood is formed. In simple terms, it can be called a factory of blood. As is common knowledge, blood is formed in the hollow space of bones. It is easiest to extract bone marrow from the hip bone.

This is done through a bone marrow aspiration needle, which is a thin needle inserted into the hip bone. Procedure is usually done under local anesthesia. For children and adults who cannot tolerate the procedure, sedation or general anesthesia as required is administered. The entire time taken to do this is only 15 minutes to 30 minutes. Between 80ml to 120ml of bone marrow is aspirated, depending on the weight of the patient. The patient is then sent back to the room for about 3 to 3 and a half hours, to rest for the next step of the procedure.

Separation of stem cells: On the same day, within 3-5 hrs, the stem cells are separated and purified in our stem cell laboratory by using a procedure referred to as density gradient centrifugation. Basically, stem cells have a fixed density and this property is used to separate them.



Stem cell injection: Once stem cells are separated and purified (in about 3-4 hrs), patient is taken back to the operation theatre. Injection of stems cells into the fluid around the brain and spine (intrathecal injection) is carried out using either an epidural needle (portex) or a spinal needle. Stem cells are first diluted in the CSF and then injected into the spinal space. In certain patients where stem cells are to be injected into the muscles, (eg. Muscular dystrophy patients – as assessed and recommended by the rehabilitation team) these cells are diluted in the CSF and then injected into the muscles using a very thin needle.

NeuroGen Experience

What is the treatment protocol comprised of?

At NeuroGen we use a combination of stem cell therapy and neuro-rehabilitation. This unique protocol followed at NeuroGen is termed as Neuroregenerative rehabilitation therapy (NRRT).

The total hospitalization period is 6 days. Extended stay options for longer rehabilitation are also available.

The complete treatment involves stem cell therapy using adult stem cells, Neurological and other treatments (using Neuroprotective and other medications) and rehabilitation (including physiotherapy, occupational therapy, speech therapy, counseling, creative visualization etc).

All the complaints, problems, symptoms of the patient are attended to by appropriate consultants and suitable treatments are initiated.

Our comprehensive treatment involves a holistic approach towards the total well being of the patient, which through an improvement in their neurological condition, helps in making the quality of life better.

DAY 1-2

Complete evaluation- Neurological and functional assessment.
Special investigation such as MRI, PET scan, EEG etc.
Clinical assessment by other therapists are done.

Doctor's Consultation

Pre Operative Investigation

Complete Assessment

DAY 3

Stem Cell Therapy

Bone Marrow Aspiration

Stem Cell Separation

Stem Cell Injection

DAY 4-7

Extensive NeuroRehabilitation including both adult or pediatric rehabilitation followed by discharge procedures.

Adult Rehabilitation

Pediatric Rehabilitation

Psychological Counseling & Discharge

The NeuroGen Team

Our team is headed by Dr. Alok Sharma and the panel includes:

A Medical team (Neurosurgeon, Neurophysician, Pediatric Neurologist, Psychiatrist, Orthopedic Surgeon • Regenerative Medicine, Expert, General Physician, Urologist, Andrologist, General Surgeon, Cardiologist, Pediatric Orthopaedician, Cosmetic Surgeon, Ophthalmologist) A basic science team (Neuropathologist and Biotechnologist) • A Rehabilitation team (Physciotherapists) Occupation Therapists, Clinical Psychologists) Speech Therapists, Aqua Therapist, Yoga Therapist and Special Educator)

Dr Alok Sharma -

Dr Alok Sharma is a world renowned Neurosurgeon, Neuroscientist and Professor who brings with him extensive surgical expertise & experience in the areas of Neurosurgery, Neuroscience and Steam cells. He is currently the Director of NeuroGen Brain and Spine Institute. He has over 25 years of experience in the field of Neurosurgery and has several awards and recognitions to his name.

Dr Nandini Gokulchandran -

Dr Nandini Gokulchandran is the Deputy Director and Head of Medical Services for Neurogen Brain and Spine Institute. She has worked for several works with the esteemed Tata Institute of Fundamental Research (TIFR) where she worked around subjects concerning stem cells and neuroregeneration. She brings to NeuroGen and astute amalgamation of medical / clinical backgrounds with deep faithe and understanding of stem cell research & regenerative medicine.

Dr Hemangi Sane -

Dr Hemangi Sane is the Deputy Director and Head of Research and Development at NeuroGen Brain and Spine Institute. She is a trained physician with an MD in Internal Medicine from New York Medical College, USA. She is one of the leading physicians of the world and is committed towards finding treatment for neurogical disorders through research. Along with her interest in medicine and academics, she is a deeply devoted socialist and runs her foundation “Asha-Ek Hope” for patients diagnosed with ALS/MND.

Dr V. C. Jacob -

Dr. V. C. Jacob (PT) has been the Deputy Director of NeuroGen Brain and Spine Institute since its inception and is currently the Head of NeuroRehabilitation at Neurogen. He has to his credit over 35 years of experience in the field of Neurorehabilitation. He was the former President of the Indian Association of Physiotherapists and has had several such titles to his credit.

Dr Prerna Badhe -

Dr Prerna Badhe is a Consultant Neuropathologist, Deputy Director and Head Regenerative Laboratory services at the NeuroGen Brain and Spine Institute. She has authored several research papers and most of her work has been published in journals of an international repute. Trained at the National Institute of Health, NIH, Baltimore, John Hopkins, USA, in Neural Stem Cells and at the Kentucky Spinal Cord and Injury Research Centre, KSCIRC, USA, in Molecular Neurobiology and Neuroregeneration, she set up the Stem cell Centre at the L.T.M. Medical college & L.T.M. General Hospital, Sion, Mumbai.

Facilities at NeuroGen

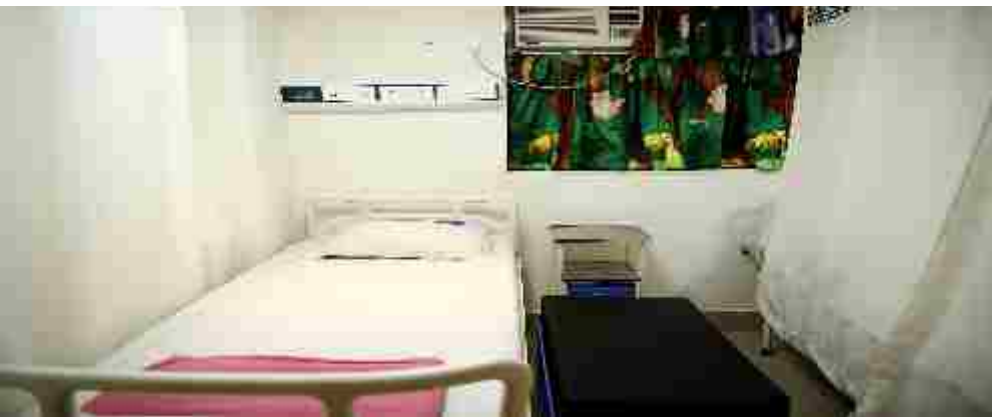
Medical and Surgical departments

- Operation Theater
- Stem Cell Laboratory
- Diagnostic Center

Adult and Pediatric Neurorehabilitation Department

- Physiotherapy Department
- Occupational Therapy Department
- Autism Child Development Center
- Speech Therapy
- Department of Psychology

Patient Care at NeuroGen



At NeuroGen we believe in providing healthy recovery along with a luxury stay, specially designed for our International Patients - The Suites at NeuroGen for the 9 day stay makes the patients feel at home. It has a beautiful aerial view of the Lake.
We offer the best comfort and each Deluxe- Suite offers a host of amenities including:-

General (No additional charge):

- Hi-speed Wi-Fi connection
- Laptop
- Local SIM Card
- In Phone dial

Food: We cater to all kinds of food requirements (Veg & Non-Veg) at international standards.

Amenities:

- Fully Air conditioned Deluxe-Suite rooms
- 32' Plasma Led TV with a cable connection providing over 300 channels including news, entertainment and kids program in all major languages
- Refrigerator
- Microwave
- Electric coffee maker/ tea kettle
- Electronic Safe
- Cabinet for storage
- Laundry service • 24x7 Room service
- General Supplies (Local Toiletries Available in in - house Pharmacy

NeuroGen Neuro Rehabilitation










Adult Rehabilitation

Rehabilitation Services

- **Physiotherapy**
- **Occupational Therapy**
- **Neuro-psychological Intervention**
- **Neuro-pediatric Department**
- **Speech Therapy**
- **Diet Counseling**
- **Aquatic Therapy**
- **Pain and Spasticity Management**
- **Hand & Splinting Rehabilitation**
- **Yoga Therapy**
- **Electro Therapy**

NDT (Neuro Developmental Therapy)

Internationally Recognized "Walking Programme" for spinal cord injury & other paralysed patients.

Special Consultations

- **Urologist (for patients suffering from bladder and bowel problems)**
- **Andrologist (for sexual rehabilitation)**
- **Cardiologist (for patients with cardiac complications)**
- **Anesthetist (for pain management)**
- **Psychiatrist (for tackling behavioral issues)**
- **Orthopedia Surgeon (for patients who have developed contractors and deformities)**
- **Plastic Surgeon (for pressure sore and wound management)**
- **Neuro Surgeon (for addressing neurological issues)**

Spinal Cord Injury Walking Track

Aquatic Therapy

Autism Child Development Centre

Autism Child Development Centre (ACDC), based in NeuroGen Brain and Spine Institute, is a centre offering latest-treatments under one roof in a comfortable & child-friendly environment. Our aim is to provide multi-discipilnary rehabilitation for children with autism spectrum disorders (ASD) and other Neurodevelopmental disorders like Mental Retardation, Attention Deficit hyperactivity disorder, Cerebral Palsy, Retts syndrome, Learning disability, Global developmental delay etc.

Dedicated Pediatric NeuroRehabilitation Facility

MEET *the* TEAM

Our panel of USA certified professionals at ACDC

Dr. Hemangi Sane, *MD*
(Internal Medicine from New York Medical College, USA.)
Chief Physician and Head - Research & Development
She has 5 years work experience in USA.

Dr. Hema Biju
M.O.Th (Neuro), A.I.O.T.A
Head - Occupational Therapy
A licensed OTR from states of New Jersey, Florida and Georgia.
She has practiced at the prestigious Kesler Institute of Rehabilitation, New Jersey with 5 years work experience in USA.

Meenakshi Raichur
M.A. (Clinincal Psychologist)
M.S. (ABA)
(USA Certified)
Head - Pediatric Psychology & ABA
4 years of work experience in the USA with autistic children.

Every child is assessed personally by expert doctors and therapists from each department at ACDC and a treatment plan is customized according to the child's needs. In our experience, we have noted maximum improvements in children who have received a combination of cellular therapy with other therapies.

Aquatic Therapy

Play Therapy

Physio Therapy

Sensory Integration

Special Education

Art Therapy

Speech Therapy

Dance Therapy

Applied Behaviour Analysis

Yoga Therapy

Occupational Therapy

International Patient Assistance

Before Arrival

- **Consultation :** Once you share your reports and your medical condition with us, our team of doctors will analyze the same and share their expert opinion on the treatment to be followed. This can be done at the convenience of your residence, on Call / Email / Skype.
- **Post consultation :** Our experts will guide you through the treatment protocol.
- **Visa and travel assistance :** We will send you the list of documents and other relevant
- information that you might for obtaining the VISA.
- **Payment Options :** Payments are accepted via Credit Card / Debit Card / Cash / Wire Transfer & Bank Details will be provided as per the chosen payment mode.

On Arrival

- **Airport Transport :** You will be provided with a car / ambulance pickup at the airport along with NeuroGen Staff.
- **Local Transport :** As required by the patient.

At NeuroGen

- **Admission Process :** Our International Desk Team will ensure that you are comfortable and have no difficulties settling in upon your arrival. A detailed admission process will be explained to you and also we shall inform you about everything concerning your stay at NeuroGen. The patient along with the care taker will be accommodated for the duration of the treatment.
- **Preoperative Investigations :** Once you arrive at NeuroGen, the tests and special investigations based on our experts advice will be arranged for you along with ground transport.
- **Therapy :** This will be followed by a complete treatment plan customized on the basis of the patient's condition.

"Our aim is to make your travel and stay at NeuroGen as comfortable as possible"

Departure

- **Discharge :** A hassle free discharge is ensured as per your flight timings. A detailed discharge summary is also provided to the patient.
- **Drop at Airport :** The patient will be dropped at the airport in car / ambulance accompanied by NeuroGen Staff.
- **Other travel related arrangements :** Other arrangements if any, can be made by us. For Eg - Sightseeing, Shopping etc.

> **If you are flying in from another country, we understand that the process is more complicated with the embassies and visa coming into play**

Children from 5 different continents undergoing treatment at our centre at the same time

CHANGING Life FOR THE Better

What can be treated?

PEDIATRIC

Autism

Autism is a neurodevelopmental disorder characterized by impaired social interaction, verbal and non-verbal communication, and restricted and repetitive behavior. Parents usually notice signs in the first two years of their child's life. These signs often develop gradually, though some children with autism reach their developmental milestones at a normal pace and then regress.

Cerebral Palsy

Cerebral palsy, is a neurodevelopemental disorder, which is caused by any event leading to the damage to brain around the time of birth. The causes can range from nutritional factors, to physical trauma, hypoxia/lack of oxygen flow due to factors such as cord around the neck, birth asphyxia, etc. The impact ranges from mild physical disability to very severe disability along with comorbid mental retardation.

Intellectual Disability

Mental retardation/Intellectual disability (ID) is a generalized neurodevelopmental disorder characterized by significantly impaired intellectual and adaptive functioning. It is defined by an IQ score below 70 in addition to deficits inability to perform activities of daily routine.

Muscular Dystrophy

Muscular dystrophy (MD) is genetic disorder which causes the muscles in the body to gradually weaken and eventually stop working. It is caused by incorrect or missing genetic information that prevents the body from correctly making the proteins needed to build and maintain healthy muscles. Over time, people with MD lose the ability to walk, sit upright, breathe easily, and move their arms and hands. Hence it is a progressively deteriorating disorder, which leads to death, sometimes ,as early as 20 years of age.

ADULT

Spinal Cord Injury

An injury to the spinal cord can happen due to trauma (such as road traffic accident, fall from a height, etc.) or due to non traumatic conditions (spinal tumor or infection of the spine). Depending on the level of the injury, a person can be rendered paralysed below the neck in a cervical cord injury (quadriplegia) or below chest /waist in a thoracic/dorsal cord injury (paraplegia) along with loss of bladder and bowel continence.

Stroke

Brain Stroke or Cerebrovascular accident is the most devastating condition of brain. Stroke is a leading cause of disability in the world. It causes permanent damage of the brain functions which might result in inability to move limbs, vision problem, speech problems, altered sensations or cognitive impairments. Stroke can be of two types, Ischemic or Hemorrhagic.

Traumatic Brain Injury / Head Injury

Brain damage sustained due to trauma can be very devastating, leading to physical disability, loss of function, amnesia, loss of cognitive function and understanding. This often leaves a permanent disability and renders a person completely dependent on his caretaker for all activities.

Motor Neuro Disease / Amyotrophic Lateral Sclerosis

A motor neuron disease (MND) is a neurological disorder that selectively affect motor neurons, the cells that control voluntary muscle activity including speaking, walking, swallowing, and general movement of the body. They are neurodegenerative in nature, and cause increasing disability and eventually, death.

Other Neurological Disorders

Cerebellar Ataxia, Cerebral Atrophy, Spino Cerebellar Ataxia, Multiple System Atrophy, Dementia,

Autism

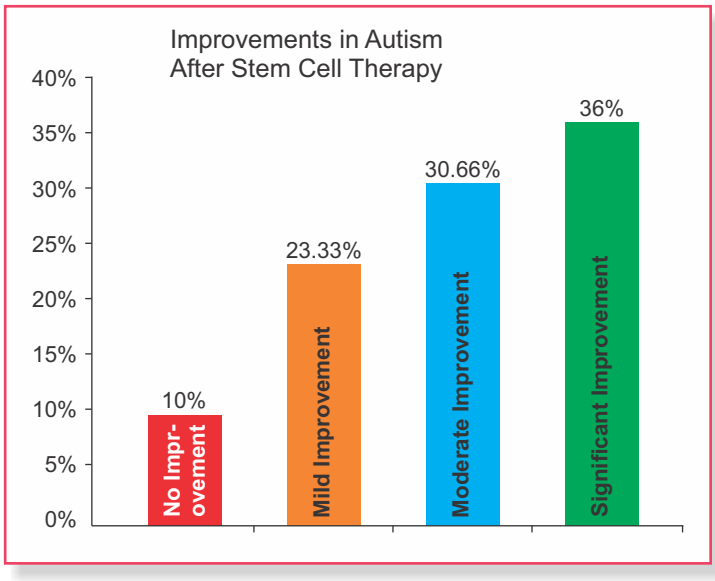
About Autism

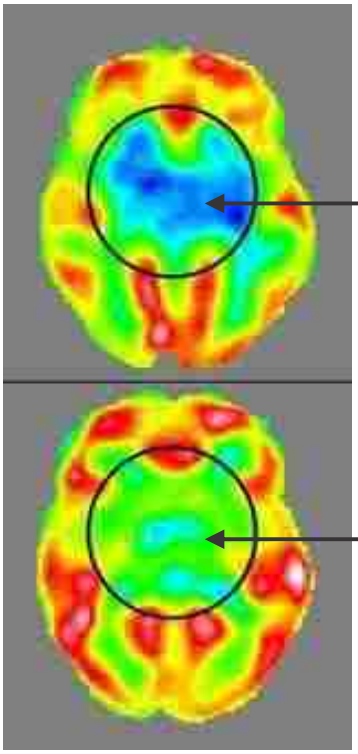
Autism is a neurodevelopmental disorder characterized by impaired social interaction, verbal and non-verbal communication, and restricted and repetitive behavior. Parents usually notice signs in the first two years of their child's life. These signs often develop gradually, though some children with autism reach their developmental milestones at a normal pace and then regress.

Improvements after stem cell therapy

Following stem cell therapy in children with autism, it is found that the child's hyperactivity reduces, eye contact improves, attention span improves, social awareness improves, interaction with peer improves, irrelevant speech decreases, response to commands improves, overall behaviour becomes more manageable. Fine motor activity becomes better and self stimulatory behaviour reduces. These changes are seen in about 91% of the children.

Also, communicating of needs and opinion is achieved. Speech is developed in children who have a limited vocabulary or have no speech at all. The above clinical improvements are also accompanied with objective improvements seen in the brain imaging such as PET scan.





PET CT scan of the brain before stem cell therapy shows blue areas that represent reduced brain activity due to the damage that occurs to the brain tissue in autism.

PET CT scan brain 6 months after stem cell therapy shows that the blue areas have reduced indicating that the damaged tissues have been repaired highlighting the positive effects of the stem cell therapy.

Representative Case Report:

Master LV is a 11 years old child with autism from London, UK, who first came to India for stem cell therapy 2 years back. L V was diagnosed to have autism, when he was 4 and a half years old. In the UK he received the best treatment as well as rehabilitation therapies available. However, for almost 5 years, parents did not find any improvement in him.

He had the following symptoms- Poor social interaction, fleeting eye contact, inappropriate emotional responses like irrelevant laughing and crying without any reason, motor mannerisms like finger fidgeting, rocking etc. smelling objects, presence of unusual noises, fearful of loud noises, weak fine motor skills, poor – fair perceptual and cognitive skills. After undergoing stem cell therapy he has shown remarkable improvements in perpetual and cognitive skills like better eye contact, increased attention span and increase in general awareness. Improvement in sensory problems and motor mannerisms have reduced in public places. His social interaction and communications are better now. He has become more independent in activities of daily living. His learning and comprehension have improved tremendously, such that now he is able to solve a 100 piece puzzle in less than 5 minutes!! A child who had low tone and severe imbalance issues, can now skate like a professional!

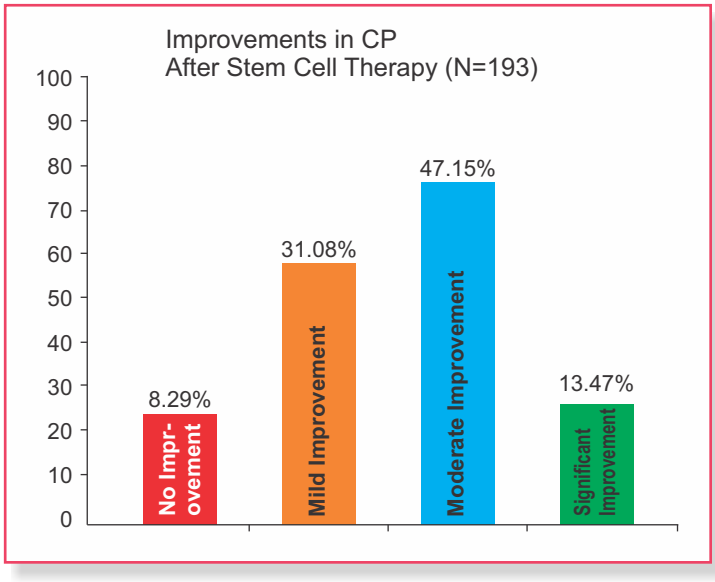
All this has been possible only after stem cell therapy. LV'S life has changed for the better.

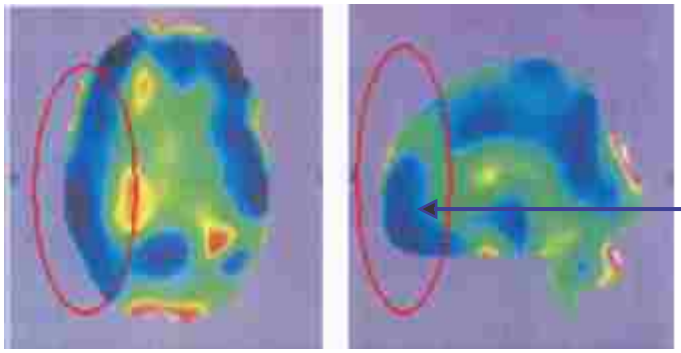
Cerebral Palsy

About Cerebral Palsy:
Cerebral palsy, is a non progressive neurodevelopemental disorder, which is caused by any event leading to the damage to brain around the time of birth. The causes can range from nutritional factors, to physical trauma, hypoxia/lack of oxygen flow due to factors such as cord around the neck, birth asphyxia, etc..The impact ranges from mild physical disability to very severe disability along with comorbid mental retardation. Some children also have accompanied fits / seizures / convulsions, which complicates the prognosis.

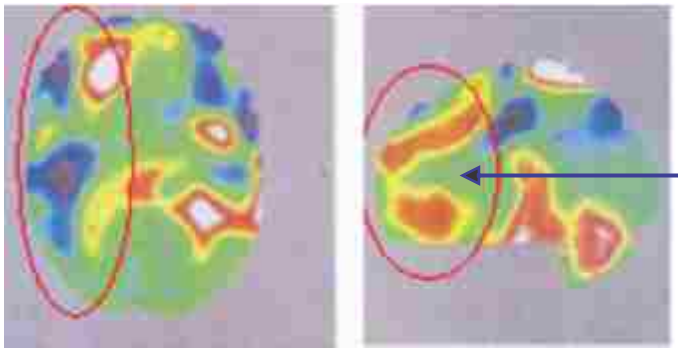
Improvements after stem cell therapy:
After stem cell therapy, improvements are seen in oromotor or speech, balance, trunk activity, upper limb activity, lower limb activity, muscle tone and ambulation. In our experience, we find that, 92.6% of our patients improved after stem cell therapy. The aim is to improve the milestone development in the children, such that a child can be helped to lead an independent life.

These functional changes that have been seen in our patients can be co-related with the improvements in the brain metabolism as well that is observed in specialized brain scans such as, the PET-CT (Positron emission tomography- computerized tomography) scans of the patients.





PET CT scan of the brain before stem cell therapy shows the blue areas that represent reduced brain activity due to the damage that occurs to the brain tissue in CP.



PET CT scan brain 6 months after stem cell therapy shows that the blue areas have reduced indicating that the damaged tissues have been repaired highlighting the positive effects of the stem cell therapy.

Representative Case Report:

Master SK is a 8 years old child with Cerebral Palsy and autistic features due complications soon after birth. He had delayed development with imbalance in walking, vision problems and fine motor activities. He also had difficulty in academics along with epilepsy.

After stem cell therapy, Master SK has shown progressive improvements in physical as well as cognitive aspects. His balance, coordination and posture has improved. Which has in turn improved his walking and staircase climbing activities. He has started performing well in school. His vision has also improved and he is able watch television from a longer distance than before. His autistic features have also improved, such as social interaction and interest in surroundings. His drooling has reduced and speech has become clearer.. Most importantly, the durations of his fits/seizures has also reduced.

Hence, what Master SK had not achieved in 8 years, he was able to achieve in just 6 months after Stem Cell therapy.

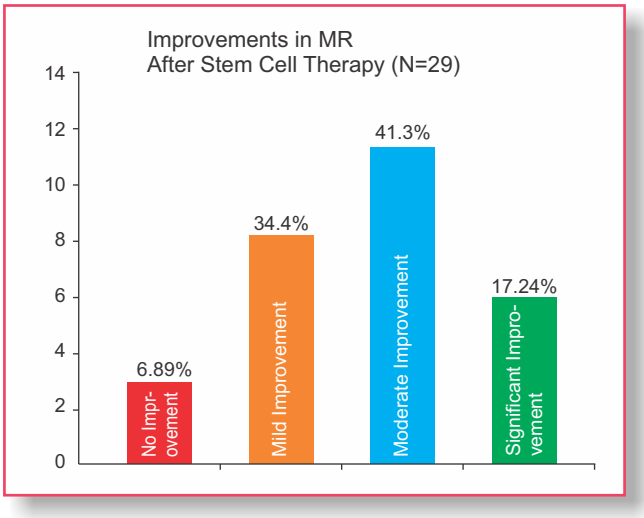
Intellectual Disability

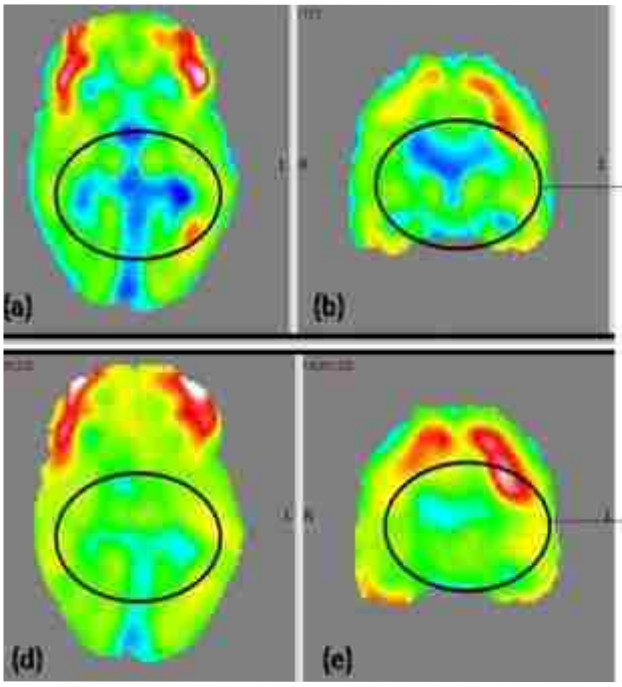
About Mental Retardation

Mental retardation is a developmental disorder. It is manifested during child's developmental years (0-18 years). (MR) now known as intellectual disability (ID). According to the World Health Organization (WHO) mental retardation is defined as "a condition of arrested or incomplete development of the mind, which is especially characterized by impairment of skills which contribute to the overall level of intelligence". Individuals with mental retardation generally exhibit sub average functioning. They display difficulties in self adaptive areas such as communication, self-care, home living, social skills, community use, self-direction, health and safety, academics, leisure, and work. There are four levels of retardation: mild, moderate, severe, and profound. According to the prevailing international classification system, MR can be classified into the following grades according to its severity:

Improvements after stem cell therapy

Following stem cell therapy , patients with mental retardation show improvements in domains like cognition, social interaction, communication, self care, home living, learning, school performance, hence, the mental development starts to become age appropriate. Improved mental development shows improvement in IQ levels. This consequently, relieves the pressure of the care taker and the family.





PET CT scan of the brain before stem cell therapy shows the blue areas that represent reduced brain activity due to the damage that occurs to the brain tissue in MR

PET CT scan brain 6 months after stem cell therapy shows that the blue areas have reduced indicating that the damaged tissues have been repaired highlighting the positive effects of the stem cell therapy

Representative Case Report:

Shweta Kamath, a 34 year old lady is a case of Mental Retardation. All her developmental milestones were normal. Shweta had her first episode of seizure at 11 months of age and went on for many years. When she was in Sr.Kinder garten her parents and teachers noticed the fact that she does not even remember the basic ABC or 123 for a long time. Her cognition and problem solving was not age appropriate. This made them get a detail check up done. Shweta and her twin sister Shruti were diagnosed with mental retardation at 3 years of age.

Shweta underwent stem cell therapy on 6th July 2015. Since then she gained a new momentum and found herself an all new positive direction. There are a lot visible improvements post stem cell therapy. Her sitting tolerance improved the very next day, earlier she used to sit for maximum 15min and stayed bedridden most of the time, but now she quietly sits for more than 8-9 hours. She has also started sitting without support. She started walking slowly and everyday there is an increase in number of steps she walks. Her walking posture improved. Her speech being still mood dependent but is very much clear now. She converses in sentences now as against few words before stem cell therapy. Her concentration has improved and hallucinations are gone. Her picture recognition and color differentiation has come back. “Post stem cell therapy Shweta started taking interest in regular household activities, she has become little independent for her all day living activities. Her social participation and interaction is still continuously improving.

Hence Stem cell therapy provides a hope to improve quality of life and function in children with mental retardation.

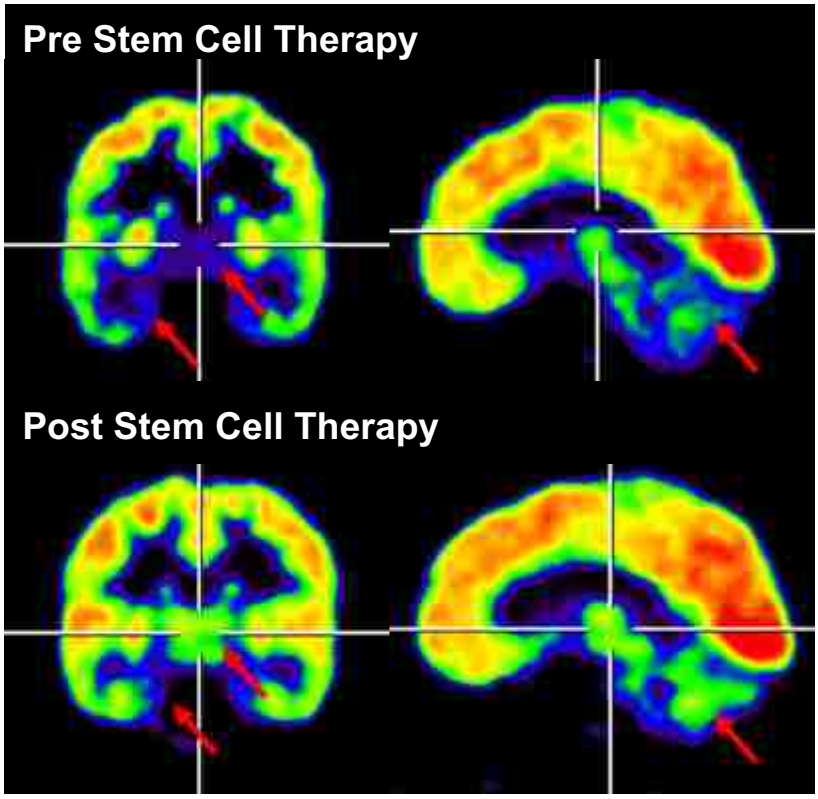
Down Syndrome

About Down's Syndrome

It is a genetic condition also known as 'trisomy 21' caused due to the presence of an extra copy of chromosome 21. It leads to delayed physical growth, facial dysmorphism, and affected cognitive and intellectual functions. Prenatal screening can be useful for the identification of Down's Syndrome. Conventional therapies such as Occupational Therapy, Physiotherapy, etc. can be helpful, but Stem Cell Therapy helps in improving the intellectual functioning.

Improvements after Stem cell Therapy

Improvements are noted in patients with Down's Syndrome after Stem Cell Therapy, in their posture while sitting, their cognition, understanding, command following, speech, language and communication, and activities of daily living. All the improvements are seen rapidly after administration of Stem Cell Therapy.



Representative Brain FDG-PET Coronal and sagittal images of a patient with Downs syndrome. Before cellular therapy, hypometabolism is noted in the bilateral thalamus, medial temporal cortex and cerebellum. Following one year, after cellular therapy, improved brain activity is noted in the bilateral thalamus, medial temporal cortex and cerebellum.

Representative Case Report:

Bhanuvanshi More, a 13 year old male, known case of Down's syndrome, came with complaints of inability of speaking clearly, decreased understanding and clumsy fine motor performance.

He had a history of delayed motor and speech milestones. When he was taken to a pediatrician, on evaluation and investigation, he was diagnosed with Down's syndrome and moderate Mental Retardation. He has been in a special school since 6 years of age.

He had generalized hypotonia, poor oromotor performances, and below age comprehension. He also had clumsy hand functions, and usually took a longer time to complete daily activities.

Immediately after stem cell therapy, his sitting tolerance improved. He could follow simple commands. His hyperactivity reduced. He started enjoying drawing cartoons.

After 6 months, the following changes were noted:

He started calling others by name. His attention and concentration improved. He could recollect things which were taught in school .His imitation skills improved. He could now follow 2 step commands. His problem solving skills improved. He became more alert. He started speaking in sentences. His pronunciation became clearer. Identification and thinking ability improved. He started expressing his needs. His physical activities, like climbing up and down the stairs were better than before. He could go for shopping to buy 2-3 things when written and given to him. He could dispose his plate after eating, the kitchen.

Therefore, it is seen, that Stem Cell Therapy helps improve functional independence, and thus, quality of life in children with Down's Syndrome.

Muscular Dystrophy

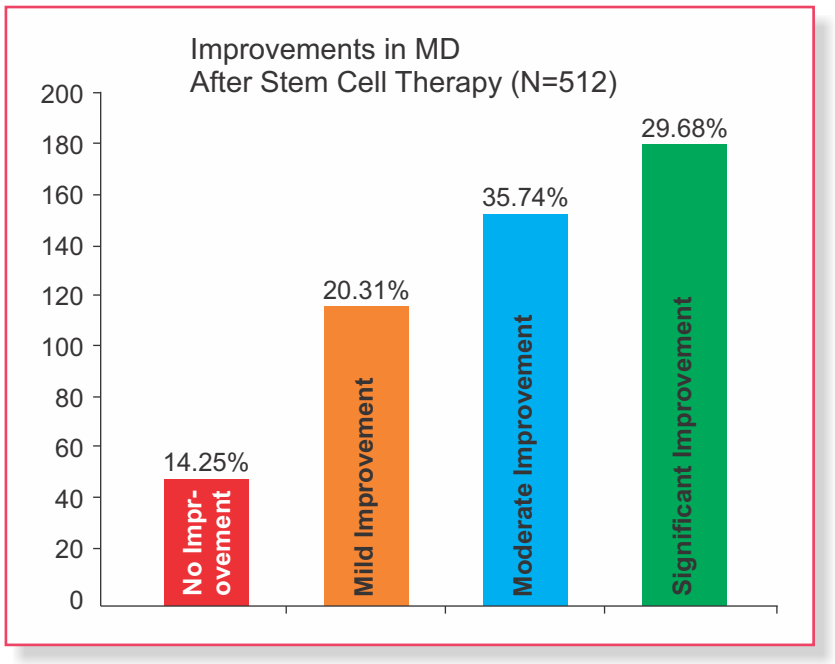
About Muscular Dystrophy

Muscular dystrophy (MD) is a genetic condition which causes the muscles in the body to gradually weaken and eventually stop working. It is caused by incorrect or missing genetic information that prevents the body from correctly making the proteins needed to build and maintain healthy muscles. Over time, people with MD lose the ability to walk, sit upright, breathe easily, and move their arms and hands. Hence it is a progressively deteriorating disorder, which leads to death, sometimes ,as early as 20 years of age.

There are different types of MD; some start in infancy, others may not appear until early adulthood. Common types are Duchenne MD, Becker MD, Myotonic dystrophy, Limb-girdle MD and Facioscapulohumeral MD.

Improvements after stem cell therapy

Since Muscular dystrophy is a progressive condition, where the problem continues to worsen, the main aim of stem cell therapy is to stop the disease progression. In absence of any treatment, a patient who is walking, loses ambulation and becomes completely dependent for his daily routine activities. After stem cell therapy, it has been observed that the increasing muscle weakness is halted in 86% of the patients. With proper physiotherapy after stem cell therapy, the patients who have stopped walking ,are now able to wit with gaiters. Improved balance, upper limb strength, lower limb strength and posture is observed in most of the patients, This helps them to regain their indepeilence and to be functionally active for a longer time.



Representative Case Report:

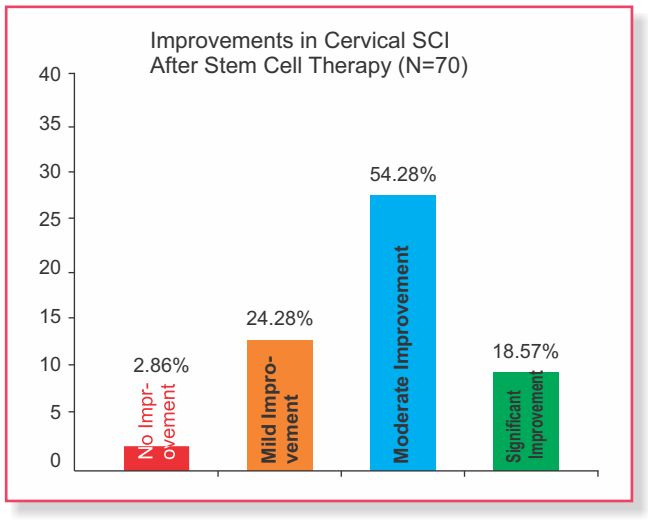
Master 0 K is a 15 years old boy with Ducchenne Muscular Dystrophy, one of the most fatal form of Muscular dystrophy. He was treated with stem cell therapy 3 years back, when he had already stopped walking and had weakness in upper limbs also. With stem cell therapy and rehabilitation, Master OK's condition has stabilized. The curve in his spine, which had occurred due to muscle weakness has straightened out. He has more strength in his upper limbs, such that he is able to write his exams on his own. He can now stand with support, which was not possible earlier because of weakness and deformities/contractures of the legs. Slowly and steadily, he is gaining strength and moving towards a positive outcome. This is big achievement in a condition, which otherwise, continues, albeit in the backward/reverse direction.

Hence, stem cell therapy provides a hope to improve the quality of life and function in children and adults with muscular dystrophy!

Spinal Cord Injury

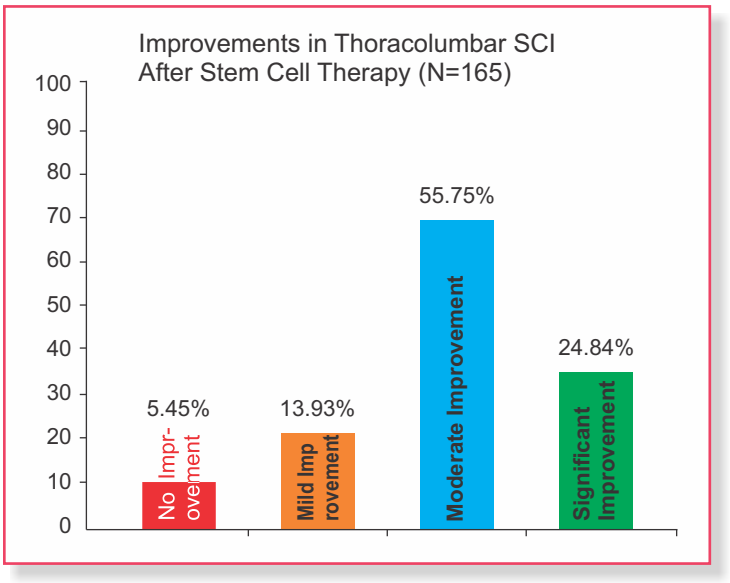
About spinal cord injury

An injury to the spinal cord can happen due to trauma(such as road traffic accident, fall from a height, etc.) or due to non traumatic conditions (spinal tumor or infection of the spine). Depending on the level of the injury, a person can be rendered paralysed below that level (such as below the neck in a cervical cord injury, below chest/waist in a thoracic/dorsal cord injury)along with loss of bladder and bowel continence. The damage could be complete or incomplete. The damage is usually of a permanent nature, leaving the person dependent for his routine activities. Conventional therapies, such as physiotherapy, may help return of function to a certain extent. However, stem cell therapy goes a long way in assisting return of function.



Improvements after stem cell therapy

Following stem cell therapy in patients with spinal cord injury, improvements are noticed in sitting balance, standing balance, walking with support, reduction in spasticity, sensation, bladder control and sexual function. All these improvements have been accelerated by the administration of stem cells, thereby ,reducing the recovery time. Improvements, to varying degrees, are seen in over 90% of the patients.



Representative Case Report:

A young Captain MS, a 26 year old soldier, was rendered paralysed waist down in the year 2012.

Since then he was completely bedridden with no recovery for 2 years, inspite of best of rehabilitation. Before stem cell therapy, he could not even sit on his own.

After he underwent stem cell therapy, his overall stamina improved. In less than 6 months, he achieved independent sitting and standing. He became independent for lower body dressing. He could do transfer from wheel chair to bed independent. Mobility in the bed improved. Over 1 year, he could walk with a walker and then progressed to crutches. This signified reduced base of support for ambulation. he has also started climbing stairs with support.

He has now been recruited back for training in rifle shooting. Stem cell therapy and rehabilitation has helped this young soldier become independent and resume his duties.

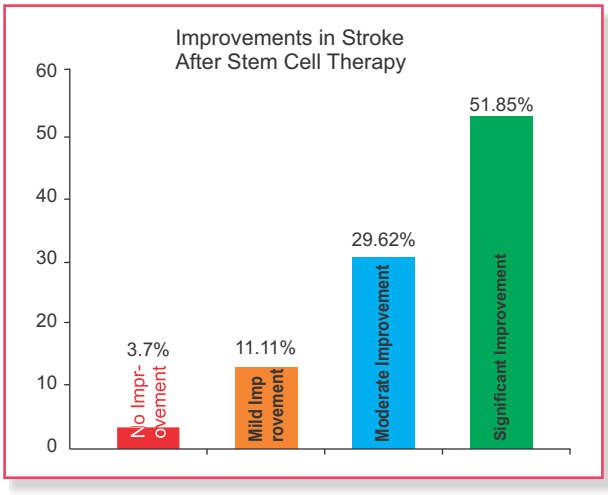
Stroke

About Brain Stroke

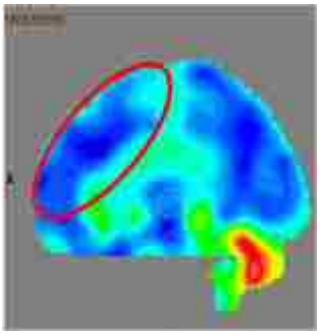
Brain Stroke or Cerebrovascular accident is the most devastating condition of brain. Stroke is a leading cause of disability in the world. It causes permanent damage of the brain functions which might result in inability to move limbs, vision problem, speech problems, altered sensations or cognitive impairments. Stroke can be of two types, Ischemic or Hemorrhagic.

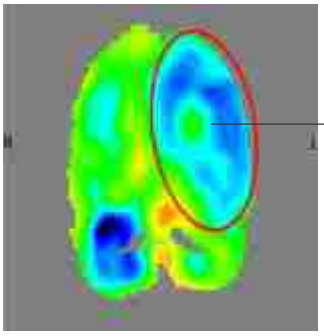
Improvements after stem cell therapy

Following stem cell therapy, it is found that spasticity or tightness on the paralysed side is reduced,so that voluntary control or movement at will can be executed. That means, a patient with inability to move the hand is able to easily move his hand and use it for activities, such as feeding/ eating, wearing clothes, holding a stick/cane for walking. Tightness in the legs is also reduced, such that walking becomes easier. Speech becomes more clear and patients with cognitive/ memory issues, become more alert .

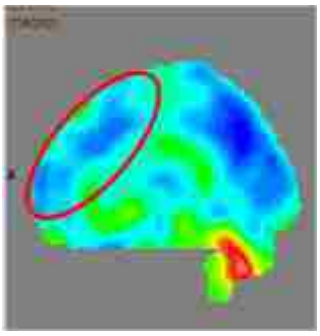


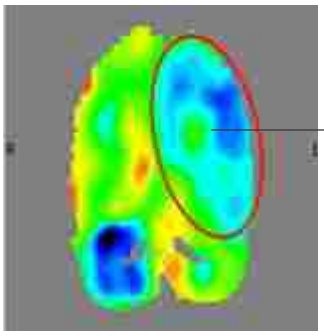
Out of the patients treated in NeuroGen, improvements were seen in over 95% of the patients.





PET CT scan of the brain before stem cell therapy shows the blue areas that represent reduced brain activity due to the damage that occurs to the brain tissue in Stroke.





PET CT scan 6-5 months after stem cell therapy showing improved metabolism in frontal lobe, occipital lobe and basal ganglia on the left side as indicated by the circles

Representative Case Report:

A 38 year old patient, who had developed left sided hem i plegia, following a brainstroke, 2 years back, underwent stem cell therapy at NeuroGen. Over 2 years the patient has had remarkable recovery of function in his hand and leg, such that now he is able to dress himself on his own. Gradually walking has become easier. He is independent in his daily life and has resume work. The most important achievement is that he is able to ride bike/ two wheeler on his own!!

Stem cell therapy has afforded him a new lease of life!

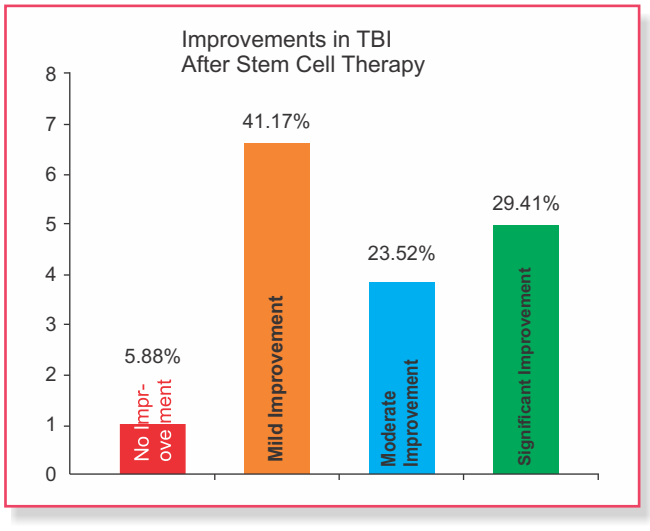
Head Injury

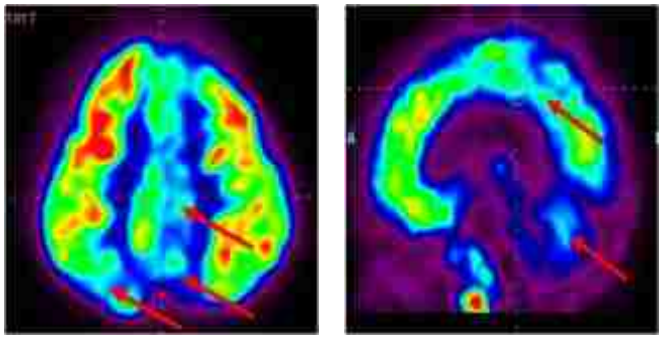
About Head Injury

Traumatic brain injury / head injury Brain damage sustained due to trauma can be very devastating, leading to physical disability, loss of function, amnesia, loss of cognitive function and understanding. This often leaves a permanent disability and renders a person completely dependent on his caretaker for all activities.

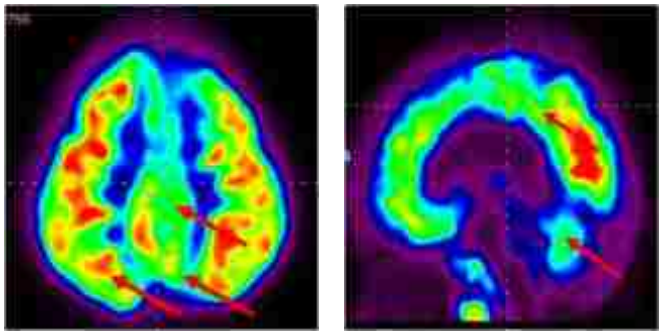
Improvements after stem cell therapy

In patients with head injury, especially those who are young, stem cell therapy has helped to ameliorate aggressiveness, improve understanding and cognition, which is not possible by conventional rehabilitation. Recovery of brain function in concert with active rehabilitation helps reduce spasticity /tightness in the limbs, which occurs due to the brain damage. Overall, balance, coordination speech, communication is also improved. Improvement in patients with neurodeficit after head injury is seen in over 85% percent of patients.





PET/CT scan, before cell therapy shows reduced metabolism in the left posterior cingulate Cortex, left precuneus, left superior parietal cortex and cerebellum.



PET/CT scan 6 months after cell therapy shows reduced metabolism in the left posterior cingulate Cortex, left precuneus, left superior parietal cortex and cerebellum.

Representative Case Report:

Mr. NY, a 34 years old professional male, working in a reputed lift company, met with an accident and sustained a severe head injury. This left comatose for a long time and finally when he gained consciousness, he was paralysed on the right side. He also had memory loss and loss of higher executive functions and was the only earning member of his family. This head injury had left him unfit for resuming work. Stem cell therapy with rehabilitation has helped him not only regain function in his right hand and leg, but also improved his speech, cognition, decision making abilities and confidence. Now, he has resumed work, is earning and supporting his family, traveling alone to work and living a normal family life!

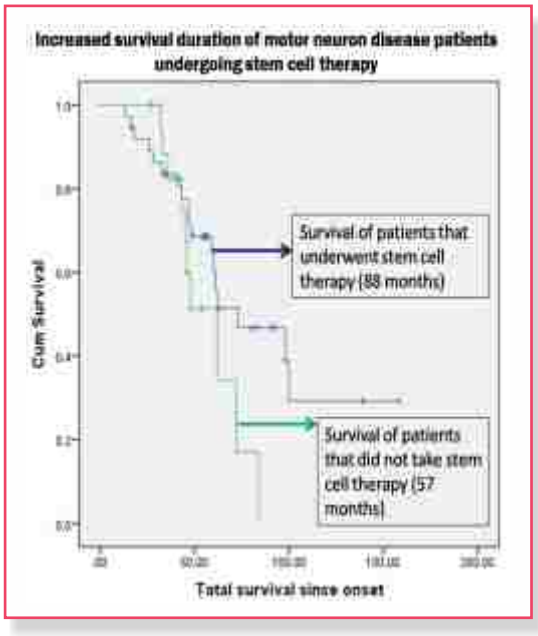
Motor Neuron Disease

About MND

A motor neuron disease (MND) is a neurological disorder that selectively affect motor neurons, the cells that control voluntary muscle activity including speaking, walking, swallowing, and general movement of the body. They are neurodegenerative in nature, and cause increasing disability and eventually, death.

Improvement after stem cell therapy

We evaluated the period of survival of the motor neuron disease patients treated with intrathecal autologous stem cell transplantation. We made a research through Kaplan-Meier survival analysis. It revealed that the chance of the survival period of the patients treated with intrathecal autologous stem cell transplantation was better compared with those patients who did not undergo stem cell therapy.



- Symptoms that improve are
  - Reduced choking
  - Improved swallowing
  - Reduced saliva drooling
  - Increase respiratory capacity
  - Better neck control
  - Better limb function
  - Improvement in the lower extremity function
  - Improved Ambulation
  - Improved Fine Motor Activities
  - Static and dynamic standing and sitting balance.

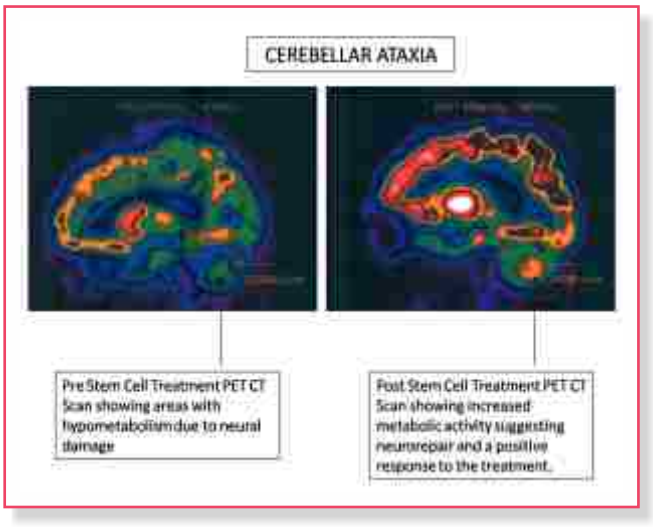
Cerebellar Ataxia

About Cerebellar Ataxia

Cerebellar Ataxia is a clinical syndrome of in-coordination caused due to lesions of cerebellum and its afferent and efferent connections. Cerebellar Ataxia is distinguished into a group of hereditary and non-hereditary disorders. Symptoms of Cerebellar Ataxia include gait/ postural abnormalities, balance issues, incoordination and involuntary movements, poor fine motor skills, visual abnormalities, increased fatigue, cognitive and mood problems, speech and swallowing difficulties. Thereby difficulties in performing daily activities like self care, locomotion, transfers.

Improvement after sct

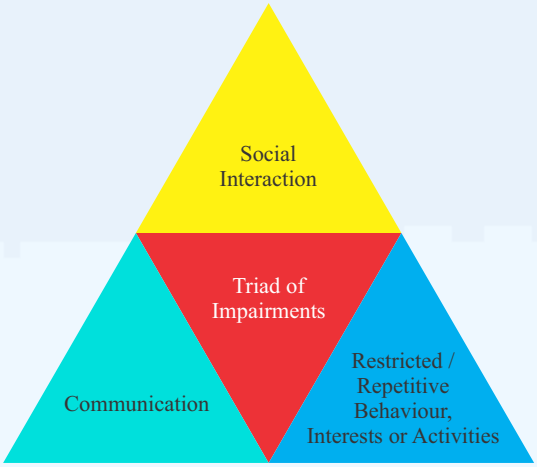
It has been observed that there is improvement in the neurological function following cell therapy. Stem cells work by enhancing angiogenesis and contributing to neovascularisation by producing signalling molecules such as vascular endothelial growth factor (VEGF) and fibroblast growth factor (FGF2). They also provide the advantage of minimizing immune reactions because cells can be derived from the respective patient. Stem cell therapy is a safe and feasible form of complimentary treatment that slows down or halts the progression of the disease. Thus in this progressively deteriorating condition Stem Cell therapy offers a new promise as an interventional modality.

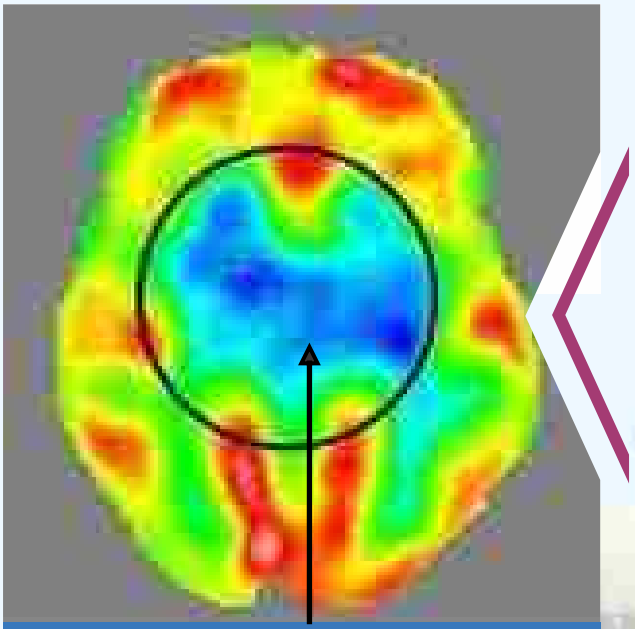


- Symptoms that improve are
  - Speech Improves
  - Sitting Balance Improves
  - Standing Balance Improves
  - Walking Improves
  - Cerebellar Signs Improves

What are the clinical symptoms of Autism?

The main problems in Autism are depicted in the triad below





PET CT scan of the brain in child with autism shows blue area that represents reduced brain activity due to the damage that occurs to the brain tissue in autism.

What is the fundamental problem resulting in Autism?

"Why did my child develop Autism?"

This is a question that parents keep asking themselves all the time. Yet this a question to which no definitive answers are given to them. Although the "why" may never be known. What is becoming clearer with ongoing research is "what" is the fundamental problem in the brains of the children with Autism. In autism, though the brain structure looks normal, there are functional abnormalities in specific brain regions like mesial temporal lobe (inner most part of the brain responsible for learning, understanding, memory, social interaction and abstract thinking), frontal lobe (the front part of the brain responsible for emotions and aggression), and cerebellum (responsible for balance, coordination, muscle tone and speech). Hence the dysfunctioning of these areas are responsible for problems seen in autism. This information, about the functioning of brain areas is obtained from PET-CT and fMRI scan of the brain. These imaging studies allow us to study the abnormal pattern of cortical activation in autism. These studies indicate that reduced blood flow to certain areas of the brain could lead to reduced functioning of those areas.

SCIENTIFIC BASIS OF ROLE OF REGENERATIVE MEDICINE?

Cellular Therapy

Regenerative medicine is the use of healthy cells to repair/regenerate/replace damaged cells.
Cellular therapy such as Stem Cell Therapy is one of the important forms of regenerative medicine.

Though we still are unclear on the causes of autism, it is understood now, that the lack of oxygen supply to the brain and immune deregulation are the two key pathologies associated with autism. This in turn could be the cause of reduced functioning in this area. This coupled with an overall imbalance in the activity of the brain, is possibly responsible for the manifestations associated with autism.

Researchers and doctors are now looking at regenerative therapy using stem cells as potential therapy for children showing symptoms of autism. Stem cells act by (a) releasing certain positive chemical called Nerve growth factors (b) improving the blood supply to the damaged areas and (c) converting into neural cells. These cells therefore have the potential to repair the affected neural tissue at the molecular, structural and functional level.

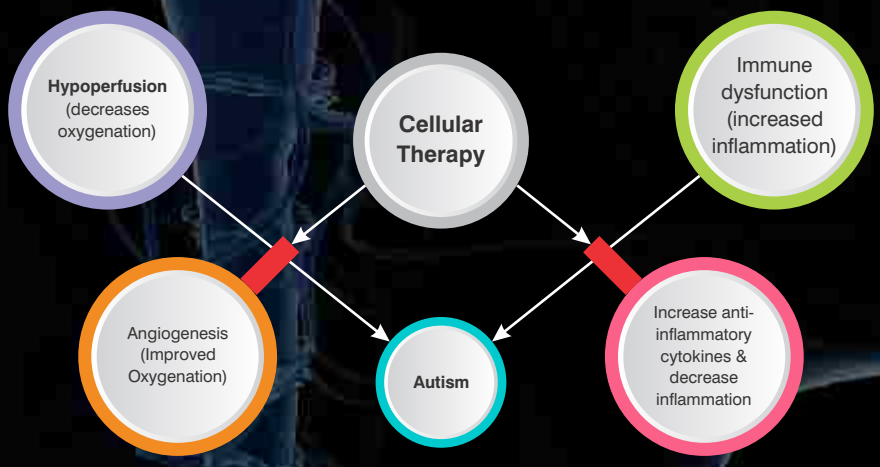
They are known to address the core neuropathology of autism with the help of their unique paracrine regulatory functions that are capable of regulating cell differentiation, tissue and organ repair, and anti-inflammatory actions in the recipient.

Stem Cells can broadly be classified into two types - Allogenic (obtained from an external source) and Autologous (obtained from patient's own body). Examples of Allogenic stem cells are embryonic and umbilical cord stem cells. Where as there are various ethical and safety issues with the use of embryonic stem cells, there are no such concerns with the use of autologous stem cells, which have a proven track record of safety. Therefore, the controversies associated with embryonic stem cells are not applicable to autologous stem cells which are safer than allogenic stem cells. (At NeuroGen BSI we only use autologous stem cells).

The treatment works by injecting the cells into the central nervous system (CNS) of the patient. Stem cell transplantation increases the blood flow to the brain areas by virtue of angiogenesis, bringing in more oxygen and energy to the oxygen deprived cells, which in turn allows the cells to regain function. Some researchers have proposed the administration of stem cells as a novel treatment for both the pathologies of autism, i.e., abnormal immune, function as well as cerebral hypoperfusion. The stem cells immuno-modulatory, paracrine, trophic and restorative effects, seen in other disorders, makes them a very logical and attractive tool for ASD also.

(* Please note that the term “regenerative medicine”, “stem cell therapy”, “cellular therapy” can be used interchangeably to denote various cell therapy interventions.)

Diagrammatic representation of how Cellular Therapy corrects the problems in Autism.



PARENTS SPEAK

"he can play short tunes on the piano and solve the rubik's cube in 20 seconds. he can solve 200 pieces of puzzles in 10 minutes!"

Marina Delle Vergini
Leo's Mom (London, UK)

Our son Leo is 12 years old boy who has Autism. He has undergone cellular therapy at Neurogen Brain and Spine Institute. With the help and constant support of real professionals he has made enormous progress in all areas. From not being able to hold a pen in his hands he can now write and read, he can solve 200 pieces of puzzles in 10 minutes. He can play short tunes on the piano and solve the Rubik's cube in 20 seconds. He wants to interact and engage with everyone constantly which was a dream for us. The Neurogen staff are highly professional, and once you're out of the hospital they will remain your life guards anytime you need them. We, Leo's parents, would strongly recommend Neurogen to anyone, who's considering cellular therapy.

"We always hoped our son Ashvik should be able to see the world as we do and should be independent. At NeuroGen Brain and Spine Institute we got this faith. We have seen many positive improvements in Ashvik after stem cell therapy and are looking forward to see more and we are very positive and confident that Ashvik will be soon independent and will grow up to be a very good human being. As we had hoped, his vision has been improving over a period of time(he has cortical blindness along with autism). Along with reduction in hyperactivity, we have noted improvements in attention span, eye contact, cognition, imitation skills, ability to interact with peer and adult. Ability to perform fine motor as well as gross motor tasks has also improved. Most importantly, behavioral issues have become less ,which has lead to fewer melt downs in the last 10 months.

We are grateful to Dr. Alok Sharma and his team for the treatment and the wonderful and memorable experience at NeuroGen Brain and Spine Institute."

Mrs Rekha Tripathi
(Ashvik's Mom)
Indianapolis, USA

Our 13yr old son, Victor had been diagnosed with Autism, for which we decided to give him Stem Cell Therapy at NeuroGen Brain & Spine Institute Mumbai last year. With all the encouragement and proper guidance tih respect to all his therapies that we received there, Victor has begun showing significant improvements. From being a very hyperactive child with marked speech delay he has started speaking a few simple words now, who is able to sit for longer periods, and is able to finish tasks given to him. He has thankfully become quite manageable now. NeuroGen is a very committed team under a very able captain Dr Alok Sharma. We love their commitment and selflessness and we as parents would definitely recommend it to other parents.

– Mr & Mrs Mathenge
(Victor's Parents
South Africa)

When Shantanu was six years old, we found out that he had 'Autism'. We were completely crushed after finding out that our son cannot learn like normal children. He underwent stem cell therapy at NeuroGen Brain and Spine Institute after which his graph progressed upward, and much beyond our expec-tations. Shantanu's hyperactivity and aggression reduced significantly. He had self injurious behavior which has stopped completely. His understanding, cognition, attention concentration has all improved tremendously. He can read and write much better now. He can converse in English, Hindi and Marathi (3 different languages). He has passed his 5th grade,8th grade and 10th grade in the last 4 years He is now pursuing higher studies. He can do all the housework like a normal individual. He takes care of his sister, goes to buy groceries and other items from shops. He is quite independent and we owe all of this to Dr. Sharma,who stepped into our lives as a savior. I would say this therapy is a boon for children with Autism and when we had lost all hope, stem cell therapy showed us light and filled our lives with happiness all over again.I would strongly recommend this treatment for all children with autism,since it is safe and effective.

– Mrs. Prachi Deo
(Shantanu's Mom)
Mumbai, India

About Muscular Dystrophy

What are the clinical symptoms of Muscular Dystrophy?

Muscular dystrophies are neuromuscular disorders of genetic origin. What this means is that these are a group of disorders that affect muscles and nerves in our body and are caused by a defect in the gene. Abnormality of different genes results in different types of muscular dystrophies.

The most characteristic symptom of muscular dystrophy is progressive weakness of muscles on the body.

Some muscular dystrophies like Duchenne muscular dystrophy (DMD), Emery-Dreifus muscular dystrophy (EDMD) and Congenital muscular dystorphy (CMD) begin early in the childhood within first 10 years and progresses rapidly. Children become wheelchair bound at an early age and the life span is also significantly reduced. Other muscular dystrophies like Limb girdle muscular dystrophy (LGMD), Becker's muscular dystrophy (BMD), Facio-scapulo humeral muscular dystrophy (FSHD) and myotonic muscular dystrophy begin later in life and progress slowly resulting in significant disability but life span can be normal.

Mostly the symptoms start with weakness of muscles in one part of the body and slowly progress to the other parts. Usually the patients have troublestanding up from the floor, standing up from the chair, climbing stairs, walking on uneven surfaces, overhead activities and easy fatigability earlier in the disease. Later in the disease the functional difficulties increase and patients become more and more dependent on care givers. In the advanced stage of the disease difficulty in breathing, various deformities due to tightness of muscles and cardiac abnormalities are observed.

What is the fundamental problem resulting in Muscular dystrophy?

The fundamental problem in muscular dystrophy is the abnormality in the genes. These genes are responsible for making proteins that form the muscle cell wall. Collectively these proteins form dystrophin glycoprotein complex (DGC).Easy breakdown of the cells leads to cell death and progressive muscle loss observed in muscular dystrophy. This protein complex is present not only in the muscles but also in nerves, Schwann cells that form the myelin cover of the nerves, kidney tissue and pancreatic tissue.Therefore, along with muscles some other tissues may also be affected.

Core reason in muscular dystrophy is genetic abnormality but it is also a disease of stem cells. Increased damage to the muscle cells leads to faster exhaustion of stem cells available in the body for repair of the muscles. Patients start showing symptoms when stem cells are exhausted and the muscle damage cannot be repaired anymore. Some of the prominent scientists have highlighted that muscular dystrophy is a stem cell disease.

Apart from the easy muscle damage and exhaustion of stem cells various other pathophysiological mechanisms are responsible for the symptoms of MD. These mechanisms are chronic inflammation, deposition of fat into muscles, excessive scarring of muscle tissue (fibrosis), impaired / affected blood supply to the muscles. There is also degeneration of the nerves and neuromuscular junctions are weaker in the muscles.

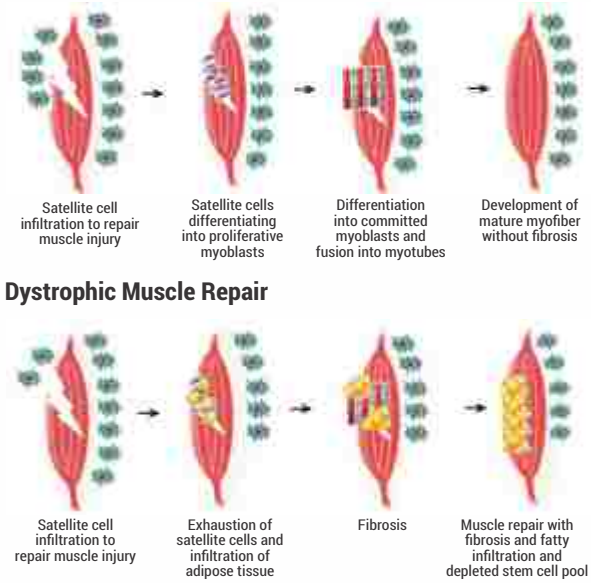


Figure 1: Exhaustion of stem cells in muscular dystrophy

Figure 2: What really happens in muscular dystrophy?

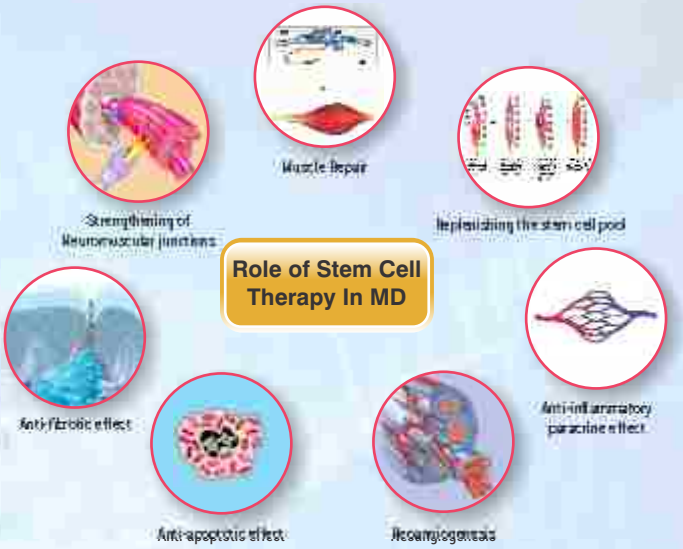


Figure 3: How do stem cells benefit in muscular dystrophy

Scientific basis of the role of regenerative medicine?

An insightful statement from former postdoctoral fellow Jason Pomerantz, MD, now an assistant professor at the University of California, San Francisco, explains the need for stem cells as a treatment for stem cell therapy.

He quotes, “If a treatment (for muscular dystrophy) does not replenish the stem cell compartment, it will be likely fail; it would be like pushing the gas pedal to the floor when there is no reserve.”

Transplanted cells have the potential to grow into muscle cells can repair and regenerate muscle fibers. Stem cell transplantation in addition replenishes the stem cell pool and prevents deficit of stem cells for repair. Transplanted cells can also stimulate the local stem cells to form more muscles cells and form more stem cells. In addition to the actual regeneration of muscle cells and replacement of resident stem cells, transplanted cells also exhibit numerous beneficial paracrine mechanisms. Paracrine mechanisms are the beneficial and protective effects of transplanted cells onto the neighboring cells.

Stem cells secrete various anti-inflammatory cytokines and various growth factors, these are chemicals that protect the muscles from damage. Vasculoendothelial growth factor is a growth factor that promotes neoangiogenesisi.e formation of new blood vessels, this is secreted by stem cells and therefore they enhance the blood supply to the muscles. Transplanted cells also alter the immune system of the body and prevent cell death. These cells prevent excessive fatty infiltration and scarring of the tissues.

Stem cell transplantation has a potential to reverse all the pathophysiological mechanisms of muscular dystrophy. Therefore stem cell transplantation can actually target the root causes of the disease and can be effective in changing the disease process.

PATIENTS & PARENT SPEAK

"My name is Rahul Deshpande. I am 29 years old. I was diagnosed with muscular dystrophy at the age of 17. No one in our family had ever heard of it. We had no history of it in our family. The doctor explained to us the progressive nature of the disease. We were shocked and a bit scared by the diagnosis. Because, living with any kind of disability, no matter how severe it is, has many challenges. You have to make so many adjustments, both physical as well as psychological. Though the doctor had told us that this condition was incurable, we tried different types of treatments. But, none of them made much difference. Then I came to know about stem cell therapy. There was a ray of hope. I underwent stem cell therapy in March 2013 for the first time and had the second shot in September 2013. After undergoing stem cell therapy, I experienced many positive changes. My standing balance improved and walking over rough surface became easier. Getting in and out of car/rickshaw also became easier. There was significant improvement in my stamina and I could perform all my daily activities with ease. In the last twenty two months I have not noticed any deterioration. I feel, looking at the nature of the disease, this is the biggest improvement. I can walk much longer distances without fatigue and this has also helped me in my day to day activities. Now I am trying to remain as active as possible. Stem cell therapy was beneficial for me and I am grateful that I came across this therapy and could slow down the worsening."

- Mr. Rahul Deshpande (Patient)

"My son Marvin is 9 year old and is suffering from Ducchene Muscular Dystrophy. As a Parent we were naturally concerned as DMD is a progressive disorder so we consulted lot of doctors and therapists only to know if there was any hope. After lot of research we found about NeuroGen and it seemed promising.Its been 1 and half years since we took stem cell therapy for our son and Marvin has shown a lot of improvements. His stamina has improved. His legs have become strong, due to which falls have stopped completely and he has started walking in normal pattern. He is able to ride his bicycle for a longer time. His handwriting and concentration also improved. And his deterioration has stopped. We are really thankful to Dr Alok Sharma, Dr Nandini and entire NeuroGen Team for their nonstop efforts to make Marvin lead a better life and we should difinitely recommend it to other parents."

- Mr. Danien Okaka (Marvin's Father)

About Muscular Dystrophy

"To all those parents of Duchene boys, I send you warm regards from India as a parent and as founder of Association of muscular dystrophy. I write this message on a special occasion as today it is the 31st birthday of my son. When he was diagnosed with DMD all the doctors had told me that he will not survive beyond early 20's but we as a family refused to believe what the doctors said. We decided to fight and in our battle against DMD, stem cell therapy done by Dr. Alok Sharma played a major role resulting in my son still being with us at the age of 31.

He was on a ventilator for many years before stem cell therapy and could not swallow on his own. After stem cell therapy he could swallow food after almost 8 years. His stamina improved and finger movements became better. He uses the computer now. To all the parents reading this summit all I can say is first don't give up on your boys and second use a combination of stem cell therapy and rehabilitation to not just give life to our boys but also to improve their quality of life. I would like to acknowledge all the doctors therapists and researchers at the neurogen brain and spine institute who are devoted to the cause of Duchene muscular dystrophy and other neurological diseases."

- Chandukant
(Father of Ankurkant)

"My son was diagnosed with muscular dystrophy in early childhood, at that time he could do everything just like any other child. Doctors said that there is no treatment of this disease. They advised us to undergo regular rehabilitative therapy so that the muscle strength can be maintained for a while longer but he was slowly becoming very weak. As the time passed some of the early symptoms we observed were difficulty in getting up from the floor. Slowly he started getting up with his hand on the knees. Then he started falling suddenly while walking and this kept progressing. We came to know about stem cell therapy through one of our family friends. Initially we were worried if there will be any side effects and what if my son becomes worse. When we met Dr. Alok Sharma he explained that it is absolutely safe and that gave us hope for the first time. After taking stem cell therapy he advised us that we should continue regular rehabilitation. 8-9 months after stem cell therapy he started walking with walker and completely stopped falling while walking. He could climb stairs even with his physio, his stamina improved, his posture is much better. His spine was bent earlier but now it is almost straight. For the first time I am confident to let my son be in the care of others while I go out of the house. Earlier I felt the need to be with him always. I am happy that my son is improving slowly. My other son was also diagnosed with DMD when he was 2 with genetic testing. He also underwent stem cell therapy and we saw that his performance in sports and other physical activities was much better. I would like to tell all the parents that stem cell therapy benefited my children a lot, but it is very important to continue rehabilitation after the treatment. I am very thankful to Dr. Alok Sharma that when there was nothing that could be done for DMD in the whole world he gave us hope."

- Mrs. Poonam Vishwakarma
Mother of Om and Rupesh)

FAQs

What examinations and investigations are to be performed before the therapy?

The patient is subjected to basic routine tests for medical fitness and some special imaging and test, based on condition / disorder.

Is the treatment painful?

The therapy is done under local anesthesia and a mild sedation. There is no significant pain or discomfort during or after the procedure.

When do I go home?

On the ninth day by evening, you would be handed overthe discharge summary along with an exercise DVD.An extended stay option for rehabilitation therapy is also available

How long will it take me to know that I have benefitted from the treatment?

Maximal improvements are seen around 3-6 months after the treatment. However, in many patients there are slow progressive improvements that continue for several months / years later. Most patients do show some immediate improvements also i.e before the discharge, in some of their symptoms.

FAQs

Does the treatment have any side effects?

Stem cell therapy is minimally invasive and reasonably safe. None of our patients have shown any neurological deterioration so far in connection with the stem cell therapy itself. Some minor side effects, such as headache (spinal headache) lasting 3-4 days which is generally self limiting, neck/back pain, vomiting, some mild rash or pain at the site of bone marrow aspiration/stem cell injection may occur. These can be managed during the stay at the hospital itself.

If I go for the treatment, are there chances of me getting in a worse condition?

No. We have not observed any neurological deterioration in any of our patients due to the stem cell therapy per se. However it is important to keep in mind that certain neurological disease, e.g. MND, has a natural course of progress, which may continue despite the stem cell therapy. Patients with pre existing medical problems such as diabetes, hypertension, cardiac, respiratory, renal or hepatic problems may have a possibility of deterioration.

Is the transplantation of the stem cells done once or more than once?

The decision to do the therapy a second time is taken after seeing the progress/ improvements after the first therapy. If the patients show some encouraging improvement, then the case is reviewed by the entire medical and rehabilitation team and a second treatment may be recommended. This may be done anytime between 3-6 months of the first therapy.

FAQs

Is any special diet required?

We have special dietitian/ nutritionist, who will help chart out a diet plan to suit the disease, the patient and the process of Neuroregeneration.

Can other treatment be taken at the same time?

We will review other medications the patient is already on. In most cases we do not discontinue any already on going treatment. However this is decided on a case by case basis. Blood thinners like aspirin, clopidrogel, warfarin, etc needs to be stopped. Please inform us about any medications you are taking beforehand.

How do I make the payment and how is it handled?

In NeuroGen, there are a number of payment options- both Visa and MasterCard are accepted. The payment can be made in all major currenciesyou can transfer the payment to our bank account or you can pay the hospital bills directly through cash.

Why should I select India over other destinations?

India is renowned for the top notch medical facilities, state of the are hospitals, world class clinical expertise. All this along with the natural warmth and hospitality of the Indian, makes the whole experience of medical treatment worth recommending again and again.

FAQs

Can I consult the doctor in India before going to the trip?

You can reach out for the doctors in India through phone, email and video conference. The consulting doctors would gladly answer all of your questions. The doctor at NeuroGen would study your questions and share their expert opinion for the treatment. You will be ensured that selecting India as your destination for your complete medical care was the best option.

After reaching India, how do I go about my trip?

Correct answer : Once you reach Mumbai, the complete responsibility of your safety and well being will be taken by us. A member of our staff will be at hand, at the airport to receive you. There after, he will be available to help you with any requirements, such as local transportation, currency exchange, local shopping, etc. Apart from that you will be accommodate along with your caretaker in the hospital itself for the duration of the treatment.

Can I bring a relative or a friend along with me and will there be an additional charge for that?

You can bring along a relative or a friend to take care of you. Accompanying persons will be offered complementary stay and food at the hospital.

Why should I choose NeuroGen BSI for Stem Cell Therapy?

We understand that traveling to another country is not easy. We therefore list the reasons that make the treatment at NeuroGen special, unique and worth making that journey.

- NeuroGen BSI is the only neurological institute / stem cell facility in the world having 68 clinical scientific publications in medical journals showing the safety and efficacy of cell therapy in incurable neurological disorders. (In fact the world's first published paper showing the clinical results of cell therapy has been published in the prestigious journal 'Stem Cell International' by NeuroGen. In addition we have published 14th books which establishes the scientific basis of our work.
- We have the experience of treating over 7000 patients of neurological disorders with cellular therapy from more then 65 countries.
- We are using autologous bone marrow derived stem cells which are the safest form of cellular therapy. We have a proven and documented track record of safety.
- Our method of obtaining the cells are minimally invasive and involves only 2 steps using needles. One is to aspirate from the bone and the other is to inject into the spinal fluid in the back. No surgery of any kind is involved.
- Statistics have shown that, after Stem cell therapy, overall 91% of patients with Autism have shown improvements in social relationships, emotional responses, speech, communication, behavior and hyperactivity. 96% of Stroke patients showed improved upper and lower limb activity, 82% of patients with Spinal Cord Injury showed better Muscle tone, trunk activity, balance and other activities of daily living. In Cerebral Palsy, 92% of treated patients showed improvement in oromoter/ speech, balance, upper limb and lower limb activity. In Muscular dystrophy, which is a progressive disease of the muscles, about 90% of the patients attain stabilization in their progression with improved function.
- We have a dedicated autism centre (Autism Child Development Centre), where a comprehensive, paediatric neurorehabilitation program is offered in combination with the cell therapy. Apart from all the conventional rehabilitation, such as occupational therapy, speech therapy, physiotherapy, counseling, etc., specialized rehabilitation such as aquatic therapy, sensory integration, neurobiofeedback, applied behaviour analysis, dance-music-art therapy, etc are also available. The senior professionals of this centre are USA qualified and have worked in the USA for many years.
- The medical, surgical and the laboratory personal looking after the cell therapy are highly qualified and trained professionals with several years of clinical and research experience in the field.
- We have various accreditations, such as ISO 9001:2015 and our stem cell laboratory is GLP and GMP certified and we having certified as best Best Medical Practice by European Medical Associations .This is an assurance of quality in the various services being offered.
- Our accommodation facilities are fully equipped and extremely comfortable. Our staff is very warm and responsive making you feel cared for in a home like environment.
- We have been awarded as best Stem Cell Therapy Centre in India by National Healthcare Excellence Awards.
- Small conveniences to make your stay pleasant, such as airport pick up and drop, free wifi, laptop, mobile phone with local sim card, laundry services and request for special meals are all arranged.

Landmark Achievements of NeuroGen's Patients

(American Patient of Cerebellar Ataxia)
wins bronze in the Special Olympics

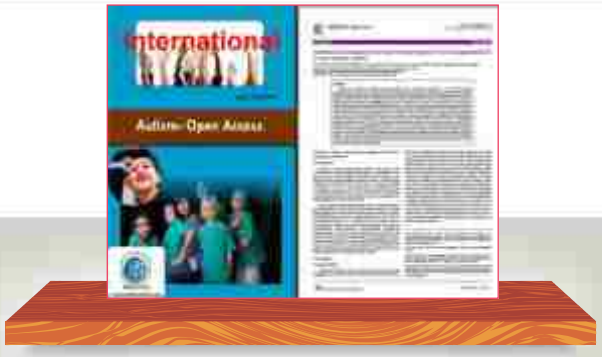
Patient of Duchenne Muscular Dystrophy
Gets invited to meet president Obama

Patient of Transverse Myeletis Wins
First Runner-up as Miss Wheelchair India 2014

Patient of Spinal Cord Injury
wins the Wheelchair Marathon

Patient of Spinal Cord Injury wins a bronze
medal in National Games for
Pistol Shooting and Shaurya Chakra (Bravery)
award by the hands of President of India

NeuroGen Publications



World's 1st Published Clinical Paper on Stem Cell Therapy in Autism

A) AUTISM:

1. Sharma A, et al., The baseline pattern and age related developmental metabolic changes in the brain of children with autism as measured on positron emission tomography/computed tomography scan. **World J Nucl Med** 2018;17
2. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Pooja Kulkarni, Sarita Kalburgi, Ridhima Sharma, Prerna Badhe, Samson Nivins. PET CT Scan Brain As A Monitoring Tool To Study The Effects Of Autologous Bone Marrow Mononuclear Cell Transplantation In Autism Spectrum Disorder. **International Journal of Current Advanced Research.** Sep 2017 (In Press).
3. Alok Sharma, Nandini Gokulchandran, Pooja Kulkarni, Sarita Kalburgi, Shruti Kamat, Riddhima Sharma, Samson Nivins, Hemangi Sane, Prerna Badhe. "Improvements in a case of autism spectrum disorder after cell therapy as noted on PET CT brain scan" **SJSC**. May 2017
4. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Pooja Kulkarni, Suhasini Pai, Vaishali Ganwir, Prerna Badhe. A case of autism showing clinical improvements after cellular therapy along with PET CT evidence. **Journal of Stem Cell Research & Therapeutics.** April 2017
5. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Prerna Badhe, Pooja Kulkarni and Suhasini Pai. Stem Cell Therapy in Autism Spectrum Disorders. Recent Advances in Autism. **SMGroup.** 2017
6. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Prerna Badhe, Avantika Patil, Pooja Kulkarni, Amruta Paranjape PET- CT scan shows decreased severity of Autism after autologous cellular therapy: A case report. **Autism Open Access** 2016; 6:169.
7. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Avantika Patil, Akshata Shetty, Hema Biju, Pooja Kulkarni, Prerna Badhe. Amelioration of Autism by Autologous Bone Marrow Mononuclear Cells and Neurorehabilitation: A Case Report. **American Journal of Medical Case Reports,** 2015, Vol. 3, No. 10, 304-309
8. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Pradnya Bhovad, Hema Biju, Akshata Shetty, Mrudula Kali and Prerna Badhe. Cell therapy effects portrayed on positron emission tomography computerized tomography scan of the brain serve as a new dimension for autism: A case report (2014), **Journal of Paediatric Neurology,** 12:3.
9. Sharma A, Gokulchandran N, Shetty A, Kulkarni P, Sane H, Badhe P. Neuropsychiatric Disorder Tackled by Innovative Cell Therapy-A Case Report in Autism. **J Stem Cell Res Transplant.** 2014;1(1): 4.
10. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Pooja Kulkarni, Nancy Thomas, Amruta Paranjape, Prerna Badhe. Intrathecal autologous bone marrow mononuclear cell transplantation in a case of adult autism. Autism open access. 2013, 3:2.
11. Alok Sharma, Nandini Gokulchandran, Akshata Shetty, Hemangi Sane, Pooja Kulkarni and Prerna Badhe. Autologous Bone Marrow Mononuclear Cells may be Explored as a Novel. Potential Therapeutic Option for Autism. **J Clin Case Rep** 2013, 3:7.
12. Alok Sharma, Nandini Gokulchandran, Prerna Badhe, Pooja Kulkarni, Priti Mishra, Akshata Shetty and Hemangi Sane. An Improved Case of Autism as Revealed by PET CT Scan in Patient Transplanted with Autologous Bone Marrow Derived Mononuclear Cells. **J Stem Cell Res Ther** 2013, 3:2.
13. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Anjana Nagrajan, Amruta Paranjape, Pooja Kulkarni, Akshata Shetty, Priti Mishra, Mrudula Kali, Hema Biju, Prerna Badhe. Autologous bone marrow mononuclear cell therapy for autism – an open label proof of concept study. **Stem cell international.** 2013 (2013), Article ID 623875, 13 pages.
14. Alok Sharma, Guneet Chopra, Nandini Gokulchandran, Mamta Lohia, Pooja Kulkarni. Autologous Bone Derived Mononuclear Transplantation in Rett Syndrome. **Asian Journal of Paediatric Practice.** 2011; 15 (1): 22-24.
15. Dr Alok Sharma , Dr Nandini Gokulchandran , Dr Hemangi Sane , Ms Pooja Kulkarni , Mr Samson Nivins , Ms Maitree Maheshwari , Dr Prerna Badhe.Therapeutic effects of cellular therapy in a case of Adult Autism Spectrum of Disorder. **International Biological and Biomedical Journal.** (In Press)

B) CEREBRAL PALSY:

16. Alok Sharma, Pooja Kulkarni, Ritu Varghese, Hemangi Sane, Sanket Inamdar, Jasbinder Kaur, Samson Nivins, Nandini Gokulchandran, Prerna Badhe. Clinical translation of the benefits of cell transplantation in a case of cerebral Palsy. **International Journal of Biological and Medical Research.** Jan 2018.
17. Alok Sharma, Nandini Gokulchandran, Prerna Badhe, Vaibhav Lakhanpal, Pooja Kulkarni, Suhasini Pai, Khushboo Bhagwanani, Amruta Paranjape and Hemangi Sane. Multidisciplinary Approach of Cellular Therapy with Neurorehabilitation in a Case of Mixed Cerebral Palsy. **World J. Biol. Med. Science** Volume 4 (3) 70-74, 2017
18. Dr. Alok Sharma, Dr. Nandini Gokulchandran, Mrs. Suhasini Pai, Ms. Pooja Kulkarni , Dr. Hemangi Sane , Dr. Khushboo Bhagwanani ,Dr. Prerna Badhe. Diplegic dystonic Cerebral Palsy treated with cellular therapy: a case report. **Journal- International Journal of Case Studies.** 2017
19. Sharma A, Sane H, Kalburgi S, Kulkarni P, Bhagwanani K, et al. Autologous Bone Marrow Mononuclear Cell Transplantation with Neurorehabilitation for Cerebral Palsy. **J Stem Trans Bio** 2017; 2(1): 110
20. Alok Sharma, Hemangi Sane, Suhasini Pai, Pooja Kulkarni, Meenakshi Raichur , Sarita Kalburgi, Sanket Inamdar, Nandini Gokulchandran, Prerna Badhe. Intrathecal administration of autologous bone marrow mononuclear cells in a case of Cerebral Palsy coexisting with autistic features". **Phys Med Rehabil Int.** 2017; 4(1): 1110.

21. Alok Sharma, Tongchao Geng, Hemangi Sane, Pooja Kulkarni. Clinical neurorestorative progresses in cerebral palsy. **Journal of Neurorestoratology** 2016:4; 1-7

22. Alok Sharma, Hemangi Sane, Pooja Kulkarni, Myola D'sa, Nandini Gokulchandran, Prerna Badhe. Improved Quality of Life in a Case of Cerebral Palsy after bone marrow mononuclear cell transplantation. **Cell J.** 2015; 17(2): 389-394.

23. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Pooja Kulkarni, Sushant Gandhi, Jyothi Sundaram, Amruta Paranjape, Akshata Shetty, Khushboo Bhagawanani, Hema Biju and Prerna Badhe. A clinical study of autologous bone marrow mononuclear cells for cerebral palsy patients: a new frontier," **Stem Cells International,** Volume 2015, Article ID 905874, 11 pages.

24. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Prerna Badhe, Pooja Kulkarni and Amruta Paranjape. Stem Cell Therapy for Cerebral Palsy – A Novel Option. Cerebral Palsy. **Challenges for the future.** 2014: 217-242.

25. Alok Sharma, Hemangi Sane, Amruta Paranjape, Nandini Gokulchandran, Pooja Kulkarni and Anjana Nagrajan, Prerna Badhe. Positron Emission Tomography – Computer Tomography scan used as a monitoring tool following cellular therapy in Cerebral Palsy and Mental Retardation – A Case Report. **Case Reports in Neurological Medicine.** Volume 2013, Article ID 141983, 6 pages.

26. Dr. Alok Sharma, Ms. Pooja Kulkarni, Dr. Hemangi Sane, Dr. Nandini Gokulchandran, Dr. Prerna Badhe, Dr. Mamta Lohia, Dr. Priti Mishra. Positron Emission Tomography- Computed Tomography scan captures the effects of cellular therapy in a case of cerebral palsy. Journal of clinical case reports. 2012 **J Clin Case Rep** 2:195.

27. Alok Sharma, Hemani Sane, Pooja Kulkarni,Dhanashree Sawant,Khushboo Bhagwanani,Nandini Gokulchandran,Prerna Bhade,Samson Nivins. 18 FDG PET CT scan maps the effect of intrathecal transplantation of autologous bone marrow mononuclear cells (BMMNCs) in cerebral palsy. **Indian journal of Stem Cell Therapy;** 2018; Vol 3(1): 71-78.

C) MUSCULAR DYSTROPHY:

28. Alok Sharma; Hemangi Sane; Ritu Varghese; Amruta Paranjape; Samson Nivins; Sanket Inamdar;Nandini Gokulchandran; Prerna Badhe.Potential benefits of serial cell transplantation in a case of Duchenne Muscular Dystrophy. **Open Journal of Clinical and Medical Case Report,** Vol.4, Issue 4, 2018.

29. Alok Sharma, Nandini Gokulchandran, Amruta Paranjape, Hemangi Sane, Dr. Prerna Badhe. Stem cells as a therapeutic modality in Muscular Dystrophy. Chapter 2. Muscular Dystrophy. **Avid Sciences.** India. 2017

30. Alok Sharma, Amruta Paranjape, Hemangi Sane, Nandini Gokulchandran, Dhanashree Sawant, Shruti Shirke, Vivek Nair, Sanket Inamdar, Prerna Badhe. Effect of Cellular Therapy in a case of Limb Girdle Muscular Dystrophy. **International Journal Of Current Medical And Pharmaceutical Research,** Vol. 3, Issue, 09, pp.2377-2381, September, 2017

31. Alok S, Amruta P, Ritu V, Hemangi S, Nandini G, et al. Functional Improvements and Musculoskeletal Magnetic Resonance Imaging with Spectroscopy Changes following Cell Therapy in a Case of Limb Girdle Muscular Dystrophy. **Int J cell Sci & mol biol.** 2017; 2(4) : 555595.

32. Alok Sharma, Hemangi Sane, Vaibhav Lakhanpal, Amruta Paranjape, Pooja Kulkarni, Nandini Gokulchandran, Prerna Badhe. Stabilization of the disease progression in a case of Duchenne Muscular Dystrophy with cellular transplantation. **Stem cell: Advanced research and therapy.** 2017; 2017(3)

33. Alok Sharma , Dr. Prerna Badhe, Hemangi Sane, Suhasini Pai , Pooja Kulkarni, Khushboo Bhagwanani, Dr. Nandini Gokulchandran. Halting of functional decline in a case of Duchenne Muscular Dystrophy after cellular therapy. **International Journal of Recent Advances in Multidisciplinary Research (IJRAMR),** 2017 Jan

34. Sharma, A., Badhe, P., Sane, H., Gokulchandran, N., & Paranjape, A. Role of Stem Cell Therapy in Treatment of Muscular Dystrophy. Muscular dystrophy. **SMGebooks.** July 2016. Dover, USA.

35. Alok Sharma, Hemangi Sane, Jasbinder Kaur, Nandini Gokulchandran, Amruta Paranjape, Jayanti Yadav, Prerna Badhe Autologous Bone Marrow Mononuclear Cell Transplantation Improves Function in a Case of Becker's Muscular Dystrophy. **American Based Research Journal.** 2016; 5 (2)

36. Sharma A, Sane H, Gokulchandran N, Sharan, R., Paranjape, A., Kulkarni, P., Yadav J, Badhe, P. Effect of Cellular Therapy in Progression of Becker's Muscular Dystrophy: A Case Study. **European Journal of Translational Myology.** 2016;26(1):5522.

37. Sharma Alok, Sane Hemangi, Kulkarni Pooja, Mehta Dhara, Kaur Jasbinder, Gokulchandran Nandini, Bhagwanani Khushboo, Badhe Prerna. Effect Of Autologous Bone Marrow Mononuclear Cell Transplantation Coupled With Rehabilitation In Limb Girdle Muscular Dystrophy – A Case Report. **Int J Med Res Health Sci.** 2016, 5(12):1-7

38. Sharma A, Sane H, Gokulchandran N, Gandhi S, Bhovad P, Khopkar D, Paranjape A, Bhagwanani K, Badhe P. The role of cell therapy in modifying the course of limb girdle muscular dystrophy- A Longitudinal 5-year study. **Degenerative Neurological and Neuromuscular Disease** 2015:5 93–102

39. Alok Sharma, Hemangi Sane, Amruta Paranjape, Khushboo Bhagwanani, Nandini Gokulchandran, Prerna Badhe.Autologous bone marrow mononuclear cell transplantation in Duchenne muscular dystrophy – a case report. **American journal of case reports** 2014;15: 128-134.

40. Alok Sharma, Hemangi Sane, Prerna Badhe, Nandini Gokulchandran, Pooja Kulkarni, Mamta Lohiya, Hema Biju, V.C.Jacob. A Clinical Study Shows Safety and Efficacy of Autologous Bone Marrow Mononuclear Cell Therapy to Improve Quality Of Life in Muscular Dystrophy Patients. **Cell Transplantation.** 2013 Vol. 22, Supplement 1, pp. S127–S138.

41. Sharma A., Sane, H., Paranjape, A., Badhe, P., Gokulchandran, N., & Jacob, V. (2013). Effect of Cellular Therapy seen on Musculoskeletal Magnetic Resonance Imaging in a Case of Becker's Muscular Dystrophy. **Journal of Case Reports,** 3(2), 440-447.

42. Sharma, Alok et al. "Cellular Transplantation Alters the Disease Progression in Becker's Muscular Dystrophy." **Case Reports in Transplantation** 2013 (2013): 909328.

43. Dr. Suvarna Badhe, Ms. Pooja Kulkarni, Dr Guneet Chopra, Dr Nandini Gokulchandran, Dr Alok Sharma Dystrophin Deletion mutation pattern and Cardiac involvement in 46 cases of Dystrophinopathies. Asian journal of clinical cardiology. **Asian Journal of Clinical Cardiology,** Vol. 15, No. 6, October 2012: 211-214.

44. Dr. A. Sharma, Ms. P. Kulkarni, Dr. G. Chopra, Dr. N. Gokulchandran, Dr. M. Lohia, Dr. P. Badhe. Autologous Bone Marrow Derived Mononuclear Cell Transplantation In Duchenne Muscular Dystrophy-A Case Report. **Indian journal of Clinical Practice** 2012; 23 (3): 169-72.

45. Nandini Gokulchandran, Alok Sharma, Hemangi Sane, Amruta Paranjape,Ritu Varghese, Prerna Bhade. Autologous Bone Marrow Derived Mononuclear Cell Therapy in Muscular Dystrophy: A Review. **Indian journal of Stem Cell Therapy;** 2018; Vol 3(1): 40-55

D) SPINAL CORD INJURY:

46. Alok S, Prerna B, Suhasini, Hemangi S, Samson N, Pooja K, Amruta P, Dhara M, Nandini G.Functional Recovery and Functional Magnetic Resonance Imaging changes Following Cellular Therapy in a Case of Chronic Complete Spinal Cord Injury. **Curr Trends Clin Med Imaging.** 2017; 1(4): 555566.

47. Alok Sharma, Hemangi Sane, Suhasini Pai, Pooja Kulkarni, Amruta Paranjape, V C Jacob, Joji Joseph, Sanket Inamdar, Sarita Kalburgi, Nandini Gokulchandran, Prerna Badhe, Samson Nivins. Functional and symptomatic improvement after cellular therapy in a pediatric case of chronic traumatic incomplete SCI. **J Stem Cell Regen Biol** 2017; 3(1): 1-7.

48. Alok Sharma, Hemangi Sane, Dipti Khopkar, Nandini Gokulchandran,Varghese Chako Jacob, Joji Joseph, Prerna Badhe. Functional recovery in chronic stage of spinal cord injury by Neurorestorative Approach. **Case Reports in Surgery 2014** Volume 2014, pages 1-4

49. Alok Sharma, Hemangi Sane, Dipti Khopkar, Nandini Gokulchandran, Hema Biju, V C Jacob, Prerna Badhe. Cellular therapy targeting Functional outcome in a case of Cervical Spinal Cord Injury. **Advances in Stem Cells** 2014 (2014)

50. Sharma A, Sane H, Gokulchandran N, Kulkarni P, Thomas N, et al. (2013) Role of Autologous Bone Marrow Mononuclear Cells in Chronic Cervical Spinal Cord Injury-A Longterm Follow Up Study. **J Neurol Disord** 1: 138.

51. Sharma A, Gokulchandran N, Sane H, Badhe P, Kulkarni P, Lohia M, Nagrajan A, Thomas N. Detailed analysis of the clinical effects of cell therapy for thoracolumbar spinal cord injury: an original study. **Journal of Neurorestoratology.** 2013; 1:13-22.

52. Alok Sharma, Prerna Badhe, Pooja Kulkarni, Nandini Gokulchandran, Guneet Chopra, Mamta Lohia, V.C.Jacob. Autologous Bone Marrow Derived mononuclear cells for the treatment of Spinal Cord Injury. **The Journal of Orthopaedics.** 2011; 1(1): 33-36.

E) STROKE:

53. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Pooja Kulkarni, Rishabh Sharan, Amruta Paranjape, Prerna Badhe Effect of Cellular Therapy Monitored on Positron Emission Tomography - Computer Tomography Scan in Chronic Hemorrhagic Stroke: A Case Report. **Archiv Neurol Neurosurgery,** 2016 Volume 1(1): 22-25

54. Alok Sharma, Hemangi Sane , Amruta Paranjape, Nandini Gokulchandran , Sushant Gandhi, Prerna Badhe. Benefits of Autologous Bone Marrow Mononuclear Cell Transplantation in Chronic Ischemic Pontine Infarct. **Journal Of Case Reports** 2016;6(1):80-85

55. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Dipti Khopkar, Amruta Paranjape, Jyothi Sundaram, Sushant Gandhi, and Prerna Badhe. Autologous Bone Marrow Mononuclear Cells Intrathecal Transplantation in Chronic Stroke **Stroke Research and Treatment,** Volume 2014, pages 1-9.

56. Alok Sharma, Hemangi Sane, Anjana Nagrajan, et al., "Autologous Bone Marrow Mononuclear Cells in Ischemic Cerebrovascular Accident Paves Way for Neurorestoration: A Case Report," **Case Reports in Medicine,** vol. 2014, Article ID 530239, 5 pages, 2014. doi:10.1155/2014/530239.

57. Dr. Alok Sharma, Dr. Hemangi Sane, Dr. Prerna Badhe, Ms. Pooja Kulkarni, Dr. Guneet Chopra, Dr. Mamta Lohia, Dr. Nandini Gokulchandran. Autologous Bone Marrow Stem Cell Therapy shows functional improvement in hemorrhagic stroke- a case study. **Indian Journal of Clinical Practice,** 2012:23(2):100-105.

E) ALS/MND:

58. Alok Sharma, Hemangi Sane, Sarita Kaliburgi, Amruta Paranjape, Nandini gokulchandran, Prerna Badhe,"Potential Benefits of Cellular Transplantation in a Patient with Amyotrophic Lateral Sclerosis". **Current Opinions in Neurological Science** 1.2 (2017): 31-43

59. Sharma A, Sane H, Sawant D, Paranjape A, Inamdar S, Kaur J, Gokulchandran N, Badhe P. Cellular Therapy in Amyotrophic Lateral Sclerosis: A Case Report; **International Journal of Recent Advances in Multidisciplinary Research.** 2017;1(4):2605-2609

60 Hemangi Sane, Alok Sharma, Nandini Gokulchandran, Sarita Kalburgi, Amruta Paranjape, Prerna Badhe Neurorestoration in Amyotrophic Lateral Sclerosis - A case report. **Indian Journal of Stem Cell therapy.** 2016; 2(1):29-37

61. Alok K Sharma , Hemangi M Sane , Amruta A Paranjape , Nandini Gokulchandran , Anjana Nagrajan , Myola D'sa , Prerna B Badhe. The effect of autologous bone marrow mononuclear cell transplantation on the survival duration in Amyotrophic Lateral Sclerosis - a retrospective controlled study. **Am J Stem Cells** 2015;4(1).

62. Alok Sharma, Prerna Badhe, Omshree Shetty, Pooja Vijaygopal, Nandini Gokulchandran, V.C. Jacob, Mamta Lohia, Hema Biju, Guneet Chopra. Autologous bone marrow derived stem cells for motor neuron disease with anterior horn cell involvement. **Bombay hospital journal.** 2011; 53(1): 71- 75.

E) INTELLECTUAL DISABILITY:

63. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Suhasini Pai, Pooja Kulkarni, Vaishali Ganwir, Maitree Maheshwari, Ridhima Sharma, Meenakshi Raichur, Samson Nivins, MS; Prerna Badhe. An open label proof of concept study of intrathecal Autologous Bone Marrow Mononuclear Cells transplantation in Intellectual Disability. **Stem cell research and therapy.** 2017

64. Sharma A, Gokulchandran N, Sane H, Pai S, Kulkarni P, et al. Cognitive Changes after Cellular Therapy in a Case of Intellectual Disability. **J Transplant Stem Cel Biol.** 2017;4(1): 4.

65. Sharma A, Sane H, Pooja K, Akshya N, Nandini G, Akshata S. (2015) Cellular Therapy, a Novel Treatment Option for Intellectual Disability: A Case Report. **J Clin Case Rep** 5:483. doi: 10.4172/2165- 7920.1000483.

E) MISCELLANEOUS:

66. Efficacy of Autologous Bone Marrow Derived Mononuclear Cells in the treatment of neurodeficits in Down's Syndrome: A case report. **British Journal of BioMedical Research.** 2018. (In Press)

67. Alok Sharma, Nandini Gokulchandran,Hemangi Sane,Suhasini Pai , Pooja Kulkarni, Khushboo Bhagwanani, Nayana Shet, Mr. Samson Nivins, Prerna Badhe. Functional improvements monitored by Positron Emission Tomography imaging after cell transplantations in severe chronic Traumatic Brain Injury. **International Journal of Surgery and Medicine.** March 2018

68. Dr. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Prerna Badhe, Mrs. Suhasini Pai, Pooja Kulkarni, Jayanti Yadav, Sanket Inamdar. Cellular Therapy for Chronic Traumatic Brachial Plexus Injury-A case report. **Advanced Biomedical Research journal.** 2018;7:51

69. Alok Sharma, Hemangi Sane, Nandini Gokulchandran, Prerna Badhe, Pooja Kulkarni, Suhasini Pai, Ritu Varghese, Amruta Paranjape. Stem cell therapy in pediatric neurological disabilities In Physical disabilities. **Intech** 2017

70. Alok Sharma, Hemangi Sane , Sarita Kalburgi , Pooja Kulkarni , Sanket Inamdar, Khushboo Bhagwanani ,Nandini Gokulchandran , Prerna Badhe. Autologous Bone Marrow Mononuclear Cell Transplantation for Multiple System Atrophy type C- A Case Report. **American Based Research Journal.** 2016.

71. Alok Sharma Hemangi Sane Pooja Kulkarni Nandini Gokulchandran Dhanashree Sawant Samson Nivins Prerna Badhe. Effect of Cell Transplantation in a Chronic Case of Traumatic Brain Injury. **Transplantation Open.** 2016 Volume 1(1): 22-25

72. Alok Sharma, Ziad M Al Zoubi. Rethinking on ethics and regulations in cell therapy as part of neurorestoratology. **Journal of Neurorestoratology** 2016:4 1–14

73. Alok Sharma, Hemangi Sane, Pooja Kulkarni, Nandini Gokulchandran, Prerna Badhe Cellular therapy in Neurodevelopmental disorders. **Indian Journal of Stem Cell therapy.** 2016; 2(1):64-73

74. Alok Sharma, Nandini Gokulchandran, Hemangi Sane, Prerna Badhe, Amruta Paranjape. Current global trends in regulations for stem cell therapy and the way ahead for India. **Indian Journal of Stem Cell therapy.** 2016; 2(1):5-16

75. Nandini Gokulchandran, Alok Sharma , Hemangi Sane , Prerna Badhe , Pooja Kulkarni. Stem Cell Therapy as a Treatment Modality for Neurotrauma. **Indian Journal of Stem Cell therapy.** 2015; 1(1):21-26.

76. Dr. Alok K. Sharma, Dr. Hemangi Sane , Dr. Nandini Gokulchandran , Dr. Amruta Paranjape , Ms. Pooja Kulkarni , Dr. Prerna Badhe. The need to review the existing guidelines and proposed regulations for stem cell therapy in India based on published scientific facts, patient requirements, national priorities and global trends. **Indian Journal of Stem Cell therapy.** 2015; 1(1):7-20.

77. Alok Sharma, Prerna Badhe, Nandini Gokulchandran, Pooja Kulkarni, Hemangi Sane, Mamta Lohia, Vineet Avhad. Autologous bone marrow derived mononuclear cell therapy for vascular dementia - Case report. Journal of stem cell research and therapy. **J Stem Cell Res Ther** 2:129.

78. Alok Sharma, Hemangi Sane, Pooja Kulkarni, Jayanti Yadav, Nandini Gokulchandran, Hema Biju, Prerna Badhe. Cell therapy attempted as a novel approach for chronic traumatic brain injury - a pilot study. **SpringerPlus** (2015) 4:26.

79. Sharma A, Sane H, Paranjape A, Gokulchandran N, Takle M, et al. (2014) Seizures as an Adverse Event of Cellular Therapy in Pediatric Neurological Disorders and its Prevention. **J Neurol Disord** 2:164.

80. Alok Sharma, Hemangi Sane, Amruta Paranjape, Nandini Gokulchandran, Hema Biju, Myola D'sa, Prerna Badhe. Cellular Transplantation May Modulate Disease Progression In Spino-Cerebellar Ataxia – A Case Report. **Indian Journal Of Medical Research And Pharmaceutical Sciences.** August 2014; 1(3).

81. Alok Sharma, Nandini Gokulchandran, Guneet Chopra, Pooja Kulkarni, Mamta Lohia, Prerna Badhe, V.C. Jacob. Administration of autologous bone marrow derived mononuclear cells in children with incurable neurological disorders and injury is safe and improves their quality of life. **Cell Transplantation,** 2012; 21 Supp 1: S1 – S12.

82. A. Sharma, P. Badhe, N. Gokulchandran, P. Kulkarni, V.C Jacob, M. Lohia, J. George Joseph, H. Biju, G. Chopra. Administration of Autologous bone marrow stem cells intrathecally in Multiple Sclerosis patients is safe and improves their quality of life. **Indian Journal of clinical Practice.** 2011:21(11):622-625.

83. Sharma A, Gokulchandran N, Kulkarni P, Chopra G. Application of autologous bone marrow stem cells in giant axonal neuropathy. **Indian J Med Sci** 2010;64:41-4.

84. A Sharma, P Kulkarni, N Gokulchandran, P Badhe, VC Jacob, M Lohia, J George Joseph, H Biju, G Chopra. Adult Stem Cells for Spinal Muscular Atrophy. **Bangladesh Journal Of Neuroscience.** 2009; 25(2): 104- 107.

85. Alok sharma, Hemangi Sane, Nandini Gokulchandran, Amruta Paranjape, Pooja Kulkarni, Prerna Badhe. Recent development in ethical understanding and regulations for clinical application of stem cells. **Indian journal of Stem Cell Therapy;** 2018; Vol 3(1): 5-20.

86. Samson Nivins, Pooja Kulkarni, Suvarna Badhe, Hemangi Sane, Nandini Gokulchandran, Alok Sharma.Disease progression in early onset Alzheimer's Dementia over a period of 1 year using 18F-FDG-PET – A Case based approach. **EC Neurology** (In press).

International Book Chapter

Chapter on “Stem Cell Therapy for Cerebral Palsy” written from NeuroGen, published in an international book - “Cerebral Palsy Challenges for the Future” (Publisher - Intech)

Chapter 7

Stem Cell Therapy for Cerebral Palsy – A Novel Option

Alok Sharma, Hemangi Sane,
Nandini Gokulchandran, Prerna Badhe,
Pooja Kulkarni and Amruta Paranjape

Additional information is available at the end of the chapter

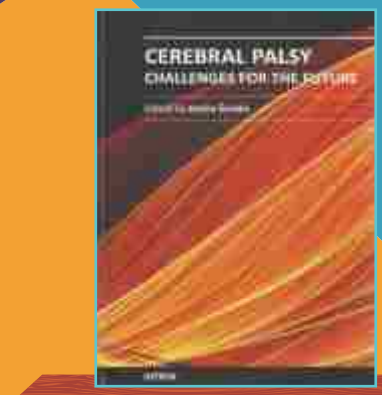
http://dx.doi.org/10.5772/57152

1. Introduction

Discovery of stem cells by James Till and Ernest McCulloch in 1961, stands as one of the most remarkable medical-research achievements of the 20th century. This discovery provided a foundation for further breakthroughs in the field of stem cells. Sir Martin J. Evans along with Mario R. Capecchi, and Oliver Smithies were jointly awarded a Nobel Prize in 2007 for their contribution in introducing specific gene modifications in mice by the use of embryonic stem cells. Later in 2012, John B. Gurdon and Shinya Yamanaka were also jointly awarded a Nobel Prize for discovering that mature cells can be reprogrammed to become pluripotent cells. [1]

Ramon y Cajal in 1926 stated "Once the development was ended, the fronts of growth and regeneration of the axons and dendrites dried up irrevocably. In the adult centers, the nerve paths are something fixed, ended, and immutable. Everything may die, nothing may be regenerated. It is for the science of the future to change, if possible, this harsh decree." [2]. It was a long-standing belief that cells of the central nervous system once damaged cannot be regenerated. The medical science of stem cells has finally made restoration of CNS possible which has changed the old concept of medicine. Not too long ago, this therapy was hamstrung by various controversies, ethical and moral issues. But, tremendous progress of research in this field has finally led to its translation from laboratory to innovative cellular therapies.

A variety of cells including embryonic stem cells, adult stem cells, umbilical cord blood cells and induced pluripotent stem cells have been explored as a therapeutic alternative for treating a broad spectrum of neurologic disorders including stroke, Alzheimer's, Parkinson's, spinal cord injury, cerebral palsy etc. amongst others. It is essential to select suitable cells depending on the nature and status of neurological dysfunctions to achieve optimal therapeutic efficacy. Along with the selection of cells, the route of administration also plays an important role to

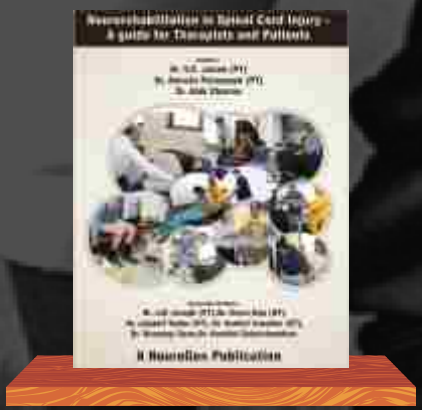


Cerebral Palsy Challenges for the Future

NeuroGen Brain and Spine Institute - StemAsia Hospital and Research Centre,
Plot No. 19, Sector 40, Next to Seawoods Grand Central Station (W), Off. Palm Beach Road,
Navi Mumbai - 400 706, India. Mob.: +91-9920200400 Website : neurogenbsi.com

A Foreword by Hrithik Roshan

A FOREWORD BY HRITHIK ROSHAN FOR "NEUROREHABILITATION IN SPINAL CORD INJURY - A GUIDEBOOK FOR THERAPISTS AND PATIENTS" A NEUROGEN PUBLICATION



To the therapists looking after patients of spinal cord injury and the patients themselves:-

Writing a foreword for this book takes me back in time when I was preparing for my role in Guzaarish. In the movie, I portrayed a man with quadriplegia and his fight to earn his own death. Euthanasia, the subject of the movie was grave and it portrayed one of the grim fates of people who suffer from quadriplegia. It took me a while to understand, comprehend and most importantly accept the way of living of a quadriplegic.

I met a lot of quadriplegic people in the process and I felt that death is not the solution. One of them was John- a wheelchair bound quadriplegic, who had a road accident. The hopelessness that I had portrayed in the movie was whisked away by real life experiences with John. John in the coming time underwent stem cell transplantation and rigorous rehabilitation at NeuroGen Brain and Spine Institute and looking at the way he improved I felt that there is hope for patients with spinal cord injury. I also understood the importance of rehabilitation in the lives of quadriplegics and paraplegics. Rehabilitation is a tool that can help them maximize their potential and far beyond that.

This book is unique and special in its pictorial depiction of step wise rehabilitation for the patients with spinal cord injury. It will help numerous patients who have lost all hopes of living an independent life. There was much need for a guidebook for patients suffering from spinal cord injury and I am happy that such initiative has been taken.

Unlike the hopelessness and helplessness that I felt while I was portraying 'Ethan Mascarenhas' in reality the quadriplegics live with a great dignity and unyielding spirit. If this book had been available before I played the role of 'Ethan' it would have been a great help to me.

I thank the authors for putting together this much needed book as well as for asking me to write this introduction. My best wishes are with all the therapists and patients who read this book. I want all the therapists to know that your hard work helps makes a big difference to the lives of Spinal cord injury patients and I wish to tell all the patients who read this book to not give up on themselves since as long as there is life there is always hope.

Hrithik Roshan

A Foreword by Priyanka Chopra

A foreword by

Priyanka Chopra

for the "Parent and Teacher Guide Book for Autism" 2nd Edition - A NeuroGen Publication

Priyanka portrayed the endearing character of ***Jhilmil Chatterjee,*** who has autism, in the movie "Barfi".

Priyanka Chopra

Date: 24th January, 2013.

To,
The parents & Teacher of Children with Autism.

Recently I played the character of Jhilmil who was a character that suffered from autism. When we were researching what we wanted Jhilmil to be and how she would be, she turned into that person by meeting and speaking to a lot of people. That is how she emerged. There is no real reference point to how Jhilmil was. We have not derived her from any reference of any character.

Because autism's range and the range of symptoms are so huge, it can be anything. That is what exactly she is. She has an incredible childlike innocent quality to her.

Did you know that a child with high functioning autism may have a normal or high I.Q., be able to attend a regular school and hold a job later in life. However, this person may have difficulty expressing himself and may not know how to mix with other people.

Children with autism are creators, they live in their own world which is very different from ours, yet they seem so self sufficient whereas we struggle to grapple with our own surroundings. This is what interested me and got me to read and learn more about them.

This book is a step in that direction. We as parents need to understand what our child is going through and help nurture his interest by trying to understand their worlds. Its an effort to bridge the gap by helping us decipher them and help them to become a part of our society. A guidebook like this is invaluable for all the people and especially parents who deal with autism on a regular basis. I only wish that had such a book been available earlier, Jhilmil would have been understood a whole lot better.

Priyanka Chopra

403, Karan Apts., Behind Green Acres, Lokhandwala Complex, Andheri (W), Mumbai - 400 053.

A Foreword by Shri. Narendra Modi

સંદેશ

For the **"Patient & Parent Guide Book for Muscular Dystrophy"** (Gujarati Edition) - A NeuroGen Publication

This is a translations of the Gujarati foreword given by Mr. Narendra Modi

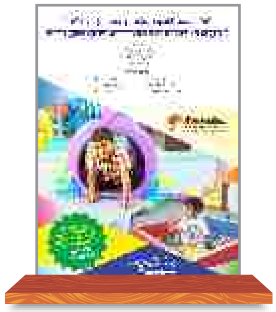
Date : 26-02-2013

One of the most valuable gifts that nature can bestow on a woman is the gift of a child. A new born child brings immeasurable happiness to a parent but when the child suffers from an incurable disease at birth this happens quickly turns into a nightmare. Today in the fast paced, ever evolving field of medicine it has become possible to treat such incurable diseases. Science & research has made it possible to develop test-tube babies and this proves that the possibilities are endless.

One of the most challenging task is to take care of the children suffering from such diseases and catering to their special needs. Muscular Dystrophy is one such disease that challenges the patience of the parents, treating doctors and the therapists and often keeps it on the edge. In such a situation a Guidebook on care for such patients in Gujarati proves to be an invaluable resource.

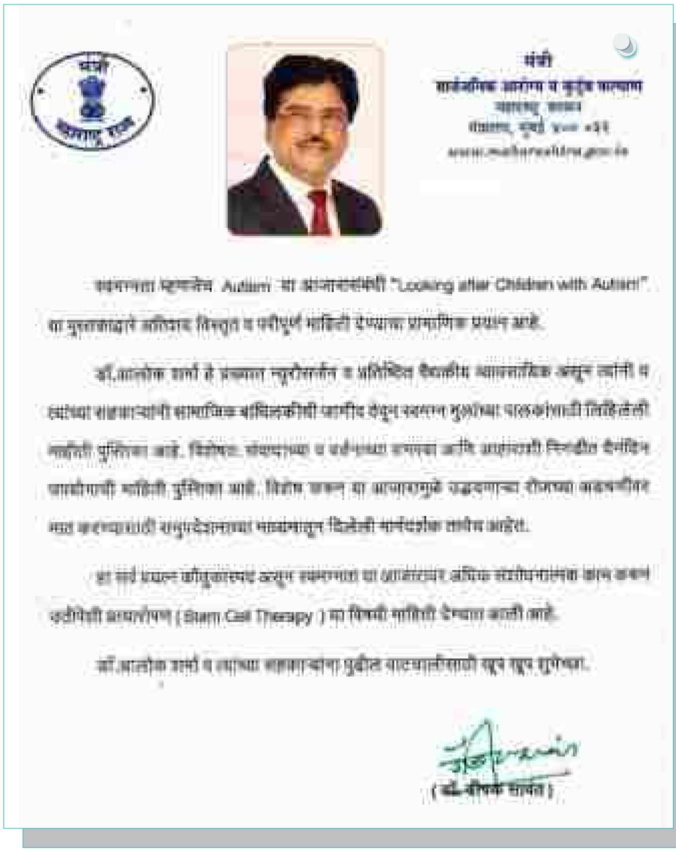
Dr Alok Sharma and his team have done a commendable job in the development of this book in English. Mrs Vibhuti Bhatt has translated this book in Gujarati keeping in mind the plight of the people of Gujarat suffering from such incurable diseases and this is an even more praise worthy endeavor. This book plays a vital role in reaching out to the common man by presenting concepts in a simple and easy to understand language. My best wishes that this book serves as a focal point for all the people associated in the treatment of Muscular Disease facilitates their work.

(Narendra Modi)



For the **"Looking After Children with Autism - A Handbook"** (Marathi Edition)

A Foreword by Dr. Deepak Sawant



Minister of Public Health and Family Welfare
Government of Maharashtra
Mantralaya, Mumbai 400032
www.maharashtra.gov.in

"Looking after Children with Autism" is a book which has made an honest attempt to comprehensively and holistically give information about autism.

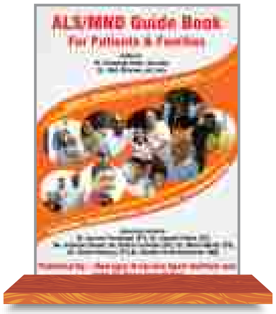
Dr. Alok Sharma a renowned neurosurgeon and eminent medical professional, along with his colleagues, has written this informative book for the parents of children with autism, out of their unconditional affection for them.

This book specifically, covers information regarding speech, communication, behavioral issues and nutrition for children with autism. More importantly it covers inputs for handling the daily challenges faced by the parents of an autistic child.

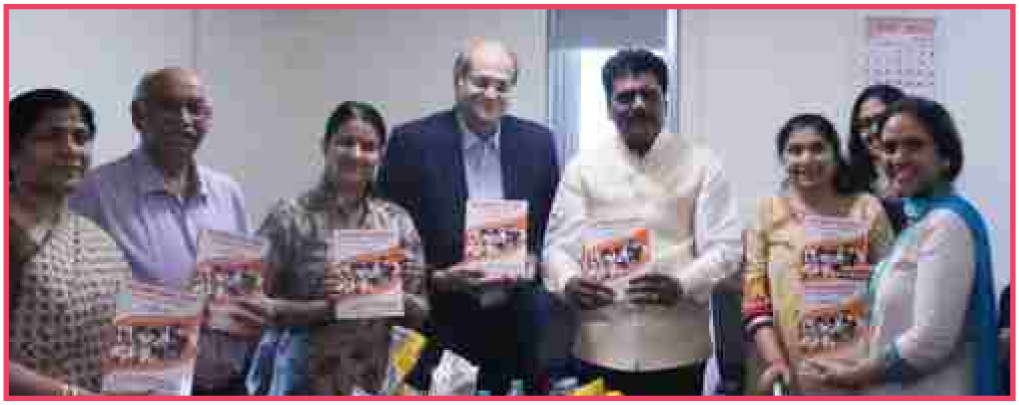
This attempt is indeed appreciable. Worth acknowledging, is their research on "Stem cell therapy for autism", about which they have given more information in this handbook.

I would like to extend my best wishes to Dr. Alok Sharma and his team for their future journey.

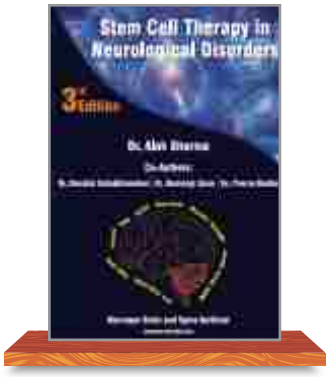
(Dr Deepak Sawant)



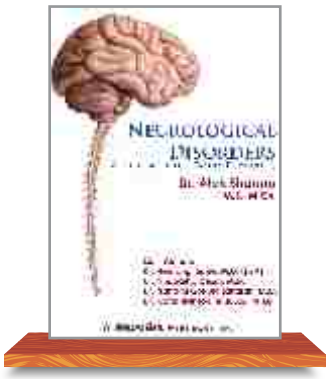
For the **"ALS/MND Guide Book For Patients & Families"**



Book Written By Neurogen Team Inaugurated By Various Eminent National & International Personalities



Dr Wise Young (America), Dr Hongyun Huang (China) Dr Ziad Al Zoubi (Jordan), world leaders in Neurorestoratology releasing NeuroGen's Book on Stem Cell Therapy at the 7th Annual Conference of International Associationof Neurorestoratology



Senior Office Bearers of the Indian Medical Association releasing NeuroGen's Books for general practitioners on neurological disorders at the 44th Annual Conference Indian Medical Association

NeuroGen's Book on Autism "Parent & Teacher's guidebook for Autism, 2nd Edition" being released at the 'International Conference on Autism Cerebral Palsy and Neurological Disorders' by **Andaline Thysse from South Africa** and parents of children with autism.

Book Written By Neurogen Team Inaugurated By Various Eminent National & International Personalities

Hon'ble Shri. Rajkumar Badole Cabinet Minister for Social Justice Special Assistance, Maharashtra State releasing NeuroGen's Book "Multidisciplinary Management of Physical & Cognitive Disability in Children"

Mr Ganesh Naik (Minister in the Maharashtra Government) releasing NeuroGen's Book "Looking after children with Autism" - A Handbook, on the occasion of World Autism Day.

Dr. Wise Young (America) releasing NeuroGen's Book "Neurorehabilitation in Spinal Cord Injury - A Guidebook for Therapist and Patient"

NeuroGen Publications being Released By Various Eminent National & International Dignitaries

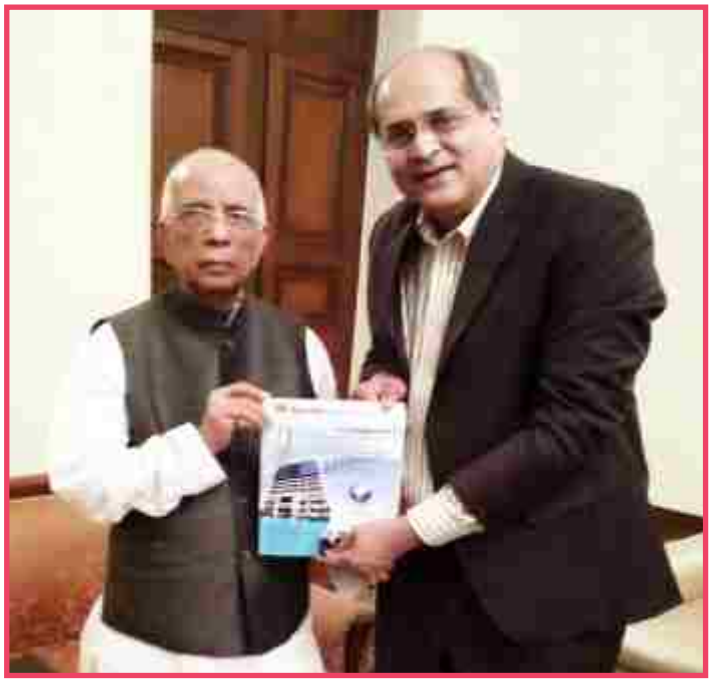
Maharashtra Health Minister Suresh Shetty & Bollywood actress Rani Mukerjee releasing NeuroGen's book on "Neurorehabilitation"

Mr. K. N. Singh, DCGI (Drug controller General of India) releasing the 1st issue of Indian Journal of Stem Cell Therapy in **New Delhi** on occasion of the 2nd Annual Conference at Stem Cell Society Dr Nandini Gokulchandran from NeuroGen Brain & Spine Institute is the founder editor of this journal.

Hon'ble Minister of Government of India **Dr. Thawar Chand Gehlot (Minister of Social Justice and Empowerment)** Inaugurated NeuroGen's Book **"A Handbook on Neurological Disorders for Special Educators"** in Delhi

Bollywood Singer Shankar Mahadevan releasing NeuroGen's Book on "Autism"

Maharashtra Governor Shri. Chennamaneni Vidyasagar Rao with Dr Alok Sharma of NeuroGen at Raj Bhavan



Governor of West Bengal Shri Kesharinath Tripathi being presented with NeuroGen brochure in **Kolkata**

Maharashtra Governor K. Sankaranarayanan with Dr Alok Sharma & Dr Nandini Gokulchandran of NeuroGen at Raj Bhavan

NeuroGen Publications being Released By Various Eminent National Dignitaries

His Highness Sheikh Faisal Bin Khalid Al Qasimi (Sharjah) being presented with the NeuroGen's book on Stem Cell Therapy in Neurological Disorders

His Excellency Khaled Al Kamda (Dubai) being presented with the 1st copy of the Arabic brochure

Special Recognition of NeuroGen at Andhra Pradesh

Andhra Pradesh Chief Minister Shri. Chandrababu Naidu with Dr. Alok Sharma discussing advance treatment options for incurable neurological disorders.

Health Minister of Andhra Pradesh Shree Kamineni Srinivas releasing NeuroGen's Telugu Brochure in **Vijayawada**

Special Recognition of NeuroGen Senior Doctor

Dr Alok Sharma receiving **National Business Service Excellence Award**

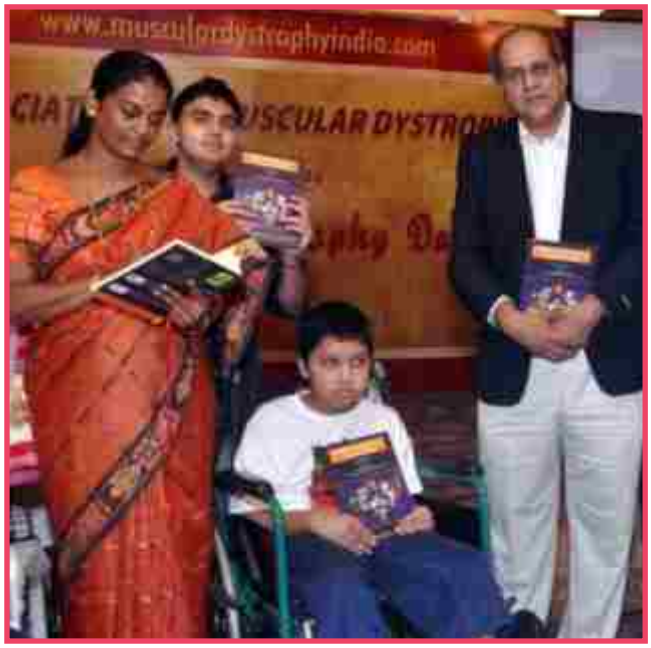
Dr Alok Sharma receiving **SUSHRUT AWARD** for exemplary work in the field of Surgery

Dr Hemangi Sane of NeuroGen receiving International Women's Day Award from **Mumbai Mayor Sunil Prabhu**

Important Visitors to NeuroGen

Bollywood actor **Hrithik Roshan** visits NeuroGen

Mumbai Mayor Shobha Raul releasing NeuroGen's book on **"Muscular Dystrophy"**



Shri K L Prasad, Commissioner of Police, Navi Mumbai visited NeuroGen on the occasion of **World Autism Day** (2nd April 2015)

Over 7000 Patients from Over 65 Countries


America


Afghanistan


Albania


Algeria


Australia


Bahrain


Bangladesh


Botswana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Denmark


England


Ecuador


Ethiopia


Egypt

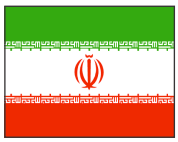

Germany


Hungary


India


Indonesia


Iraq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Korea


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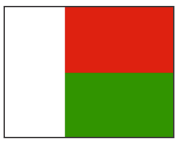
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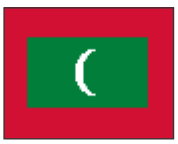
Maldives


Morocco


Nepal


New Zealand


Nigeria


Norway


Netherlands


North Korea


Oman


Pakistan


Philippines


Qatar


Russia


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Romania


Saudi Arabia


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Sri Lanka


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West Indies


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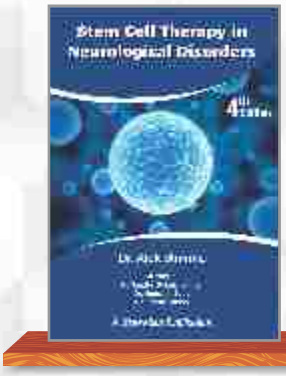
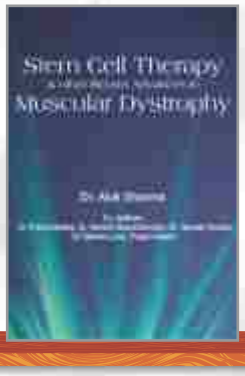
NeuroGen Books

Stem Cell Therapy In Pediatric Neurological Disorders 2nd Edition

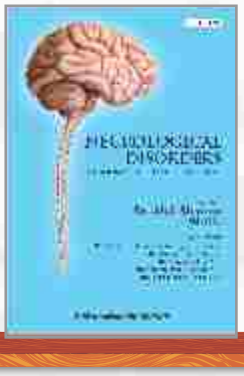
Stem Cell Therapy in Neurological Disorders 4th Edition



Stem Cell Therapy & Other Recent Advances in Muscular Dystrophy

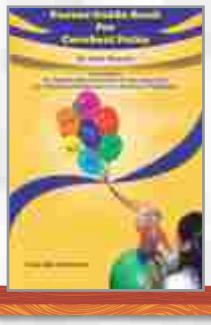


Neurological Disorders A Handbook for Family Physicians 2nd Edition



Parent & Teacher Guide Book for Autism 2nd Edition

Patient Guide Book for Cerebral Palsy



Patient & Parent Guidebook on Muscular Dystrophy

પેશન્ટ અને પેરન્ટ માર્ગદર્શિકા મસ્ક્યુલર ડિસ્ટ્રોફી વિશે

NeuroRehabilitation- A Multidisciplinary Approach

Neurorehabilitation in Spinal Cord Injury A guide for Therapists and Patients

Looking after children with autism - A handbook

ALS / MND Guide Book For Patients & Families

A Handbook on Neurological Disorders For Special Educators

Multidisciplinary Management of Physical & Cognitive Disability in Children

NeuroGen Brain & Spine Institute

Centre for Stem Cell Therapy and Neurorehabilitation

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NeuroGen Brain & Spine Institute, StemAsia Hospital & Research Centre, **(Main Centre)**
Plot No 19, Sector 40, Near Seawoods Grand Central Station,
Off Palm Beach Road, Nerul (W), Navi Mumbai - 400706, India
Contact No.: +91-9920200400 | Email: contact@neurogenbsi.com | Web : www.neurogenbsi.com

NeuroGen Brain & Spine Institute, **(OPD Clinic)**
Shop No 11, Krushal Shopping Complex, G.M. Road, Near Shopperstop & Amar Mahal Signal,
Chembur West, Mumbai, Maharashtra - 400089, Contact No.: +91-8767200400