



# *Jagruti*

The Awakening

# Jagriti

The awakening

A quarterly magazine for Brain and Mind

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Contact: 98317 75005

E-mail: [mchat.trust@gmail.com](mailto:mchat.trust@gmail.com)

Website: [www.maitreyicharitabletrust.org](http://www.maitreyicharitabletrust.org)

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## ACHIEVEMENT OF GOVERNMENT LED BY MS MAMATA BANERJEE

After formation of Govt led by Smt Mamata Banerjee honourable Chief Minister who is also the minister in charge of Health & Family Welfare gave priority to strengthen the Health and Medical services for greater benefit of the people in the State.

Amongst various needs, access to advanced and state of the art diagnostic facilities at affordable cost is one such important initiative that DoHFW was planned to undertake specially at the level of secondary and tertiary care hospitals for the benefit of the population at large. Along with the above initiatives, with the rapid advancement in the diagnostic field, the DoHFW had felt the need to upgrade the existing Diagnostic Facilities at the super speciality health care level, specially for the Imaging Facilities for initiating better treatment protocol with faster pace for the benefit of both the Doctors and Patients. Keeping this in mind, the DoHFW has successfully engaged competent organization under Public Private Partnership (PPP) and established round the clock operation of 3 Tesla MRI scan unit at the Bangur Institute of Neuroscience (BIN), 52/1A, S.N.Pandit Street, Kolkata-700025 for the benefit of both the Doctors and patients. Such up-gradation from the existing 1.5 Tesla MRI scan unit has brought in more precision, speed and advancement in the diagnostic imaging facilities in this institute, a superspeciality in neuroscience and a premier institute in the area of treating critical neurological cases.





# A page from my life

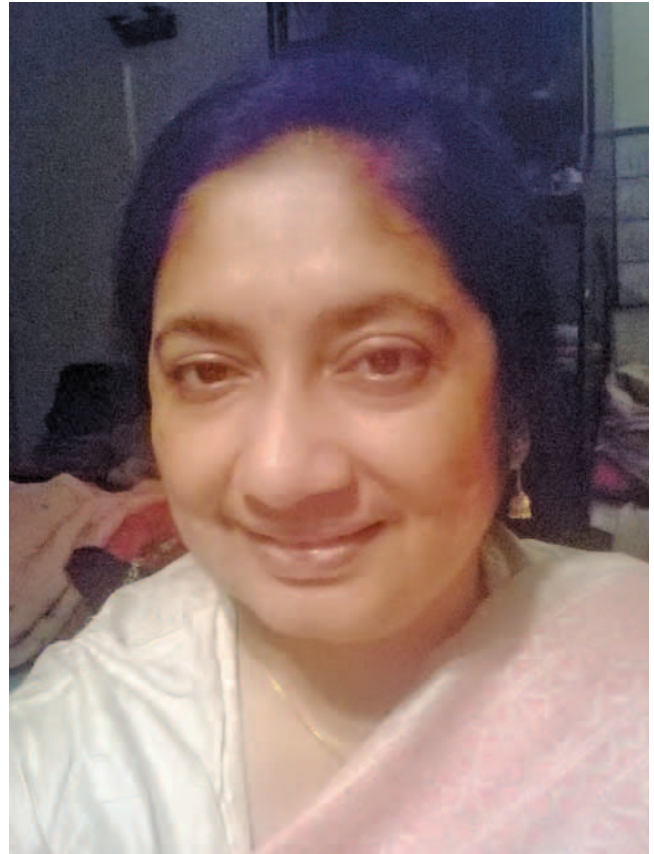
## FROM DARKNESS TO LIGHT

30th Jan 2011 past midnight about 12.10am lightning struck my destiny. A fit and strong man, my husband, while brushing his teeth lost balance and sat down on the floor of bathroom. I could see straight from bedroom where I was combing my hair. I rushed to help him but I failed to carry his weight. I asked what had happened but he could not speak. I immediately understood something serious had happened.

Quickly I with my maid both of us with our full strength pushed & dragged him into bedroom. I asked the lady to massage his hands which were getting numb & I called Dr Kishore Nandi for advice. He received my phone & as I related him he said he felt it was a brain stroke. Said don't take him in your car call for an Ambulance & get him admitted in Woodlands

I was helpless, alone, yet started following doctor's directive. I called my cousin brother who stays very near our house and he came by the time ambulance arrived. Lied to my mother and told her nothing serious had happened, he is little unwell and taking him to Nursing home. Nursing home was very prompt and by 2.30 am all medical assistance were provided and then the counting of hours, minutes also started. Whatever the RMO was saying was enough to frighten me. By 3.30-4-5.30 am many relatives and friends arrived. In the mean time according to NH rules I had to sit downstairs in the lounge. Then they informed that the surgeon had examined & said it is not a case of surgery but Neurologist Dr Deep Das has also examined and he will treat him. He was there but on round, I and my cousin sis waited and after 15min met Dr Das. He seemed to be focused and explained us clear and to the point about what had happened. After he examined he assured us that he will be alright but will take 6 months for him to walk again by himself.

I was torn apart managing 2 serious patients one my husband and the other my mother at home suffering from renal failure. Suddenly I realized I had become very lonely. My pains and



**Maitreyi Saha**  
Chairperson, Maitreyi Charitable Trust

problems within myself apparently converted me into a machine.

A bleed in the brain transformed a normal man into a {vegetable} stuporous state.No voice, no memory, no hand legs or body movement, at times eye movements were of course there but the looks were vacant, right side totally paralysed, right side of face drooping, A mind shattering {appearance} experience for those who were seeing a helpless man lying on bed surviving on medical support.

I saw how the team of doctors treated him and revived him bit by bit.

Observing his month long stay in the nursing home taught me a new lesson in life.

As he was recuperating, the nightmare I went through started changing into a positive thought. Learnt a lot on how a bleed



We have now started moving forward with our dream and as a first step we are proceeding by creating awareness on stroke.

This magazine Jagriti 'The Awakening' will herald the public awareness on healthy brain and mind.

The human brain as long as it works properly good or bad you are there, your identity is there, you can boast of your qualities but once even a part of it stops working you are just lost.

It is no doubt a very difficult challenge that we have taken. My appeal please be beside us for a noble cause.

I personally thank all those who have contributed for this cause.

inside the brain can have its catastrophic effect on the affected person and on their family members.

After his discharge from the nursing home I brought home this child like 62 year old man along with a baggage of therapies and trainings. Physiotherapy, speech therapy, toilet training, feeding training, personal hygiene training and many more.

It is 3 years now, I am happy that gradually he has got back his memory, he moves round and attends to his personal needs. Yet there is a definite change in his personality. I feel an infantile mask covers his real self. How difficult it is to cope with the changes of a near one in your family. Mental agony remains embedded within who suffer along with the patient.

### **Birth of a dream from pain**

The Brain directed me in a different way. My husband's stroke worked as an eye opener towards {the fact of} necessity of having a dedicated center for neurosciences in Kolkata. As I like to take challenges I developed the thought within me and then placed them before Dr Deep Das. To my surprise I found him to be thinking in the same line as he expressed that there is indeed a necessity of such a center in the eastern region. I took my dream to my well wishers and the modus operandi was set.

Trust was formed, land was marked, and project report was made. Dr Deep Das suggested set of concerned right doctors group headed by Prof Dr Shyamal Kumar Das. The Brain & Mind Research Institute (BMRI) name was suggested by the doctors and accordingly registered.



## Stroke - Going To Be Epidemic in 21st Century. Its Outcome and Solution

**S**troke is the leading cause of adult death and disability after coronary heart disease and cancer. Stroke - scenario is totally in contrast between developed and developing countries. In developed country, the incidence of stroke is decreasing, but in developed countries including India, Pakistan and China, the stroke is increasing. The question is why?

The simple reason is gradually increasing aging population, higher incidence of stroke risk factors and progressive urbanization.

Currently in India, rough estimate of new cases of stroke is approximately 1.8 million in a year at current level. There may not be much difference of stroke frequency between rural and urban areas.

Roughly one third of stroke affected subjects die, one-third survive and another one-third remain disabled. Disability includes both physical and mental disability in the form of residual weakness and memory or intellectual loss. But the greatest problem is mood disturbance which affects about one-third of the stroke patients who survive beyond one month. These subjects are often not properly recognized by the specialist and general physicians.

Facility for physical rehabilitation is poor in India- particularly in rural areas. Improvement of infrastructure for physiotherapy in terms of human resources and instruments will be a boon and greatly facilitate the recovery of stroke affected subjects.

For recovery of mentally disturbed person we need neuropsychologist as well as psychiatrists. Government is taking proper steps to increase the manpower in this regard and hope fully doctors will be aware of this problem and can help them with proper assessment from neuropsychologist.

In our country, death due to stroke is very high and may reach upto 40% in first month after stroke. This is mostly due to undetected risk factors such as hypertension. Other factors are delayed recognition that stroke has occurred, delayed arrival of stroke patient in the hospital, patients are often unaware about which hospital to go and where treatment of stroke is available and difficulty in transporting patients to proper place. To overcome these difficulties, we should earmark the hospitals where treatment of stroke is possible, wide spread dissemination of information through mass media such as radio, television, news paper, magazine and handouts at the time of discharge from the hospital for better awareness.

Updating of knowledge of general physicians through Indian Medical Associations should be considered. Adoption of these measures will increase awareness of patients and their family members regarding stroke perception. There by early diagnosis can be made and appropriate treatment can be applied in proper time.

Stroke has limited therapy and basically is a preventable disease. Good research to prevent stroke is not available in India. It is necessary to recruit many subjects from the community and then following them regarding their behavior pattern of drug intake, proper exercise, avoid life style related factors such as smoking, alcohol intake and obesity. India is country where people drink tea after water. Tea has been shown to prevent stroke and heart disease. Research related to tea intake and its effect in human has not been carried out properly in India. Direction of research to this issue will be extremely helpful. Hypertension is a silent killer. Hypertension produces heart disease, coronary heart disease and stroke. Drug intake among those who have hypertension is very irregular. Regular drug intake to control hypertension is very important to prevent stroke.

All issues on stroke are not necessarily bad in India. Indians learn after the stroke has happened. It has been shown that after stroke, affected patients take drugs regularly, avoid smoking and stop alcohol in many cases. This leads to reduction of death rate in those who survive for longer period and this trend is similar to developed country such as Sweden.

In coronary heart disease, death has come down (personal experience) as compared to stroke. This has been possible due to use of blood clot lytic agents such as streptokinase and use of interventions such as putting stent to overcome the obstruction. However this is being used in stroke, but it needs much more care, expertise of administration and monitoring. Brain cells survive for 3 to 4 minutes when they are deprived of oxygen and glucose, their principal foods as compared to muscle cells. However there is limit of about 4 and half hours within occurrence of stroke (occlusive) when the drug can be injected. It is expensive and needs modern CT or MRI scan and a supporting cath lab. A cath Lab in a hospital can be used for both heart and stroke patients. The positive beneficial effect of use of these procedures will lead to cure of some stroke patients and thereby avoiding prolonged disability and death.

Thus stroke which was considered to be untreatable in the past, newer approaches to cure these condition are being taken. Presently we should adopt preventive measures through increased awareness and explaining about role of risk factors and also adopt the recent technology driven procedures to treat those patients who have already suffered from stroke.

**Prof Shyamal Kumar Das**  
*Head of Department of Neurology,  
 Burdwan Medical College*

“ Stroke often leaves surviving patients with neurological impairments that prevent them from performing everyday activities and therefore dependent on others. Approximately 40% to 65% of stroke survivors are independent at 6 months after stroke. In the first few days after stroke, nerve cells that were not permanently damaged during the primary event may start to function. ”

## SHORT TERM AND LONG TERM PROBLEMS OF STROKE

*Dr Biman Kanti Ray*

*Associate Professor, Dept of Neurology, Bangur Institute of Neuroscience, Kolkata*

Stroke is an important cause of adult death and disability worldwide. Despite the growing knowledge about the novel strategies of stroke prevention, the real challenge still remains to successfully implement these strategies worldwide. The most common question faced by all neurologists is: what is this patient's prognosis? It means what will happen to this patient after stroke? A clear understanding of outcome following stroke including death, stroke recurrence, functional disability, mood changes and cognitive dysfunction in stroke survivors is very beneficial. This may enable one to plan preventive measures, have more informed discussions with the patient and their carers, set more appropriate short term and long term goals and make rational decisions where resources are limited.

### Projection for death

The highest risk of death for stroke patients occurs in the first 30 days after a stroke. There is a great variation in 30 days case death or fatality rate among countries ranging from 14% to 38%. The 30 days case fatality rate depends on the severity of the stroke event and access to proper health care. Patients with haemorrhagic stroke or intracerebral hematoma have a much higher risk of dying than those with ischemic or thrombotic stroke. The average annual mortality rate in 30 days stroke survivors ranges from 8% to 9% and the risk of death is two to three times higher for such patients as compared to the age and sex matched general population.

Death within first few days after stroke is mostly due to direct effects of brain damage. Having survived the first few days, patients may then develop various potentially fatal complications

of immobility e.g. pneumonia, pulmonary embolism, pressure ulcers or bed sores and urinary tract infection. Some strokes can occur in the context of other serious conditions like myocardial infarction, cardiac failure and some early deaths can be attributed to these problems. Recurrent stroke is another major cause of mortality among stroke survivors. The risk of recurrence after stroke varies from 2 % to 4 % in first 30 days, from 6% to 13% in the first year, and from 5% to 8% per year in 2 to 5 years. So repetition of stroke is common in the first year following a stroke.

### Prognosis for dependency in everyday activities

Stroke often leaves surviving patients with neurological impairments that prevent them from performing everyday activities and therefore dependent on others. Approximately 40% to 65% of stroke survivors are independent at 6 months after stroke. In the first few days after stroke, nerve cells that were not permanently damaged during the primary event may start to function. Neuroplasticity – The process by which other intact areas of brain can take over some of the functions of damaged brain – might explain some of the later improvements. However much of the later recovery is probably due to adaptive changes i.e. patients learn techniques to compensate for their impairments. The rate of recovery is fastest in the first few weeks after the initial stroke Functional improvement may continue at a slower rate for many months and in some patients for 1 to 2 years. The speed and completeness of recovery varies from patient to patient and is unpredictable.



### How Stroke affects people?

Each stroke is different depending on the part of the brain injured, how bad the injury is and the person's general health. Life after stroke depends on the effects of stroke. Some of the effects of stroke are:

**Weakness or paralysis of one side of body:** This may affect the whole side or just the arm or leg. The weakness is on the side of the body opposite the side of the brain injured by stroke. Spasticity or stiffness i.e. increase in muscle tone develops in between one-fifth to one-third of stroke patients over the first year and is more common in the arm than in the leg. Imbalance in muscle tone eventually results in shortening of muscles and permanent deformity and so restrict the full range of movement i.e. contracture. Spasticity and contractures may cause pain and disability. In rehabilitation, we use several approaches to prevent the development of unwanted patterns of tone and to alleviate existing problems due to spasticity and contractures.

### Problems With Balance Or Coordination

These can make it hard for a person to sit, stand or walk, even if muscles are strong enough. A large number of physical techniques have been developed to improve motor function or gait.

### Problems Using Language (aphasia and dysarthria)

A person with aphasia may have trouble understanding speech

or writing. Commonly left side of brain controls our right side of the body and speech. That is why with paralysis of right side of the body the patient also suffers from speech defect. Or the person may understand but may not be able to think of the words to speak or write. A person with dysarthria or articulatory defect knows the right words but has trouble speaking them clearly. The presence of the speech therapists in the rehabilitation team facilitates early and coordinate attention to the communication needs of the patient and provide the best specific therapy.

### Being Unaware Of Or Ignoring Things On One Side Of The Body (bodily neglect or inattention)

Often the person will not turn to look toward the weaker side or even eat food from the half of the plate on that side.

### Pain, Numbness, Or Odd Sensations

These can make it hard for the person to relax and feel comfortable. A condition known as "Thalamic syndrome" can produce unpleasant burning pain sensation on one side of the body due to stroke. It usually starts when a patient is recovering from stroke. This is treatable condition, but problem may persist for a longer period.

### Painful Shoulder

Shoulder pain is reported by at least one fifth of patients in the first 6 months after stroke. Many factors have been associated





with painful shoulder and different treatment modalities have been suggested.

### Visual Problems

Stroke patients may have a demonstrable visual field defect due to interruption of connection between eye and brain by stroke. Patients often attribute their poor vision after a stroke due to inadequate glasses. Explain to patient the nature and cause of their visual problems so that they do not waste their money on inappropriate new glasses.

### Problems With Memory, Thinking, Attention, Or Learning (cognitive problems)

A person may have trouble with many mental activities or just a few. For example the person may have trouble following directions, may get confused if something in a room, is moved or may not be able to keep track of the date and time.

### Swallowing Problems

This can make it hard for the person to get enough food. Also care must sometimes be taken to prevent the person from breathing in food while trying to swallow it. All those involved in giving a patient food or fluids must be made aware of the patient's swallowing difficulties. Every day family member may be taught to do swallowing test by sipping liquid slowly. If patient complains of cough then it means, patient has not still developed the swallowing mechanism effectively.

### Problems With Bowel Or Bladder Control

Urinary incontinence is more common in older patients and in those with severe strokes. These problems can be helped with the use of portable urinals, bedpans, and other toileting devices. However among survivors, incontinence resolves in the majority. Younger age, less severe stroke and lacunar stroke have all been associated with better rates of resolution.

### Depression After Stroke

It is normal for a stroke survivor to feel sad over the problems caused by stroke. However some people experience a major

depressive disorder, which should be diagnosed and treated as soon as possible. A person with a major disorder has a number of symptoms nearly every day for all day for at least two weeks. These always include at least one of the following:

- Feeling sad, blue, or down in the dumps.
- Loss of interest in things that the person used to enjoy.

Establishing the diagnosis is important; because effective pharmacologic and psychological treatment is available and because undiagnosed depression will adversely affect the success of rehabilitation.

### Sexual Function

Physicians should know that stroke survivors continue to have sexual identities, needs and capabilities. Since the specific organs involved in sexual activity are controlled by both sides of brain, there is no neurologic reason why unilateral stroke should permanently impair sexual capabilities. Stroke survivors would benefit from more information and understanding on sexual matters from health care professionals.

### Return To Work

Many stroke survivors can and do return to work. Vocational rehabilitation services can help stroke survivors reenter the work force.

### Conclusion:

Post stroke problems have seldom been systematically identified in community-based incidence studies and so their frequency in unselected population is often unknown. However, the evidence base is increasing. Social, economic and environmental factors are also very important. Does the patient have a competent caregiver who will motivate the patient to do better? Are sufficient economic resources available? What floor does the patient live on? Are there recreational facilities within easy access of the patients? Are family members supportive and helpful? The answers to these questions are seldom noted in the hospital records, but are as just important for meaningful life after stroke as the extent of brain injury.

“ Stroke often leaves surviving patients with neurological impairments that prevent them from performing everyday activities and therefore dependent on others. Approximately 40% to 65% of stroke survivors are independent at 6 months after stroke. In the first few days after stroke, nerve cells that were not permanently damaged during the primary event may start to function. ”



“ The Brain is a delicate and inherently intricate organ, it can be likened to the Central Processing Unit of a computer. It determines our thoughts, actions and is largely responsible for what we are. It is a tender organ and can function in a critically reduced blood supply condition for only 3-5 minutes. Beyond this ultra-short time window millions of nerves get damaged and results in permanent dysfunction. ”

## CURING NERVES THROUGH KEY HOLE INCISION

Dr Deep Das  
Consultant Neurologist

Removing the white coat from myself, if I try to think about the basic considerations that any person would feel about any operative procedures, probably the thoughts would hover around whether the procedure would be safe, how painful would it be, what are the chances that the person would regain normalcy if he undergoes the procedure?

As scientific knowledge evolves, we expect the best. Gone are the days when a gall bladder operation would mean a big scar mark in the abdomen reminding the patient that he had undergone a major procedure. Being quick, safe and minimally invasive appears to be the key word in today's medical fraternity. The same holds true in the field of neuro endovascular therapy also.

Mainly through the pioneering works of the Noble laureate, Antonio Egas Moniz, neuro endovascular therapy found its way into the world of medical practice. And since then, the developments have been really fascinating.

For a non medical person Neuro endovascular Therapy can best be described as : 'Neuro' meaning nerve, "Endo" meaning "from within" and "Vascular" meaning, blood vessel. Two things comes out from the name itself : that this therapy is associated with treating nerves through blood vessels affected by diseases or disorders resulting in acute brain, spinal and neurological dysfunction.

An idea of the disease or disorder is gathered through hi tech radio imaging of the brain and the spinal cord and in the

processes decision is taken on what type of neuro-endovascular therapy might work out on that particular person.

Now a days brain stroke is a dreaded familiar name of a disease. Stroke is related to the vessels of the brain which can either get blocked, like a clogged pipeline or it can burst, like a highly pressurised balloon. If we use medical terminology to the above scenario, a blockage will be an "Ischemic" stroke and a vessel rupture will result in a "Hemorrhagic" stroke.

The Brain is a delicate and inherently intricate organ, it can be likened to the Central Processing Unit of a computer. It determines our thoughts, actions and is largely responsible for what we are. It is a tender organ and can function in a critically reduced blood supply condition for only 3-5 minutes. Beyond this ultra-short time window millions of nerves get damaged and results in permanent dysfunction.

Therefore providing medical attention and treatment to a stroke patient has to be as fast as possible. A quick Radio Imaging will decide on which invasive procedure or treatment is to be provided for the blocked vessel.

### How does Neuro endovascular therapy work ?

Access to the fine vessels of Brain can be obtained through a tiny key hole puncture in the groin, Sounds fanciful? But yes, fortunately, it is possible. Through this access, very tiny hollow tubes (micro catheters) can be placed inside (Endo) the blocked



vessel (vascular) and medications given to dissolve the block (blood clot).

Similarly, through the same process, tiny platinum coils can be deposited inside swelled up vessels (Aneurysms) thus minimizing chances of bleeding in patients suffering from cerebral bleed, in a deadly disease called Sub-Arachnoid Hemorrhage.

This is not all. With the advancement of technology, we can now perform angioplasties (keeping open the stenosed or partially blocked vessels in a long term fashion) in blood vessels supplying the brain. This can be done for vessels both inside and outside the cranium in procedures called carotid and vertebral angioplasties.

Any creation might suffer from designing flaws and might not be perfect all the time. Same is the story with the myriads of blood vessels within the brain which are not always perfect. There are conditions where a person might suffer from a bleeding inside the brain because of malformed blood vessels whose walls are weak. These are medically termed as “Arterio-venous Malformations”. Here also, Neuro endovascular therapy works by arresting flow in these vessels by a process which would be akin to applying glue to occlude or block these vessels.

This therapeutic modality can be or are also directed to obstruct the blood vessels supplying blood to vascular tumors both inside and outside the brain and spinal cord. This helps in lesser blood loss during surgeries to remove them, a procedure we call “Pre-operative tumor Embolization”.

This therapy is evolving at a rapid rate. It is becoming more widely available, is safer (as compared to open neurosurgical

procedures) and is minimally invasive. Imagine getting treated for a life-threatening condition inside our brain through a less than 5mm cut in the groin and getting cured! This is what Neuro endovascular therapy aims to deliver. Yes, it is promising, safer and intrinsically attractive.

Before we end, let us see how this therapy worked out for a gentleman in one of our own city hospitals a few weeks ago.

A 45 year gentleman was admitted to the hospital with complaints of severe bursting headache of few hours duration. He vomited for a few times and lost consciousness on his way to the hospital. This previously agile gentleman, a police commando trainer, was urgently taken up for a CT Scan, which confirmed the diagnosis of a sub-arachnoid bleed. His poor medical condition, led him to be put on an artificial breathing machine (Ventilator). He was also started on medications to lower his intra-cranial pressure. After a few days his condition improved a little. It was at this time that he was examined with a DSA( Digital Substraction Angiogram)of cerebral vessels which revealed that the cause of his bleeding was a swelled up section of his blood vessels inside the brain, which we know as Aneurysm. ( Figure 1)

After discussing his problem in detail with his family members, it was decided to go for Endo-Vascular therapy to occlude the Aneurysm and to try and save the other important vessels in the vicinity of the aneurysm. Through a keyhole approach, a tiny hollow tube (Micro-catheter) was navigated from one of the leg arteries through the neck vessels and finally inside the Aneurysm. Next, very tiny platinum coils were deposited, one after the other, to occlude this aneurysm. (Figure 2) Finally the Aneurysm was totally obliterated. (Figure 3) The patient did well after the surgery and is now back to his usual self.



Figure -1



Figure -2



Figure -3

“As the number of stroke survivors increase throughout the world, it also implies that emotional and behavioral disturbances after stroke are becoming an important public health issue.”

## MOOD AND EMOTIONAL DISTURBANCES OCCURRING AFTER STROKE

*Dr Neelanjana Paul*

*Asst Professor, Institute of Psychiatry, Kolkata*

This case history will depict a person with stroke who suffered from mood disorder or depression.

Mr A G, 59 years, was a smoker and hypertensive and suffered from left sided stroke leading to weakness of left half of body. Gradually he was improving and could do his daily activities independently. After about a year he noticed gradual tiredness, lack of energy and depressed mood. His performance gradually deteriorated and his recovery process became very slow. He started losing memory and forgot things about where he had kept his personal belongings and what he had taken yesterday. No one in his family had any neurological or psychiatric problem in the past. His physician understood that his present problem was something more than neurological and sought the opinion of both neurologist and psychiatrist. They prescribed some drugs apart from stroke medicines which he was taking before. After one month he started gradually improving. His physical mobility, memory and mood improved.

This was a prototype case. There are various presentations of stroke patients with mood and emotional disorders. These are briefly as mentioned here.

There has been more progress in our understanding of stroke for the last 40 years. Advances in treatment and management have decreased number of deaths and led to a huge population of individuals surviving with the aftermaths of stroke. Gradually it was found that, stroke also causes significant behavioral and intellectual problems. As the number of stroke survivors increase throughout the world, it also implies that emotional and behavioral disturbances after stroke are becoming an important public health issue. However, the observation that

emotional disturbances are related to stroke had been made by the German psychiatrist Emil Kraepelin as early as in 1921. He noted that stroke-survivors commonly became depressed. Interestingly, on the other hand, depressed individuals are more prone to develop stroke. However, even ninety years later, emotional and mood problems in the vast majority of stroke survivors are undiagnosed and remain un-treated.

### **What are the types of emotional problems seen in individuals with stroke? What is post-stroke depression?**

Various types of emotional or mood disturbances may be seen in stroke survivors, and in medical terms some of them may be termed as psychiatric disorders. These include post-stroke emotionalism or catastrophic reaction. Here patients have episodic tearfulness and anger, frustration and refusal to accept support from care-givers. At times it occurs when the patient faces any task which he/she feels that he/ she cannot perform properly.

In the cases of involuntary emotional expressive disorder, the person has multiple and rapid mood swings with fits of laughter and crying spells, on minimal or no provocation. Patients may also say ‘I do not know why I am crying or laughing in this inappropriate situation!’

Apathy or lack of emotionalism is quite common and seen in persons who survive from stroke and may coexist with depression, or arise separately. He or she starts losing motivation, ambition and emotional reactivity to either happy or sad situations. He or she may disassociate socially and show decreased interest and participation in physical activities.



Those who survive from stroke may suffer from emotional disturbances like agitation and irritability with occasional anger outbursts, abrupt mood changes and physical aggression. These may not be severe or frequent enough.

Post-Stroke Depression: However, by far the most common mood disorder in stroke, as well as in the general population also, is depression. The term 'depression' refers to the emotion of sadness that an individual feels when faced with any loss. The sadness is usually persistent. As such it stays for long periods, for days and weeks continuously; it is also pervasive, in that it affects all aspects of the individual's life. Often there is decreased interest and enjoyment in activities that he liked previously, and a generalized lack of energy and enthusiasm. His ability to concentrate, remember and plan out different tasks may be decreased. He may start feeling that his life is worthless; that he is alone and there is no one to help him and his future is bleak and dark. He may have recurrent thoughts of death, of harming his own self, and he may even think of trying to commit suicide. He may have unusual experiences of hearing derogatory comments when there is no one around, or of getting bad smells even when there is no source. He may start believing that people around him are plotting against him, discussing him or are trying to harm him. Post-stroke depression refers to the depressive disorders seen in the context of stroke.

**It is a challenge to identify depression in a person with stroke!**

However, it is difficult to identify depression even for trained clinicians! This is also possibly a reason behind under

treatment of depression in stroke. In the immediate aftermath of stroke, individuals face many situational stressors like hospitalization and uncertainty about the future; and they naturally have increased emotional reactions.

It is also difficult to differentiate whether a particular complaint of the patient reflects the effects of stroke per se, or whether they imply depression. There is significant overlap between some of the symptoms of stroke and the bodily symptoms of depression. For example, sleep problems may occur because of the distressing clinical environment, a painful physical impairment, or be a part of the depressive syndrome.

Besides, stroke is often associated with intellectual impairment which may hamper the patient's evaluation especially stroke survivors, who often cannot speak or communicate verbally because of language disturbances. There is also a condition named 'anosognosia', where the patient remains unaware of his own symptoms of depression, even when they are observable by others. The stigma associated with presence of a 'mental illness' may lead some patients to deny the symptoms. Depression may also be overshadowed by the overt presence of various physical problems in the elderly population.

**Why do such mood disturbances occur in stroke patients?**

The exact mechanisms are not clearly understood yet. They are thought to occur due to a mixture of multiple factors, with different interacting biological, social and psychological reasons contributing to its development. It is hypothesized that



depression may occur due to disruption of cerebral networks of certain neurotransmitter systems controlling mood. Many researchers have tried to correlate depression with stroke lesion in a specific location, but till now there are no conclusive evidences to say that involvement of a particular area of brain will lead to depression. Overall, a positive family or past history of emotional disorders, susceptible personality traits and risk factors for stroke, predispose an individual to develop depression, which is triggered off and maintained by the various physical and social disruptions associated with stroke.

### **Who are the persons at higher risk of developing such emotional disturbances?**

Researchers have tried to discover the risk factors which may help to identify those stroke-survivors who will go on to develop depression. Many demographic, social, psychological, pre-stroke medical and stroke-related clinical variables have been studied in different countries as recognized risk factors of depression; however, the final word has not been spoken yet. Individual studies have correlated depression with age (both younger and older), pre morbid personality and history of mental illnesses either in the past or in close family members. It has been supposed that a greater impairment in daily activities, social functions, and presence of difficulty may predispose an individual to develop depression. Certain neuro-imaging ( such as MRI or CT scan of brain) that correlates with depression have also been identified, for example the left side of brain is more affected with depression. The most consistent finding has been the interrelation of physical disability with depression. Other parameters that may predict depression in the future include stroke severity, intellectual impairment, social or environmental factors, like living alone, social isolation and absence of adequate social support. An Indian study has however proved that literacy protects against development of depression.

### **How common are stroke-related mood disorders?**

Depression in stroke is a common phenomenon. Its frequency has been found to be as high as one out of every three individuals who have had a brain stroke. The rates calculated in different studies, have varied depending on whether the studied population was from the community, hospitals or rehabilitation-centres, the research methods used and the time-gap between stroke and assessment. The frequency of depression tends to remain stable in follow-up studies. While many patients recover within a few months, others develop new onset depression later after stroke. Most episodes of depression occur in the first two years after a stroke; the peak time to develop depression is between 3 to 6 months after a stroke.

### **What are the effects of post stroke mood disorders? How long do they last?**

Individual with depression do not recover as good as to stroke survivors without depression. Depressed stroke patients often do not take their medications regularly, may not follow healthy habits, and are more prone to use psychiatric drugs. They have greater impairments in day to day activities after stroke. They need more frequent hospitalization. Most importantly, depression has a lasting influence on the persons' functioning. The negative effects may persist even after the symptoms of depression improve. Depression causes significantly more deterioration as compared to non-depressed stroke patients having similar severity and location of brain lesion. Depressed patients die more in numbers than non-depressed stroke patients. The risk of suicide in such patients also doubles. Thus suicidal tendency is a significant issue in depression. About 10% are found to harbor thoughts of death or self harming, though exact data of suicide following depression in stroke patients is not known.

The duration of depression is variable. Symptoms of improvement is noticed within the first year. However, in some individuals depression becomes chronic and may persist for more than three years. Among certain number of fortunate stroke –victims, survivors may actually have a spontaneous improvement of depression. The natural course of depression is influenced by two factors. One is active treatment with antidepressant medication. The second is the location of the stroke lesion. Stroke involving deeper areas of brain called basal ganglia and brainstem, are associated with significantly shorter-duration depressions than lesions involving surface of cortical areas of brain.

### **How essential is it to treat Post stroke depression? How long to treat?**

A common attitude among both family members and clinicians is that depression following stroke is a natural and inevitable condition, and hence it is not important to treat it. Many survivors with depression undergo spontaneous remission and many believe that depression will improve once the patients' physical condition improves. Though, antidepressant drugs have their own inherent risks and side effects, recent evidences have shown that treatment of depression improve mood, physical functioning and quality of life. Thus, different modalities of biological (drugs and electroconvulsive therapy) and psychological measures are to be considered to either treat or prevent depression. There is lack of evidence to say which drug works better in depression: however, anti-depressant medications generally are well tolerated by these patients, and over 60% of patients respond to treatment. There is no scientific evidence for the optimal length of treatment. It is recommended



that drugs be continued in depression for 4 to 6 months, followed by a slow withdrawal. Other methods of treating depression include electro-convulsive therapy and psychotherapy, though the evidence is still inconclusive. Preventive therapy is now being considered for those persons who are at higher risk for developing depression.

### Conclusion:

The ICMR- BIN Stroke Study performed from 2003 to 2009 identified individuals with stroke survivors in Kolkata and examined different aspects including frequency, prognosis and risk factors of stroke-related depression. About one-third of the stroke survivors were found to have depression. This is a huge number, especially if extrapolated on the basis of the high prevalence of stroke in the Indian population. Interestingly, some patients improved, yet others developed new onset of depression, implying that certain precipitating and maintaining factors keep operating to produce new emotional disability.

One cause for concern is that none of the patients of depression were ever identified as having depression, even though many were being seen by physiotherapists, physicians, neurologists, and other health workers and care-givers. The disorder naturally went untreated. This underlines the urgent need to educate the general public about depression and the fact that this disorder merits adequate treatment. Otherwise, there will be huge proportion of individuals who will keep suffering from an avoidable morbidity, which again will worsen the physical disability and increase the emotional and financial burden on care-givers, the health system and society at large.

### References:

Depression among stroke survivors: a community based prospective study from Kolkata, India. *A M J Geriatr Psychiatry*. 2013 vol 21: 821-831.  
Paul N, Das S, Hazra A, Ghosal M K, Banerjee T K, Chaudhuri A, Sanyal D, Basu A, Das S K.

“ Stroke is often associated with intellectual impairment which may hamper the patient’s evaluation especially stroke survivors, who often cannot speak or communicate verbally because of language disturbances. There is also a condition named ‘anosognosia’, where the patient remains unaware of his own symptoms of depression, even when they are observable by others. ”



“ The frequency or prevalence of stroke (no. of stroke survivors in a defined population) is around 5 per 1000 persons in the industrialized countries like USA, Western Europe and Australia. Currently, in India the prevalence rate of stroke is similar. The annual incidence rate of stroke ( i.e, new cases . of first-ever stroke occurring in a defined population per year) in the western industrialized nations varies from 50-88 per 100,000 persons-year; the case fatality rate (percentage of first-ever stroke cases that die within 30 days of the onset) is 8-20%. According to recent data published in India the annual incidence rate of stroke is 135-145 per 100,000 persons-year and the case fatality rate 30-41%. ”

## STROKE- RISK FACTORS & BURDEN OF ILLNESS

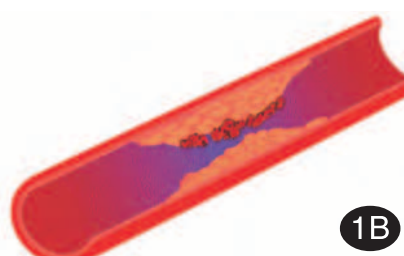
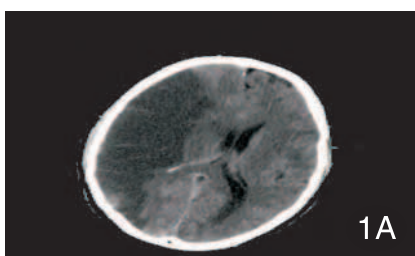
*Dr Tapas Kumar Banerjee*

*Head, Dept of Neurology, National Neuroscience Centre*

Stroke is known as Brain attack. It is the third commonest cause of death worldwide, after coronary artery disease and cancer. Soon the position of stroke will be ahead of heart disease in our country. Besides, stroke is the commonest cause of chronic disability in adults.

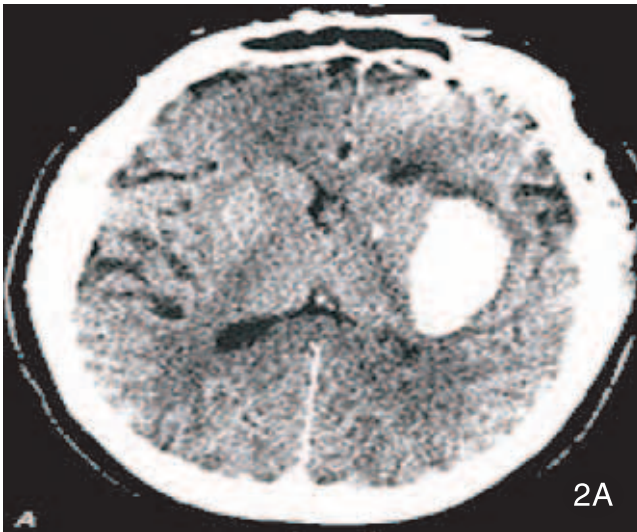
Broadly speaking, stroke is of two types: Haemorrhagic (where there is bleeding in brain due to rupture of blood vessels) and Ischemic (where is clot formation in blood vessels with cut-off of blood supply). (Fig-1 and 2 ).

The frequency or prevalence of stroke (no. of stroke survivors in a defined population) is around 5 per 1000 persons in the industrialized countries like USA, Western Europe and Australia. Currently, in India the prevalence rate of stroke is similar. The annual incidence rate of stroke (i.e, new cases of first-ever stroke occurring in a defined population per year) in the western industrialized nations varies from 50-88 per 100,000 persons-year; the case fatality rate (percentage of first-ever stroke cases that die within 30 days of the onset) is 8-20%. According to recent data published in India the annual



**Fig 1A :** Damage of brain due to occlusion of blood vessel; **Fig 1B :** Occlusion of blood vessel by deposit of fatty material known as atheroma- commonest cause of thrombotic stroke; **Fig 1C :** Occlusion of blood vessel by a moving clot





**Fig 2A** : Collection of blood within brain known as intracerebral hematoma; **Fig 2B** : Rupture of blood vessels leading to hemorrhage

incidence rate of stroke is 135-145 per 100,000 persons-year and the case fatality rate 30-41%. In other words, compared to the western industrialized countries there is a much higher incidence rate of stroke with a higher proportion of stroke cases dying within one month of onset in India. No significant difference is noted in the occurrence of stroke between urban Indian and rural population or between slum and non-slum dwellers. In the Western countries, for every 5 thrombotic cases there will be one hemorrhagic stroke case. In contrast, our country has proportionally more hemic stroke and for an average 3 cases of thrombotic stroke, there will be one hemorrhagic stroke. On the other hand, ischemic to haemorrhagic stroke ratio varying from 2 to 3.5: 1, indicating a higher proportion of cerebral haemorrhage in our country, particularly noted in the Eastern part of India. Interestingly, epidemiological studies have shown that over the last 4 decades, the incidence of stroke in India has increased exponentially whereas in the Western industrialized nations there has been a steady decline in stroke incidence. This is primarily because in the latter nations appropriate preventative measures such as control of high blood pressure were undertaken to contain the risk factors of stroke.

### What are the risk factors of stroke?

**A) Hypertension** is the single most important risk factor of stroke, both in hemorrhagic and ischemic types. The high blood pressure induces strain on blood vessels makes them weaken and predisposes them to damage. People with hypertension have a risk for stroke that is 4 to 6 times higher than the risk for those without hypertension. Forty to 90% of stroke patients have high blood pressure before their stroke event.

**B) Smoking** doubles the risk for stroke when compared to a non-smoker. Smoking reduces the amount of oxygen in the blood and also increases clot formation in the arteries, which may block the flow of blood to the brain, thereby causing a stroke. Both smoking and chewing tobacco can cause stroke. Chewing tobacco has more harmful effect than smoking tobacco.

**C) Diabetes mellitus** enhances clot formation in blood vessels of brain leading to stroke. Glycosylated haemoglobin (HbA1c) is a test that measures blood sugar levels over the previous three months. According to the American Diabetes Association people with HbA1c levels above 7% are nearly 3 times as likely to have a stroke as people with an HbA1c level below 5%.

**D) Hypercholesterolemia or high fat level in blood** is another risk factor for ischemic stroke. There are two types of cholesterol viz. low density lipoprotein (LDL) and high density lipoprotein (HDL). The latter is the useful cholesterol and LDL the harmful one. Hypercholesterolemia indicates that HDL is decreased and LDL is increased. Among the Indians, low HDL-cholesterol and elevated lipoprotein (a) exist quite often and these are also the risk factors for stroke.

**E) Atrial fibrillation** is a defect in regularity of heart beat. If heart does not beat regularly, blood flow may be slowed and may produce clot in the heart. These clots may dislodge from the heart during its contraction and lodge in the brain producing stroke. This type of stroke is known as cardio-embolic stroke, particularly in the elderly with associated ischemic heart disease, hypertension or diabetes. This type of stroke is common in western countries, but also increasing in our country because of aging population who

are more prone to developing heart disease and disturbance of irregularity of heart beating.

**F) Central obesity** is also an independent risk factor for ischemic stroke. Indians characteristically have more frequent central/ abdominal obesity than their Western counterparts.

**G) Miscellaneous:** Rheumatic heart disease, tuberculosis of brain, Moya-Moya disease (a specific type of vasculopathy in brain) are some of the important risk factors for ischemic stroke in the Indian population. Rheumatic heart disease which is characterised by multiple joint pain and heart involvement and is still common among rural population. Though the incidence of rheumatic heart disease has reduced due to wide spread antibiotic use for sore throat among young population.

#### **Burden of illness:**

In cases of infectious diseases, an individual either dies or fully recovers to lead a normal life. Here common epidemiologic parameters, viz. prevalence, incidence and mortality are sufficient to describe the burden of illness in a community. On the other hand, life-style related chronic disorders, namely, stroke, coronary artery disease, chronic airway disease, arthritis, dementia, epilepsy, etc. lead not only to death but also sustained disability in the affected survivors. In these life-style diseases, to describe the overall (global) burden of illness disability status has also to be factored in. The new measure termed “disability adjusted life-years (DALY)” describes the global burden of illness (GBI) in the life-style diseases.

#### **How to calculate DALY?**

Based on life tables, the standard life expectancy at birth is set at 80 years for men and 82.5 years for women. If the individual dies before that age, that is termed as premature death. The

average “years lost due to premature mortality (YLL)” due to an illness in individuals in a community could be calculated. Besides, average “years lived with disability (YLD)” could also be computed. DALY is the sum of YLD and YLL. Disability adjusted life-years (DALY) is a widely-used measure of determining the global (overall) burden of chronic life-style diseases as it incorporates both death and disability.

#### **Burden of Stroke:**

According to WHO data of 2004, DALY loss rates due to stroke ranged from 160 to 2192 per 100,000 person-year, whereas that in India was 598 per 100,000 person-year. Recent data demonstrates increase in stroke DALY loss in India and the current figure is 796 per 100,000 person-years. From the DALY values it can be said that the burden of stroke in India is higher than that in the United States, Western Europe and Australia, but lower than in Eastern Europe, Russia and China.

#### **Conclusion:**

Stroke is a leading cause of death and disability worldwide. The countries of Eastern Europe, China and Russia have very high incidence and burden of stroke. The burden of stroke is also high in India. It is going to be in epidemic proportion in coming years. In the current decade, the burden of stroke and stroke related incidence and early fatality have been found to be much higher in India than in the USA, Western Europe and Australia. In the past four decades there has been an exponential rise in the stroke incidence in India. This underscores the necessity to implement more vigorous measures to control the common risk factors, viz. hypertension, diabetes mellitus and smoking in our country through preventive measures as well as creating infrastructures for treatment of stroke to reduce death and disability.

“ In contrast, our country has proportionally more hemic stroke and for an average 3 cases of thrombotic stroke, there will be one hemorrhagic stroke. On the other hand, ischemic to haemorrhagic stroke ratio varying from 2 to 3.5: 1, indicating a higher proportion of cerebral haemorrhage in our country, particularly noted in the Eastern part of India. ”

“ A strong caregiver support is basic for proper rehabilitation of those stroke survivors with physical and cognitive disability. To execute the rehabilitation programme, the role of a caregiver becomes important..... Other than the family members, there has also been evidence that indicate better quality of life in stroke survivors due to the support by informal caregivers. ”

## CARE GIVING OF STROKE SURVIVORS: AN INDIAN PERSPECTIVE

*Dr Sujata Das*

*Neuropsychologist, Fortis Hospital, Kolkata*



Stroke is a sudden injury to a part of the brain that is caused by an interruption in its blood supply. It is one of the major debilitating disorders that impacts physical, psychological, affective and intellectual faculties of the affected person. The advent of life-saving drugs, interventional therapy, health awareness, scope of better treatment and other pharmacological interventions has resulted in a decrease in both mortality and an increase in life expectancy. With an exponential rise in the population, a demographic shifting has evolved and has found expression through an increase in the proportion of the geriatric population in India. According to recent research findings, this geriatric group is vulnerable to varied medical conditions, amongst which stroke is a major one. Stroke is the

3rd largest cause of death and the leading cause of adult physical disability.

### **Life-style changes:**

India has its share of both the positives and negatives of being a fast developing country. Adapting to the fast-life style by changing the food habits, substituting into a sedentary life-style, ignoring natural means and imbibing artificial ones, it has become a hub of nestling ill health conditions like hypertension, diabetes, obesity. Mounting stressors to compete in the global market further raises these risks in the individual. These are all precursors to the deadly disease. The risk is further accentuated if the person remains ignorant of his own health condition, or when preventive measures are neglected. Ignorance of stroke risk factors also is a fast breeding ground for a stroke condition to occur.

### **Stroke sequel:**

Stroke affects the victim in myriad ways. A large percentage of stroke victims expire immediately after an attack. Among the survivors, some return to normal routine after a particular time period. But there are those who are negatively affected by stroke leading to weakness of body parts; some at a milder and some at a severe degree. Physical disability, aphasia, development of neuropsychiatric symptoms and cognitive impairment are some of the most unfortunate after-effects of stroke. A large proportion of stroke survivors remain physically disabled after



stroke. They may fail to eat, dress, or bathe independently and may need help to brush or find way to the toilet. They may have difficulty in balancing or walking. Because of this, patients are totally or partially in mobile, and it is a significant strain for both the patient and the family members and follow-ups with the doctors, physiotherapists and speech therapists are strenuous. Another common sequel of stroke is cognitive disturbances and the spectrum ranges from aphasia or loss of speech producing verbal communication difficulty, mild cognitive impairment to frank dementia. They may have difficulty talking or understanding speech, or have memory lapses, fail to put a signature or take a call on the phone. Affective affliction is also a common phenomenon with a widespread manifestation of neuropsychiatric symptoms like depression, apathy, anxiety more commonly, and catastrophic crying, phobia more remotely. Stroke that causes dementia, may result in loss of independence and autonomy, and is documented to reduce long-term survival. It should be understood that stroke is a unique disorder in the sense that it affects the victim physically, emotionally, psychologically and intellectually. The disorder affects the stroke patient, the stroke-affected family and the caregiver in particular. The treatment module is expected to be tailor-made and encompass proper rehabilitative interventions addressing the deficits.

#### **Need of stroke-care:**

Post-stroke caregiving in the form of emotional, informational and instrumental support is a primary requisite for convalescing so that the survivor can carry out his activities of daily living. A strong caregiver support is basic for proper rehabilitation of those stroke survivors with physical and cognitive disability. To execute the rehabilitation programme, the role of a caregiver becomes important. Care giving through professionals or institutionalization of stroke survivors is a popular choice in the west, but in a developing and traditional country like India, the choice of care giving automatically falls on the families. With the rising of stroke incidence in India, disintegration of the joint families into nuclear units, lesser number of manpower per family and female role reversal and the rapid fast life, the scenario of stroke caregivers in India is an issue that needs to be addressed. And the reasons are strong enough that the issue of caregiving cannot be restricted only to families but needs to be extended to professional services also. Literature reveals informal caregivers to be the backbone of the service provided to stroke survivors. There has also been evidence that indicate better quality of life in stroke survivors due to the support by informal caregivers.

It has been observed globally that majority of the caregivers are women. The most common relationships that they share are that of a wife, daughter or a daughter-in-law. They are usually

younger and better educated in comparison to the patient. Spouse-carers with poor health, physical disability or elderly in age report greater caregiving burden. There is sufficient literature to suggest significant stroke caregiver stress across nations all over the world.

#### **Caring of a stroke-dementia survivor:**

The scenario is worse when the stroke patient is demented or depressed. Dementia has far reaching consequences for the stroke patients and their caregivers. The stroke-demented patient requires to be taken care of just like a demented patient but in addition, if he is physically disabled due to paralysis or weakness, or has sensory deficits, he requires special attention. Stroke-demented patients lack volition, self-awareness and situational awareness. They need constant monitoring in simple activities like changing positions, finding way to the toilet, or wiping their hands. Carers have to accommodate with their abrupt changes in routine, social etiquettes, habits, likes and dislikes. The job is very engaging for the caregivers. More so, recurrent-stroke preventive measures and physiotherapy are also underway. This complex condition due to stroke is a large job that the caregiver needs to accommodate. It is a common observation all over the globe that caregivers of stroke-demented patients experience significant amount of social isolation, helplessness and loss of autonomy. Psychological pressure increases amongst caregivers because they do not find respite in treating the dementia patients with drugs since that does little to alleviate the progressive condition. Constant physical and mental preoccupation exhausts the caregivers and they experience significant deterioration in health. Sleep disturbances are prominent along with depressive symptoms and feelings of sadness. Caregiving of advanced dementia patients induce greater strain among caregivers. Abnormal or unpredictable behaviour, dependency further enhances carer-stress.

#### **A common observation: The elderly spouse as the carer:**

The elderly carer-spouses of stroke-dementia survivors experience loneliness since they cannot relate, share and communicate with their partner with whom they have shared a long marital and domestic life. With the change in the family set-up, the children of the house who are commonly young adults maintain busy schedules themselves increasing their chance of unavailability. They experience a burdening sense of responsibility, constant worries, restraints in social life and uncertainty about patients' recovery. The caregivers are devoid of personal time and space that results in a psychological suffocation for them. Carers perceive greater strain when impairment in basic regular activities or certain common instrumental activities is significantly compromised. Dementia



and behavioural abnormality are greater predictors of emotional illness among stroke-dementia caregivers than just physical disability. In addition to helping the stroke-demented survivor adapt to his physical immobility, the caregiver often has to assume the additional responsibility for interpreting non-verbal cues and communicating on behalf of the stroke survivor. The summary effect is diminished general health and vitality, decreased social engagements and deteriorating mental health of the caregivers.

**Depression in caregivers of stroke-dementia patients:**

Depression in caregivers of stroke and stroke-dementia patients is a common phenomenon globally. Both caregiver and patient characteristics can augment or recede depression. Depression in stroke caregivers sometimes worsens patients' depressive symptoms and predicts poor response to patients' rehabilitation process. Depression in the care recipient can also generate feelings of sadness, helplessness and worthlessness in the carer that affects convalescence and mental health of both.

**Carer satisfaction:**

The financial, psychological and physical burden of carers is well documented. But a reverse scenario co-exists where caregivers harbour positive feelings about caregiving. They experience satisfaction and pride that they were assigned as the carers. They may also feel closer to the patients. Caregivers probably feel 'needed in the family' which enhances their self-esteem and self perception. There are many caregivers in the Indian community who have left their jobs involuntarily to look after the patient. It has been a general consensus in the Indian context that females are more accepted and appreciated than their male counterparts as carers.

**Ignorance of carers of a stroke-dementia condition:**

It should be noted with importance that the Indian society is generally unaware of a stifling condition like stroke-dementia. They lack the knowledge of the disorder and assume it to be a passing phase and await recovery. They fail to understand that inability to perform very basic activities is a result of neuronal disarray in the patient and not just a casual indifference of the patient. In some cases carers are over-protective and prefer to deny that their stroke-demented patient is failing to perform

very simple activities of regular living. This may lead the carer to prohibit the patient from attempting to do any task independently. Being overprotective and providing too much of unrequired support aggravates casual and lazy behavior in the patient which is a familiar scenario in our community. However this does more harm than good.

**Family support for the caregivers:**

There are scarcely any report of family breakups due to the patients' sudden disabling condition although the reverse is a frequent observation in the west . It is observed that family members are close knit and family infrastructure is well cemented during hours of crisis. In general, caregivers are respected and held in esteem in our society but there is no provision for providing respite or safeguarding them. But financial burden may be a strong hurdle to cross that may sever social ties in a country like India where a large portion of the population is below the poverty line.

**Conclusion:**

Rehabilitation of stroke patients should not be addressed anymore as a single entity. Since caregivers are the backbone for rehabilitation of these patients, it is essential that we modify our perspective from a patient focused approach to a patient-caregiver combined approach. A breakdown in their service will collapse the whole rehabilitation process of the patient since they are also hope for long-term well being of the stroke survivors. For interventions to be optimally effective, caregivers have to be educated about the disorder, the condition and its implication and counseled to develop resilience. They need to empathise and develop the correct attitude towards the stroke patient and understand that the patients' condition is a resultant of disruption at a cellular level in the brain. Respite should be encouraged for the carers and they should take time-off from caring for effective patient handling.

**Reference:**

Sujata Das, Avijit Hazra, Biman Kanti Ray, Malay Ghosal, Tapas Kumar Banerjee, Trishit Roy et al. Burden among stroke caregivers: results of a community-based study from Kolkata, India. Stroke, 2010; 41: 00-00.

“ Care giving through professionals or institutionalization of stroke survivors is a popular choice in the west, but in a developing and traditional country like India, the choice of care giving automatically falls on the families. With the rising of stroke incidence in India, disintegration of the joint families into nuclear units, lesser number of manpower per family and female role reversal and the rapid fast life, the scenario of stroke caregivers in India is an issue that needs to be addressed. ”

“ Stroke survivors are left with different residual problems e.g. inability to function properly, depression or down grading of mood and intellectual abilities etc. Cognitive dysfunction after stroke may be either frank dementia or mild cognitive impairment (MCI) or vascular cognitive impairment (VCI). Patients with mild cognitive impairment may have memory impairment, but still can perform daily activity and interact with family members and friends and close relatives. ”

## POST STROKE INTELLECTUAL OR COGNITIVE DEFICIT

*Dr Malay Ghosal*

*Prof, Dept of Psychiatry, Medical College, Calcutta*

This is a prototype of a case of cognitive dysfunction due to stroke

*A 70 years old man, chronic smoker, hypertensive and diabetic on irregular treatment admitted with mild left sided weakness. He has no headache, vomiting or loss of consciousness or fit. His family members said that he had decline of memory with impairment of day to day activities. He has also behavior abnormality in the form of depressed mood and do not interact with family members and also friends. His personality has also changed a little and gets angry on insignificant provocation. His family says that he displaces money and he cannot go to market alone which he could do earlier. His family history was unremarkable. His CT scan showed evidence of right occlusive stroke at two places and on further investigation, viz MRI of brain did not show any evidence of recent infarct. His blood vessel study (carotid Doppler) showed bilateral occlusion indicating decreased blood supply to brain. Neuropsychological tests showed that he had deficit moderate memory, defect in organization and planning and defect in visual construction. Repeat testing of cognitive function showed further deterioration of his cognitive function. Thus the diagnosis vascular dementia was made.*

The world is ageing, and one of the most important events of the 21st century is the ageing of its population. The ageing population faces some of the maladies such as stroke, cognitive dysfunction or memory loss and Parkinson disease. Cognition is a process by which we become familiar with external world and is composed of several components such as memory,

language, planning and organization, thought and perception. In simple term this may be called as “intellects”.. Moreover old age is associated with increased stroke and its subsequent development, one of which is cognitive dysfunction. Stroke is the leading cause of death, disability and cognitive dysfunction, the impact is more in the developing countries. Increased stroke incidence and better survival due to improved management has led to increased number of stroke survivors in the community. These survivors from stroke are left with different residual problems e.g. inability to function properly, depression or down grading of mood and intellectual abilities etc. Cognitive dysfunction after stroke may be either frank dementia or mild cognitive impairment (MCI) or vascular cognitive impairment (VCI). Patients with mild cognitive impairment may have memory impairment, but still can perform daily activity and interact with family members and friends and close relatives. Dementia is defined as a case of progressive impairment of memory with impairment in other domain of brain and loss of independency. Common causes of dementias are Alzheimer’s disease (AD), vascular or stroke dementia (VaD), etc. Dementia following stroke is one of the main causes of disability after stroke and it usually includes all types of dementia irrespective of the cause, be it degenerative (Alzheimer’s disease), vascular or mixed. Post stroke MCI is an important component, but often overlooked, but it has been found that, post stroke MCI is three times more common than post stroke dementia.



## Frequency or prevalence

Overall frequency among post stroke dementia from community studies is roughly 30% of the stroke survivors which is almost 4 to 6 times than in the general population. In hospital based studies the prevalence varies from 6 to 32%. In Kolkata, we have undertaken a study among post stroke patients in the community and it was found that the prevalence was about 20%. The overall prevalence rate of post stroke dementia was found to be lower than the other studies. The explanation is not clear, but it may be that we have something in our lifestyle and food ( curcumin- yellow curry paste ) which prevents dementia from occurring or it may be that the more severe stroke patients who have more chance to develop dementia dies early due to increased fatality. That has been proved in our study that the stroke fatality is higher in Kolkata. Both these study results have been published in international journal of Stroke and Cerebrovascular Diseases.

Regarding incidence or new cases, data is sparser, but community studies have shown that the incidence gradually increases with passage of time after stroke from 7% after 1 year to 48% after 25 years. In hospital based studies the incidence is 9-10% after 1st year escalating to 32% after 5 years. In our study 3.5% of non-dementia patients become demented every year which is similar to some other studies in other countries.

Relatively few studies have looked into the post stroke mild cognitive impairment which is a form of minor dementia but overall prevalence have been found to be 37.5% after 12 months from stroke in community based study to 51.5% after 12 months in hospital based studies. In our study the post stroke MCI prevalence was found to be 6% with the annual conversion rate to dementia was found to be 10.5% meaning that out of 10 stroke survivors developed dementia in each year. The low prevalence rate may be due to inclusion of milder cases of stroke in the community or due to some unknown reasons requiring further research in the area.

Not all stroke cases develop dementia after stroke, so researchers tried to find out the different factors which are responsible for progression to dementia. The most important factor which determines whether a stroke-survivor will develop dementia is age. Older the patient with stroke there is more chance of development of dementia. A low education level is also an important determinant of post stroke dementia. Education in general protects against the development of dementia. It may be due to higher intellectual reserve in persons who have achieved higher level of education, as learning increases connectivity between nerve cells. There are some other factors also related with development of post stroke memory loss. One of which is pre-stroke intellectual status. Patients who have poorer intellectual status before

stroke are more prone to develop post stroke dementia than cognitively normal people. Other predictors are irregular heart beat or atrial fibrillation, hypertension, ischemic or occlusive stroke, diabetes mellitus and myocardial infarction, all of which have been found to be correlated to post stroke dementia in different studies. In our study we have found that recurrent strokes and cerebral atrophy increased the risk for development of post stroke dementia. Global atrophy or shrinkage of brain has been found to be more commonly associated with development of post stroke dementia. Presence of medial temporal atrophy (one of the memory centres in brain) also can predict conversion to post stroke dementia. More controversial issue is the role of silent brain stroke due to small infarct towards the development of post stroke dementia. But it has been found that longer the interval between silent strokes and assessment the chances of development of post stroke dementia is higher. Some of the authorities are of the opinion that white matter which connects the different areas of brain are also independent predictors of post stroke dementia though there are also voices of dissent. Regarding stroke subtypes and dementia it has been found that large artery occlusive stroke and lacunar( small artery) infarcts are more commonly associated with dementia but differential mortality may alter the ultimate findings. Some of the areas are more important and vital for development of post stroke dementia. If strategic infarction occurs at these places they are more vulnerable for development of post stroke dementia. But many studies have excluded patients who have communication problem or language disturbances since they are difficult to assess for dementia, which may have a bearing on the ultimate conclusion. If a stroke patient cannot speak then it is really difficult to say whether the disability is due to loss of speech or due to other intellectual impairments. It is a golden rule of thumb that if the disability is much more than what is expected from loss of speech only and involves other domains of intellectual functions then probably a more widespread impairment is there and the person is suffering from dementia.

### Course:

Cognitive or intellectual impairment after stroke may remain stable over years, may worsen gradually or in some cases may improve also. But it has also been observed that in some studies vascular dementia cases converted to non dementia and milder cognitive impairment. In some of the cases underlying depression was there which when improve resulted in improvement of cognitive functions. But most of the cases remain stable over time. In some studies it has been found that stroke in left hemisphere which is known as dominant hemisphere has increased chance of intellectual deterioration



over time than right hemisphere or non dominant hemisphere stroke.

### Outcome:

Post stroke dementia cases have a higher chance of death than people of same age. In our study the annual death rate was 14% of dementia patients compared to 3% among non demented population. Apart from generally higher chance of death in dementia patients these stroke dementia patients may belong to more severe stroke cases or the dementia patients may be less adherent to treatment, which may contribute to their increased mortality. Also post stroke dementia patients have poorer functional outcome, and increased disability with poorer quality of life. Caregivers of post stroke dementia face a greater burden than their non demented counterparts. Chances of recurrent stroke are also more in case of post stroke dementia. So in overall from all parameters post stroke dementia carries a worse prognosis.

Considering the plight of these patients, preventive measures should be undertaken. For treatment purposes, cognitive rehabilitation similar to physical rehabilitation for physical weakness should be undertaken.

### Management:

There is no specific treatment for post stroke dementia once established. In first phase one can take the steps to prevent the occurrence of stroke per se but controlling hypertension,

diabetes and dyslipidaemia may to some extent help in preventing post stroke dementia by simply decreasing the chance of recurrent stroke or atherosclerosis. However some drugs such as cholinesterase inhibitors have some role in treating post stroke dementia as both Alzheimer's disease and vascular dementia share the common pathology of cholinergic deficit. Caregivers should also be properly psycho-educated and measures should be taken to reduce their burden to prevent morbidity among the caregivers.

### Conclusion:

Post stroke dementia is a mixed disorder including vascular dementia, AD and mixed dementia and it carries a worse prognosis for outcome, disability and morbidity. Post stroke mild cognitive impairment is a less recognized area for research and demands more studies to find out its course and outcome. Preventive strategies have a role not only in preventing stroke to occur but in some cases it may help arresting the conversion to post stroke dementia also.

### References:

1. Das S, Paul N, Hazra A, Ghosal M, Ray B K, Banerjee T, Burman P, Das SK Cognitive dysfunction in stroke survivors: A community based prospective study from Kolkata India. *Journal of Stroke and Cerebrovascular Diseases* 2013;22:1233-1242.
2. Lesy D, Henon H, Cordoliani M, Pasquier F. Poststroke dementia. *Lancet Neurology* 2005;4:752-759.



“ India’s reputation as a country with a culture of abstinence especially in matters regarding alcohol is underserved, say experts. The country, which has seen a rapid proliferation of city bars and nightclubs in recent years, is fast shedding its inhibitions about alcohol as a lifestyle choice....This situation has led to fears of an undocumented rise in alcohol abuse not only among poorer classes but also in sections of society that were previously considered dry. ”

## ADDICTION - SUBSTANCE TO BEHAVIOUR

*Prof Om Prakash Singh*

India with a population of over 1 billion people, spread over an area of 3.28 million sq. kms. (3214 km. from North to South and 2933 km. from East to West), has about 3 million (about 0.3 per cent of total population) estimated victims of different kinds of drug usages, excluding alcohol dependents. Such population comes from diverse socio-economic, cultural, religious and linguistic backgrounds. The use of dependence-producing substances, in some form or the other, has been an universal phenomenon. In India also, the abuse of alcohol, opium and cannabis had not been entirely unknown.

India is the biggest supplier of licit demand for opium required primarily for medicinal purposes. Besides this, India is located close to the major poppy growing areas of the world, with “Golden Crescent” on the Northwest and “Golden Triangle” on the North-East. These make India vulnerable to drug abuse particularly in poppy growing areas and along the transit/trafficking routes (Report of Ministries of social Justice).

India’s reputation as a country with a culture of abstinence especially in matters regarding alcohol is underserved, say experts. The country, which has seen a rapid proliferation of city bars and nightclubs in recent years, is fast shedding its inhibitions about alcohol as a lifestyle choice.

This situation has led to fears of an undocumented rise in alcohol abuse not only among poorer classes but also in sections of society that were previously considered dry. The health ministry has recognised the scale of the problem—and has called for a policy that will regulate sales and the pricing of drink.

Many experts say that although this move is welcome it may not be enough to curb the harmful effects of the rise in alcohol consumption in society. The increasing production, distribution, and promotion of alcohol have already seen drink-related problems emerging as a major public-health concern in India.

Sales of alcohol have seen a growth rate of 8% in the past 3 years. Officially, Indians are still among the world’s lowest consumers of alcohol. Government statistics show only 21% of adult men and around 2% of women drink. But up to a fifth of this group—about 14 million people—are dependent drinkers requiring “help”.

The concern, say experts, is that there has been a rapid change in patterns and trends of alcohol use in India. Chief among them are people beginning to drink at ever-younger ages. The percentage of the drinking population aged under 21 years has increased from 2% to more than 14% in the past 15 years, according to studies in the southern state of Kerala by Alcohol and Drugs Information Centre India, a non-governmental organisation (NGO). Alarming, the study found that the “average age of initiation” had dropped from 19 years to 13 years in the past two decades.

The centre points out that a “powerful international and domestic alcohol lobby” is purposely targeting young Indians. The local industry has introduced flavoured alcohol drinks to attract previously non-drinking women and young men. Multinational companies have identified India with its vast unexploited



markets as one of the world's most sought after places for investment.

Many alcohol advertisements now feature spirited groups of young people having a good time. Although alcohol advertising is banned in the electronic and print media, surrogate advertising is rife. "Drinking water and apple juice is packaged by alcohol companies. It's all about getting young people to start early and be life-long consumers. Bollywood films now glorify alcohol where the good guys drink."

The shifting composition of Indian drinkers has seen a rise in the number of Indian women drinking regularly and heavily. One recent study in the southern state of Karnataka found young women consumed similar amounts of alcohol to young men on any typical drinking occasion.

What is of particular concern—and an important indicator of health risks—is that the signature pattern of alcohol consumption in India is ; frequent and heavy drinking. More than half of all drinkers fall into the criteria for hazardous drinking, which is characterised by bingeing and solitary consumption to the point of intoxication. Moreover, spirits account for 95% of the beverages drunk in India.

### What is drug addiction

Drug addiction is chronically relapsing disorder characterized by -

- Compulsion to seek and take the drug
- Loss of control in limiting intake
- Appearance of negative emotional symptoms as well as physical withdrawal symptoms when drugs cannot be accessed

Drug abuse mimic or enhance the action of neurotransmitters which bring pleasure. Like opioids act on opiate receptors and nicotine acting on nicotinic receptors which ultimately lead to increase in Dopamine which is a pleasure neurotransmitter.

Dopamine is also released when we have food, sex, read a good book, listen to music or accomplish a thing. This motivates us to increase our behavior to fulfill this goal.

Drug of abuse provides with a "cheat code" which allows us to get the high without the hard work and it is more intense, loss of effect leads to despondency forcing the user to search for more drug and his behavior starts to revolve around searching, procuring and taking the drug and neglecting his other activities.

The continued use of drug leads to change in neurons and have harmful physical and social consequences. Commonly used drug of abuse are Opioids, (heroin, codeine, opioid cough syrups and pain medication), Cannabis (ganja, charas,

etc.) cocaine, alcohol, LSD, designer drugs like ecstasy, apart from these drugs the use of inhalants or volatile substances are increasing day by day.

Sniffing glue, eraser, polish etc is now spreading to school population where as previously it was limited to street children. Nicotine and caffeine are examples of socially approved use of psycho active substances

### Socio Biology of drug abuse

Drug abuse depends on the innate factors in individual – genetics, early environment, nature of drug – its reward potential, accessibility and availability

Social factors – poverty, overcrowding, peer pressure, social acceptability.

All these factors are interrelated and form complex dynamics.

Treatment generally involves three stages

- Detoxification – that is weaning out of drugs from the body.
- Maintenance – increasing attention for maintaining the drug free state
- Relapse prevention and rehabilitation

### Behaviour addiction

Increased attention is now being paid to understand non substance related causes of excessive behavior which impairs the persons socio occupational functioning. This involves compulsive behaviour with inability to stop despite harmful consequences.

Some of the categories being thought are internet and mobile use disorder, Hyper sexual disorder, pathological gambling, compulsive shopping.

Though they do not directly affect the body yet all are characterized by typical drug seeking behavior which involves inordinate long time spent in these activities, in ability to stop, feeling low in aftermath of these activities and feeling of withdrawal like restlessness when prevented from doing these activities.

Treatment includes behavioural and psychosocial interventions. Some drugs are being tried which may be of help in this condition.

Addiction to drugs or behavior is a complex process arising out as a function of brain, organization, social and cultural factors, advertisement and promotional factors and requires a multipronged approach involving, legal, medical and social interventions.



## INDIA NEEDS MANY DEDICATED NEUROLOGICAL CENTERS AS THE BURDEN OF STROKE IS INCREASING GLOBALLY.....

*Dr Shakir Husain*

**D**r Shakir Husain is a prominent name among the neurology eminents in India and different parts of the world. Presently the Chairman and senior Consultant of neurology in the department of Neurology at the Institute of Neurosciences he is also contributing as the Director, Interventional Neurology and Director, Stroke Program in the same organisation. He is attached as a senior consultant of Neurology at Saket City Hospital, New Delhi, India.

**Jagriti** talked to Dr Shakir Husain recently on the latest developments in the field of neurological treatment worldwide.

**Jagriti:** *Since the past more than 2 decades you have emerged as the face of Neuro-Endovascular Procedure (Neuro intervention) in India. As an eminent Neurologist how do you define your journey. I mean, your early days, your idea about choosing neurology as a specialty and specialization in endovascular treatment.*

**Dr Husain:** My journey of neurology starts from my early days in medical school at Rabindra Nath Tagore Medical College, Udaipur in Rajasthan. While studying brain anatomy and dissecting human cadaveric brains, I was fascinated with the complexity of the brain and its intricate mechanisms. My love for this subject was complimented and stimulated by one of the best teachers of neurology Dr. Abbas Ali Saifee who was at the time a young dynamic faculty who inspired me and countless others in the speciality of Neurology.

After completing my MD in Internal Medicine I was selected for the post doctoral (DM) in Neurology at the GB Pant Hospital (University of Delhi) in 1990. During my training in Neurology

I wanted to break away from convention and be proactive in helping my patients like surgeons do and while in search of this I came across some Neuro interventional procedures being developed in which the intervention can be performed through an artery of groin and by taking catheters (microtubes) into the fine brain arteries. This could treat a variety of neurovascular procedures, which were difficult to treat by conventional neurosurgery.

This was the start of a new journey in my life and I chose to train myself under Prof. Anton Valavanis, a Master of the subject, at the Institute of Neuroradiology in Zurich in 1995 and then from 1997 to 1999. I returned from Zurich in early 1999, filled with the excitement and challenge to start a new dimension in care of stroke and cerebrovascular disease. I joined Sir Ganga Ram Hospital in New Delhi and started my work in a rather compromised situation as there was no dedicated infrastructure available and I had to work and produce acceptable results of complex neurovascular procedures using simple C-arm x-ray machines.

Over the years I graduated to a little improved version of the same. Eventually we developed one of the first departments of Neuro-endovascular therapy in the country and became the first center in the country to offer a one-year fellowship training program in neurointervention to neurologists and neurosurgeons in the country.

Under this program more than 25 fellows from different parts of South Asia were trained until 2009, till the time I moved to Max Institute of Neurosciences where I worked until date. During this period of over a decade with SGRH, I innovated many



approaches to deal with difficult situations. I enjoyed that period as one of the best periods of my professional life.

In Max Institute of Neurosciences we developed one of the first departments of Interventional Neurology and Stroke care, which was inaugurated by my teacher, mentor and philosopher, Prof. Anton Valavanis. From 1st feb 2014. I am moving in my journey in search of a better infrastructure and commitment by the organization to help create a program of Neurointervention and Stroke care which can be seen by people of this nation and the world, as a center of excellence and trust where a needy stroke patient can walk in with confidence, to obtain a cost effective and uncompromised care irrespective of his race, creed and financial status. It's a challenging task I know for sure but we are committed and your blessings are our driving force. Journey continues.....

**Jagriti:** *People are gradually becoming aware of invasive treatment terms viz Brain Angiogram, coiling, Carotid Stenting, Intracranial stenting, thrombolysis, tumor Embolization etc. Do you feel the awareness required in this field is enough, particularly within the Neurologist fraternity? and public awareness?*

**Dr Husain:** Awareness among Neurologists and Neurosurgeons has certainly increased in the last decade, however it has still to reach across different parts of this vast nation. Awareness among the population is still low and confined mainly to the urban and semi-urban areas and requires more efforts to spread it across the nation. We created a Stroke and Neurointervention Foundation (SNIF) in 2006-2007 with the objective of educating and training people in the field of Neuro intervention and Stroke. We conduct the Delhi course on Neuro intervention annually to train neurologists and neurosurgeons in this field. The 9th Delhi Course is scheduled on 12-15 March 2014. We also organize public awareness programs under this banner.

**Jagriti:** *You have the experience of working in many countries around the world and as such procedures are image guided how do you rate the equipments used in India with the ones used by other countries?*

**Dr Husain:** Due to private equity in healthcare today we have

state of art equipments at par with the best centers in the world in major metropolitan cities of India. However, there is a huge gap to be bridged between the urban and rural India . So there is a mammoth task of doing things for the development of this minimally invasive method of treatment. Each person on earth deserve its benefit in need.

**Jagriti:** *Do you feel there is necessity for more of technically advanced dedicated neurology hospitals in India and more of in Eastern region?*

**Dr Husain:** We certainly need many dedicated neurological centers as the burden of stroke is increasing globally. Already in this country there is a huge gap in demand and supply. The Eastern region is particularly underdeveloped and needs to gear up to the increasing demand of services, which are needed on an emergent basis in stroke care.

**Jagriti:** *What would be your advice to the young generation of doctors who want to practice neurology?*

**Dr Husain:** Interventional Neurology is a fascinating field and many new developments are on the horizon. The learning curve is steep but the results are so gratifying that it is more than worth the hard work to see the reversal in brain function from timely and appropriate intervention. Practice of this sub-specialty gives us all professional satisfaction but is not the supreme.

**Jagriti:** *Doctor some personal questions – your hobbies, your family, how do you de-stress yourself?*

**Dr Husain:** In my free time I like to be with nature. I enjoy photography and like to play tennis for my recreation and fitness and enjoy a long drive in my SUV when depressed. Listen to music and I like “Rabindra Sangeet” and Indian classical.

My wife is a Neurosurgeon, dedicated to her profession in a passionate way. She is from Kolkata, so it is Neurology at home as well.

**Jagriti:** *Lastly, we would want to know how best would you describe yourself?*

**Dr Husain:** A common man with a passion for hard work and mad desires....

“ Awareness among the population is still low and confined mainly to the urban and semi-urban areas and requires more efforts to spread it across the nation. ”



# Make Healthy Choices

There is a lot you can do to help prevent stroke. Regulating what you eat and being physically active are high on the list. They'll help you feel better, too. In many cases, living a healthy lifestyle reduces the need for medical treatment. Try your best to prevent stroke.

Make These Healthy Choices:

Eat at least five servings daily of fruits and vegetables

- Switch to low-calorie, low-fat snacks.
- When you must use oil or fat, use sunflower, olive oils
- Don't add salt to the food you eat.,
- Choose skinless chicken, turkey, fish and lean red meats.
- Bake, boil, or broil instead of frying.



## Keep a Healthy Weight

Do you weigh more than you should? Then, your body may be turning excess fat and cholesterol into plaque. These plaques in your blood vessels can reduce blood flow to your brain. Extra weight can also make your heart work harder, raising your blood pressure.



By losing weight, you may reduce both the risk factors at the same time.

## Move More

To lose weight, your body needs to burn more calories than it takes in.

Exercise is a good way to burn up calories and helps shed extra pounds. It also helps your heart and blood vessels work better. Enjoy moderate intensity physical activity for at least 30 minutes most days.

Try these easy forms of physical activity:

- Dance Walk - it's one of the best forms of exercise.
- Take a walk during your lunchtime at work.
- Swim or ride a bicycle.
- Check with your doctor before starting any exercise program.

## Limit Alcohol Intake

Don't have more than two alcoholic drinks a day if you are a man or one if you are a woman.

Too much alcohol may raise the cholesterol level in your blood. Drinking too much also increases blood pressure and adds calories to your diet



## Smoking



If you smoke, quit. Smoking is a major preventable risk factor for stroke. The nicotine and carbon monoxide in cigarette smoke hurt the cardiovascular system by damaging and narrowing blood vessels and causing blood to clot. Quitting smoking is tough, but it's worth it.

“ She possesses an exceptional musical memory which makes her memorise hundreds of songs with correct lyrics, rhythm and tune. We have provided her with a harmonium and a music teacher so that she can pick up songs with correct notations. Now she can sing playing harmonium. ”

## SPECIAL PARENT OF A SPECIAL CHILD

*Subir Kumar Mitra*

It was irresistible shock when we came to know that our only daughter is not normal by standard of medical parameters. The difference in her gradually unfolded as she grew. As parents we were craving to hear our child call us 'baba' and 'ma' as she grew, but found her imitating tutored words. With medical help we found that she had perfect vision, perfect hearing and perfect eyesight. Not as my daughter I say, believe me, she was such a pretty good looking doll any one would love to cuddle her. Yet some thing was not normal with her was only that we could feel.

Only at the age of two and half years she was diagnosed as 'Autistic'. The fight with destiny struck reality, started for us. Started running from one Doctor to other (child specialist, psychologist, psychiatrist, neurologist, speech therapist) with the hope of seeking resurrection for her through medical assistance but were only re-confirmed of her Autism. Round 30 years back Autism was not a very known subject to all.(even to some doctors)

We were told that there was no treatment for this excepting training and coaching. At that time there were very few centers dealing with such children. One of my senior colleagues advised me to visit NIMHANS (National Institute of Mental Health & Neurosciences) Bangalore.

In 1986 we went to Bangalore only to get reconfirmed about her Autism. The Doctors here encouraged us with a hope of her possibilities of improvement to an extent where she will be able to meet her own needs if trained properly. They also advised to keep in touch as they regularly update the developments received from International Research Institutes.

During our stay we enriched ourselves with their valuable advices and instructions regarding development of concentration,

process of learning, ways and means of involving her in doing some meaningful jobs. We were also advised for her proper training in music as she has an inborn affinity towards music.

With their guidance backed up with our utmost effort we nurtured our daughter for years and have been able to make her follow most of our instructions and act accordingly.

She is now capable of doing some light domestic jobs independently. She attends to her own daily needs like brushing, bathing, eating, wearing clothes and shoes etc.

She is admitted in a special school and is getting herself engaged in vocational training for further development.

She possesses an exceptional musical memory which makes her memorise hundreds of songs with correct lyrics, rhythm and tune. We have provided her with a harmonium and a music teacher so that she can pick up songs with correct notations. Now she can sing playing harmonium. I feel great when she performs in public functions along with other instrumental accompaniments.

We have formed a musical troupe for her pleasure and she performs in all public shows. This musical troupe is for dual purpose : firstly for general entertainment and secondly to propagate that a special child with a special ability can perform close to normal if trained properly which will encourage other such parents and will build a chain of social awareness.

By now our daughter is known in our circles for her special ability. At times we feel proud when people identify us as parents of Triparna (name of our daughter). In spite of all the suppressed pain that we carry within our mind a little joy overtakes us at such moments.



We are fighting each day to give her an identity of her own, a meaning to her life and will go on till the last day of our life. This is an additional responsibility of being parent of a special child.

We are aging and we are in search of a place where she can be

sheltered with proper care and nourishment for the rest of her life.

A time will come when our lives will end and her new life will start at the budding BMRI and we like to see that before we close our eyes forever.



“ According to WHO estimates for the year 2020 (based on the current trends), approximately 1.53 million people will die from suicide, and 10-20 times more people will attempt to commit suicide worldwide. That means, on average one death every 20 seconds and one attempt every 1-2 seconds.....To the existentialist suicide is the ultimate in liberty, to the theologian it is a sin, to the society it is a flagrant act, but to the medical person it is a sickness and can be prevented. ”

## SUICIDE IS A MAJOR PUBLIC HEALTH PROBLEM

*Dr Gautam Bandyopadhyay*  
*Prof of Psychiatry, North Bengal Medical College*

The term “suicide” is derived from Latin “sui caedere” which means ‘to kill oneself’. Suicide imposes a huge social, emotional and economic burden on our society. For one suicide, on an average at least six persons are affected directly and indirectly from the act. The individual cannot be understood in isolation from his/her social matrix, although suicide is an intensely private act, yet its social impact is profound. To the existentialist suicide is the ultimate in liberty, to the theologian it is a sin, to the society it is a flagrant act, but to the medical person it is a sickness and can be prevented.

WHO maintains a databank on mortality and mortality associated with suicide is part of this databank. According to WHO estimates for the year 2020 (based on the current trends), approximately 1.53 million people will die from suicide, and 10-20 times more people will attempt to commit suicide worldwide. That means, on average one death every 20 seconds and one attempt every 1-2 seconds.

Contemporary definitions of suicide rely primarily on two elements: a precise outcome i.e. death and a prerequisite i.e. the wish to die. This is also evident in the operational definition of suicide proposed by WHO: for the act of killing oneself to class as suicide, it must be deliberately initiated and performed by the person concerned in the full knowledge, or expectation, of its fatal outcome. (WHO, 1988). But ascertaining intentionality as post hoc is very difficult excepting cases with suicide notes

or circumstances, so the intentionality is often assumed rather than confirmed.

In 1964 when Stengel proposed that “suicide” and “suicidal attempts” are two distinct populations, even for him intention rather than the outcome was the decisive element. Stengel’s concept led Kreitman (1969) to devise a term ‘Para suicide’ to designate those suicidal acts that did not carry an unquestionable wish to die, but still preserving the connection to completed suicide. In 1979, Morgan proposed the term ‘deliberate self-harm’, stressing again on volitional component and Hawton(2002) added fatal and nonfatal, stressing outcome in addition to intention. Zubin(1974) suggested that, suicide does not just occur, rather it is the end product of a process, ranging from suicidal ideation through planning, attempts to the complete suicidal act.

Shneidman (1993) is an important name in modern suicidology, who proposed the concept of ‘suicidality’ to designate an individual’s risk level of danger to themselves.

### **Demographic perspective**

Global suicide rates(per 100000 population)is calculated starting from 1950 and an increase of 49% for suicide rates in males and 33% for suicide rates in females can be observed during a period between 1950 to 1995. There is a constant predominance of suicide rates in males over suicide rates in





females (except in China). Male : Female ratio is more or less stable during the last few decades worldwide, which was 3.2: 1 in 1950 and also projected as 3.9 : 1 in 2020, however females attempts more in comparison to males.

There is a clear tendency for suicide rates to increase with age and it is 6 to 8 times higher among the elderly population as compared with young people. However, suicide rates in young people are also growing at a rapid pace, which is an alarming condition.

The highest suicide rate for both men and women are found in Europe, mainly Eastern European countries like, Estonia, Latvia, Lithuania and to a lesser extent, Finland, Hungary and the Russian Federation. Outside Europe, suicide rate is also high in Cuba, Japan, Mauritius and Sri Lanka. According to WHO, the lowest rates of suicide is in the Eastern Mediterranean region, comprises mostly of countries that follow Islamic traditions. Information conveyed by suicide rates can be misleading, as there are important demographic differences. For example, although highest suicide rates are reported from Eastern Europe, the largest number of suicide are found in Asia. Given the size of the population almost 30% of suicides worldwide are committed in China and India alone. Number of suicides in India is equivalent to those in the four European countries - Russia, Germany, France and Ukraine, with the highest numbers of suicides together.

### **Suicide in India**

More than one lakh lives are lost by suicide every year in our country and the suicide rate has increased from 7.9 to 10.3/100000 during the last two decades. With the rapid advancement of modernisation, sweeping changes in socioeconomic, philosophical and cultural sphere raised the stress level of young people, thereby raising the suicide rate in India. Poisoning (36.6%), hanging(32.1%) and self immolation (7.9%) are the common methods of suicide in India. According to the official data, the reason for suicide is not known in about 43% of suicides, and illness or family problems contribute to about 44% of suicides. Divorce, dowry, love affairs, cancellation or inability to get married, illegitimate pregnancy, extra marital affair or conflicts from marriage are strong reason for suicide in Indian women.

The majority of suicides(37.8%) in India are those below the age 30, and 71% of are below 44 years of age.

### **Risk factors for suicide**

Suicide is a multidimensional and multifactorial problem. It is a

complex human behaviour that cannot be easily predicted, but there are a range of factors which has been shown to contribute to suicide. An excellent mnemonic for the major risk factors is SAD PERSONS devised by Patterson et al.(1983). These are :

**SEX:** Females are more likely to attempt, males are more likely to succeed

**AGE:** Teenagers and elderly are at highest risk

**DEPRESSION:** 15% of depressed patients die by suicide

**PREVIOUS ATTEMPTS:** Previous suicidal behaviour increases the risk of eventual death by suicide

**ETHANOL ABUSE:** 15% of alcoholics commit suicide

**RATIONAL THINKING LOSS:** Psychosis is a risk factor. About 8% of suicides committed by those suffering from schizophrenia.

**SOCIAL SUPPORT:** Lacking

**ORGANIZED PLAN:** Well formulated suicide plan is a red flag

**NO SPOUSE:** Being divorced, separated, or widowed is a risk factor. Responsibility for children is protective.

**SICKNESS:** Chronic illness is a risk factor

Many a times an event was identified as precipitating factor if it was experienced within a few months of suicide or there was evidence that it played a role in triggering the suicide. Precipitating events could be beyond the persons control or else it may be instigated by the person.

The symptoms associated with acute risk of suicide are: anhedonia (loss of pleasurable feelings), anxiety, insomnia, a diminished ability to concentrate etc. At least one of the three behavioural signs are predictive of suicide crisis : speech or action contemplating suicide, deterioration of social or occupational functioning and increased alcohol abuse. Among the affects that have been linked to suicide are : Hopelessness, Rage, Guilt, Feeling of abandonment, self-hatred, persistent feeling of loneliness and severe anxiety.

### **Suicide prevention**

In suicide prevention strategies fundamental principle based on PST model, i.e. primary, secondary and tertiary model. Primary prevention includes, suicide awareness, skill training on improving social as well as problem solving skills and restriction of lethal methods. Secondary prevention includes, screening techniques( identifying at risk individual) and gatekeeper training. Tertiary prevention attempts to reduce the incidence of relapses and also to reduce the consequences.

“ A question concerning the links between drug-trafficking and terrorism financing operations arises. A number of organizations deal in illicit drugs for pragmatic reasons. Several use their earnings to bolster their political power and to acquire operating funds, even though they may be ideologically opposed to the drug trade itself. ”

## SOCIAL IMPACT OF SUBSTANCE ABUSE

*Dr Suchandra Brahma*

*Consultant psychiatrist, R N Tagore Hospital & Vision Care Hospital*

I stand at a traffic light in south Kolkata the little kids come up to the window begging for money, some with infants on their shoulder, some with incense sticks to sell. My usual answer is always to say “Why just have food one time with my money? Come with me and I will feed you and send you to school, you will not have to beg for food ever again”. Instinctively I know, none of them would ever say - yes. But last week a young boy about 8 years old agreed, and as I was opening the door of my car for him , I saw him with a rag that he just had stuffed in his mouth. He was huffing inhalants. I asked him why anyone would give him money to use on drugs to abuse and he was taken by surprise that anyone would know. He was taken aback and just slicked away mumbling “no” “that’s not nesha”.

Just an example of how the culture of drug use has intruded into every strata of society, to the poorest of the poor.

Irrespective of the drug abused, addiction leads to

- Physical deterioration
- Psychiatric problems
- Intellectual impairment
- Personality deterioration
- Increased risk of accidents and higher susceptibility to high risk behaviour in the form of unprotected sex or use of unsterile needles.
- Legal risks

Impact can be classified at several levels:

### **Production**

#### A. Employment

At the source where the crop is grown there is a distinct set

of problems. While drug abuse affects labour markets by reducing productivity, it also generates some employment, particularly in the drug-producing countries, directly engaged in producing the drugs and peddling the same. Although the percentage of this engagement is less than generally believed. It is less than 1% in Pakistan, Afghanistan and Myanmarclaims more. In Colombia the percentage is 0.4%, but high in Peru (2.4%) and Bolivia (16.7%).

#### B. Violence

- Drug-related crime and violence is high not only in consumer countries, but also in producer countries, the most striking example of this being Colombia. With drug cultivation booming, the number of killings increased from 17 per lakh of population in 1975 (i.e., before large-scale drug cultivation started) to 63 per lakh in 1988. This was the third highest murder rate in the world.
- Studies on the regional distribution of violence showed that out of the 10 most violence-prone regions in the country, 8 were major cocaine- and marijuana-producing and trafficking areas.
- The correlation between poverty or inequality and violence is much weaker in other locations than the drug-producing and trafficking areas.

#### C. Environment

- Environmental damage related to illicit drugs is caused in producing countries by clearing of forests. The type of environmental damage varies from country to country.

In the Andean countries, coca farmers cut down forests on steep hillsides which are prone to erosion. Up to 780,000 hectares have been cleared for coca production, compared to the 250,000 hectares of forest cleared for timber extraction, colonization and cattle ranching all together. The deforested areas are used for cultivation of herbals required for drug production.

In South-East Asia, for opium poppy cultivation the rain forests have been cleared by the traditional slash-and-burn system destroying top-soil and silting up rivers. The intense use of pesticides has already seriously contaminated the groundwater. 133 toxic wastes created during the processing of plant are flushed down the waterways each year without any proper waste water treatment. This has been responsible for killing different species of fish and aquatic plants.

#### D. Political issues

Illicit drug funds, infiltrate the formal economy and the political system, endangering the foundation and the proper functioning of civil society and leading to social disintegration and anarchy. In some producer/trafficking countries, drug money is reported to have infiltrated politics, the economy, and even cultural and sports activities.

The magnitude of funds under criminal control poses special threats to governments, particularly in developing countries, where the domestic capital market is too small to absorb such funds without quickly becoming dependent on them. It is difficult to have a functioning democratic system when drug cartels have the means to buy protection, political support or votes at every level of government and society. In systems where a member of the legislature or judiciary, earning only a modest income, can easily gain the equivalent of some 20 months' salary from a trafficker by making one "favourable" decision, the dangers of corruption are obvious.

Governments in a number of countries are forced either to submit to pressure from the traffickers or risk major political unrest. Many governments opt to remain passive in the fight against drug trafficking in order to preserve a minimum level of social peace.

A question concerning the links between drug-trafficking and terrorism financing operations arises. A number of organizations deal in illicit drugs for pragmatic reasons. Several use their earnings to bolster their political power and to acquire operating funds, even though they may be ideologically opposed to the drug trade itself. (Colombian Revolutionary Armed Forces), the country's largest guerrilla group, are financed through narcotics trafficking. Various

groups with similar agendas and considerable income from trafficking are reported in Afghanistan, Myanmar, Sri Lanka and Thailand.

### Trafficking

#### A. Violence

- Trafficking-related criminal activity, especially conflicts among trafficking groups competing for increased market share.
- Along the many routes on which illicit drug traffic continues, there appears to be some spillage, partly because of a tendency of traffickers to pay middlemen in kind. Several transit countries along trafficking routes are consequently showing evidence of increasing drug abuse and consumption.

#### B. Law enforcement

Some researchers even question whether law enforcement may not, in fact, contribute to an increase in certain kinds of crime, such as violent conflicts among dealers for market share.

The impact of illicit drug trafficking on law enforcement is both extensive and intensive. It takes away time, money and attention from other criminal issues in the society. However, In addition to these costs, wherever there is a well-organized, illicit drug industry, there is also the danger of police corruption.

### End users

#### A. Family and community

- There is an extensive literature on how the rapid social, economic, and technological changes, characteristic of the present age, influence disintegration of families and communities.
- This disintegration appears to be related to substance abuse.
- Studies show illicit drug abuse (opium and heroin consumption) correlates more strongly to:
  - i. the disintegration of the families
  - ii. loss of social controls exercised by the families and community
  - iii. urbanization, rapid cultural change and a breakdown in family cohesion.
  - iv. The negative influence of peers appears to increase when parents abdicate their traditional supervisory roles
- The relationship could also work the other way, with substance abuse straining family relationships and making families dysfunctional;



## B. Health

1. The substances most commonly associated with drug-related deaths are heroin and other opiates, cocaine, and, to a lesser extent, barbiturates and amphetamine-type stimulants, notably methamphetamine.
2. Depending on the dosage, substances such as benzodiazepines, hallucinogens and cannabis have a negative impact on health. These substances do not usually cause death directly but they may be associated with fatal accidents.
3. While alcohol and tobacco account for nearly 5 million deaths per year, estimates of the number of drug-related deaths of injecting drug users (IDUs) amount to a maximum of 200,000 cases per annum globally.
4. While serious health problems for drug abusers are the rule, drug-related death still seems to be the exception.
5. Health problems primarily affect the drug abuser concerned and only indirectly affect society in general, by giving rise to higher health-care costs.
6. The links between drug addiction, needle-sharing, prostitution, AIDS and other diseases clearly demonstrate the additional health dangers for society as a whole. Some 22 per cent of the world's HIV/AIDS population are drug injectors; sharing of needles amongst IDUs in the HIV/AIDS population is as high as 30 per cent in the United States and 25 per cent in France and India.

## C. Education

Though education and drug abuse often appear to be in a circular relationship, it is generally believed that education is an important point of intervention for the prevention of drug abuse.

1. School children who use drugs often suffer from:
  - impairment of short-term memory and other intellectual faculties,
  - impaired tracking ability in sensory and perceptual functions,
  - preoccupation with acquiring drugs,
  - generally impaired classroom performance.
  - Reduced cognitive efficiency leads to
    - i. poor academic performance and
    - ii. adverse emotional and social development
    - iii. resulting decrease in self-esteem.
2. This contributes to instability in an individual's sense of identity which, in turn, is likely to contribute to further drug consumption, thus creating a vicious circle.

At the same time, education is one of the principal means of preventing drug abuse. It should be appreciated, however, that preventive education is a process which will produce results only in the long term, in particular with the close cooperation of parents. Unfortunately, scientifically validated information on the overall effectiveness, and cost-effectiveness of various approaches, is not usually available.

## D. Crime and violence

Drug addicts tend to be deeply involved in criminal activities, with daily users of drugs showing a significantly higher rate of criminality than non-drug users. The addicts resort to theft and prostitution to finance their addiction. Long-term trends, show that drug-related crime and robbery are the fastest-growing component in crime as a whole, after kidnapping.

A study which tested nearly 3,000 persons charged of serious non-drug-related offences, found that about three-quarters of drug abusers in New York and Philadelphia and about two-thirds of those in the District of Columbia, 143 tested positive for cocaine.

Experts found that during periods of treatment, when narcotics use was curtailed, property crime levels were significantly reduced.

## E. Children of families with drug abuse

Family factors thought to lead to, or intensify, drug abuse include

- prolonged or traumatic parental absence,
- harsh discipline,
- failure to communicate on an emotional level and
- parental use of drugs.

Lack of household stability triggered by low and irregular income and unemployment may increase the stress on the family and its vulnerability to drug abuse.

## F. Domestic violence

Researchers have found that one fourth to one half of men who commit acts of domestic violence also have substance abuse problems (Gondolf, 1995), it is not clear whether a man is violent because he is drunk or whether he drinks to reduce his inhibitions against his violent behavior" (Labell, 1979, p. 264).

A survey for Child Abuse found 80 percent of child abuse

cases are associated with the use of alcohol and drugs (McCurdy and Daro, 1994).

Research shows women who abuse alcohol and drugs are more likely to become victims of domestic violence (Miller et al., 1989) and are more likely to receive prescriptions for tranquilizers, sedatives, stimulants, and pain-killers and are more likely to abuse alcohol (Stark and Flitcraft, 1988a). About 40 percent of children from violent homes believe that their fathers had a drinking problem and that they were more abusive when drinking (Roy, 1988).

- Childhood physical abuse is associated with later substance abuse by youth (Dembo et al., 1987).
- Fifty percent of batterers are believed to have had “addiction” problems (Faller, 1988).
- Substance abuse by one parent increases the likelihood that the substance-abusing parent will be unable to protect children if the other parent is violent (Reed, 1991).
- A study conducted by the Department of Justice of murder in families found that more than half of defendants accused of murdering their spouses - as well as almost half of the victims - had been drinking alcohol at the time of the incident (Bureau of Justice Statistics, 1994).
- Teachers have reported a need for protective services three times more often for children who are being raised by someone with an addiction than for other children (Hayes and Emshoff, 1993).
- Alcoholic women are more likely to report a history of childhood physical and emotional abuse than are nonalcoholic women (Hein and Scheier, 1996).
- Women in recovery are likely to have a history of violent trauma and are at high risk of being diagnosed with posttraumatic stress disorder (Fullilove et al., 1993).
- Batterers who are survivors of childhood abuse also frequently say that they use drugs and alcohol to block the pain and to avoid confronting that memory. It is a self-perpetuating cycle: Panel members report that batterers

say they feel free from their guilt and others’ disapproval when they are high.

### The societal context

Clearly, substance abuse is associated with domestic violence, but it is not the only factor. As discussed above, witnessing or experiencing family violence during childhood is a risk factor as is a history of childhood aggression. Another factor that must be acknowledged is societal norms that indirectly excuse violence against women. It accepts domestic violence or intoxication as a way of dealing with frustration or venting anger.

For example, substance abuse treatment providers have observed that society tolerates a man’s use of alcohol and other drugs more readily than a woman’s. They note that batterers often blame a woman they have victimized for the violence and people, including police, judges, and juries, often accept this argument. Research suggests that intoxicated victims are more likely to be blamed and aggression toward them is considered more acceptable.

Attitudes toward rape: Women victims frequently are assumed to have provoked their rapists by the way they behaved or dressed. This accounts for the guilt and shame that many rape victims experience who later report using alcohol and other drugs to “self-medicate” themselves to the pain of their situations.

In conclusion it may be added that there are other people who try to benefit from this situation. I have been seeing a heroin addict for the past 3 months, and thanks to medications and a supportive family milieu he has not relapsed yet. In his last appointment he had asked a question, “Doctor, I have been to rehabilitation centers 64 times in the last 9 years and no one ever gave me the medicines I get now, I have never stayed clean for more than 10 days to 2 weeks. I know now what to take to avoid the crave for”pata”. Can you tell me why I did not get this medicine before?”

*\*Dr Suchandra Bramha is working for rehabilitation of destitute women with mental illness.*

“ In South-East Asia, for opium poppy cultivation the rain forests have been cleared by the traditional slash-and-burn system destroying top-soil and silting up rivers. The intense use of pesticides has already seriously contaminated the groundwater. 133 toxic wastes created during the processing of plant are flushed down the waterways each year without any proper waste water treatment. ”

“ The founding father of psychoanalysis Sigmund Schlomo Freud made several notable contributions to the fields of neurology, neuropathology, and anesthesia. In fact, many students and clinicians in the neurosciences are not even aware that Freud’s initial scientific work was instrumental in allowing for some of the major discoveries in fields of neurology, neuropathology, and anesthesia. ”

## FREUD: A PIONEER IN THE FIELD OF NEUROSCIENCES

Sigmund Schlomo Freud (6 May 1856 - 23 September 1939) was an Austrian neurologist who later became known as the founding father of psychoanalysis.

Freud qualified as a doctor of medicine at the University of Vienna in 1881 at the age of 25 and then carried out research into cerebral palsy, aphasia and microscopic neuroanatomy at the Vienna General Hospital. He was appointed as university lecturer in neuropathology in 1885. In 1886 Freud resigned his hospital post and entered private practice specializing in “nervous disorders” for financial reasons. The same year he married Martha Bernays. The couple had six children.

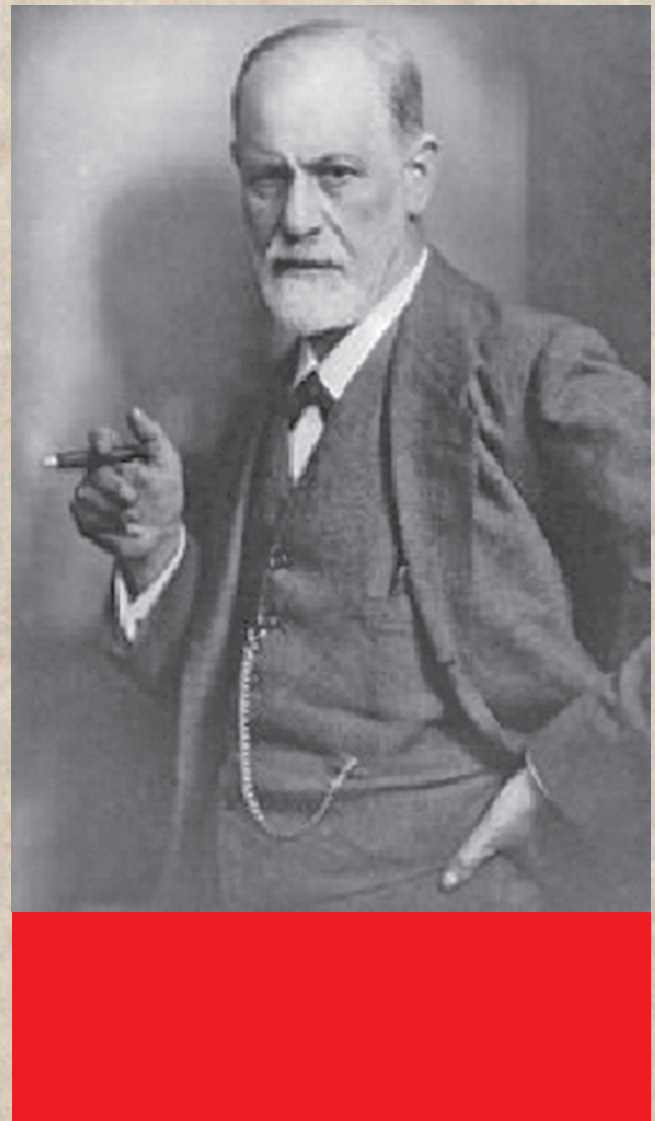
Dr. Sigmund Freud made several notable contributions to the fields of neurology, neuropathology, and anesthesia. In fact, many students and clinicians in the neurosciences are not even aware that Freud’s initial scientific work was instrumental in allowing for some of the major discoveries in fields of neurology, neuropathology, and anesthesia.

Freud initiated his work in neurology with basic science research into the phylogenetic association between the central nervous system of lower vertebrates and humans.

Using Crayfish, Freud demonstrated that nerve fibers emerge from a web-like substance in the neurons and that the structure is always fibrillary.

He also introduced the use of gold chloride to stain nerve tissues.

Freud published three important papers describing the structure and function of the medulla oblongata and the connection between the posterior columns of the spinal cord, the acoustic nerve, and the cerebellum.





Freud wrote the first analytical and scientific summary of research on cocaine and was the first investigator to predict its potential use as a local anesthetic.

Freud also wrote four major texts describing neurological disorders including a work entitled, *Aphasia: A Critical Study*, published in 1891. His second book, co-authored with Oscar Rie, was a monograph entitled *Clinical Study on the Unilateral Cerebral Paralysis of Children* also published in 1891. In addition, Freud published a third text in 1893 entitled *On the Knowledge About Cerebral Diplegias of the Childhood Age (In Connection with Little's Disease)*. Freud's work in the area of cerebral paralysis culminated in 1897 when he published his final work in neurology entitled, *Infantile Cerebral Paralysis*.

In his first clinical publication in neurology, a detailed case report of cerebral hemorrhage in a patient with scurvy, demonstrates quite well the care with which Freud observed every detail of the disease process. He could hardly contain his excitement and wrote an account of his first clinical case presentation to his future wife, Martha Bernays, on January 18, 1884

"Today at last I started working on nervous disorders, I hope I have found the material for my first small clinical publication. For yesterday a poor tailor's apprentice arrived with scurvy, the well-known disease in which ecchymosis appears in all organs. Apart from some apathy, he didn't show any visible symptoms. Early this morning he was quite unconscious, which suggested a cerebral hemorrhage. So I went to see him again before luncheon and found a number of interesting symptoms from which could be deduced the locality of the hemorrhage (always our chief concern in brain disorders). So I sat beside him all the afternoon and observed the interesting and most variable development of the illness till seven o'clock, when symmetrical paralysis appeared, with the result that until his death at 8 P.M. nothing escaped my notice. The publication of this case is justified by several interesting and instructive phenomena, indeed it is imperative, especially if the autopsy tomorrow yields some satisfactory conclusions and confirmation of my diagnosis, which is based on localization."

Soon after Freud began work on a method to stain nerve fibers in order to pursue further neuropathological study of the interconnections between the medulla oblongata and the cerebellum. His histologic staining technique for this purpose appeared in May, 1884 in the journal - *A Brain: A Journal of Neurology*. In this article, Freud described a new technique, using gold chloride, to stain nerve fibers for better visualization of the microscopic and histological anatomy of the nervous system, a method that Freud would later use to visualize the intricate connections between the cerebellum and the medulla

oblongata. An excerpt of Dr. Freud's article published in 1884 with a description of the technique follows:

Pieces of the organ are hardened in bichromate of potash, or in Erlicki's fluid (2 1/2 parts of bichromate of potash and 1/2 of sulphate of copper to 100 parts of water), and the process of hardening is finished by placing the specimen in alcohol; thin sections are cut by means of a microtome and washed in distilled water. The washed sections are brought into an aqueous solution of chloride of gold (1 to 100) to which is added half or an equal volume of strong alcohol. This mixture is to be preferred to the simple aqueous solution of chloride of gold, which has been hitherto used in staining preparations; the sections are to remain in it from 3 to 5 hours... By this method the fibers are made to show in a pink, deep purple, blue or even black colour, and are brought distinctly into view, while the grey substance, vessels and neuroglia, lost in the slightly tinged background, are not obtruded upon the attention of the observer. A good many fine fibers, which cannot be revealed by carmine, and were not known until the methods of Exner and Weigert came into use, are seen scattered everywhere throughout the white and grey substance.

Immediately following publication of his new staining technique, Freud published a neuropathological and neuroanatomical description of the neurofibrillary tracts interconnecting the cerebellum and the brain stem, in particular the medulla oblongata. Dr. Freud was the first to describe and trace the course of the spinocerebellar white matter tracts from the lateral portion of the spinal cord to the cerebellum. Dr. Freud also described a method for determining the origin of nerve fibers. In fact, in his lecture, *The Structure of the Elements of the Nervous System*, Freud theorized that the nervous system was composed of fibrillary structures. In fact, Dr. Freud came close to being the first person to describe the neuron theory of the central nervous system. His landmark articles detailing the anatomical structure of the medulla oblongata and the histological structure of the nervous system were instrumental in opening the door for the breakthrough work that would be performed by other investigators in later years; work that would lead to the development of a unified theory of cerebral structure.

Freud's work in the field of neurohistology was monumental and provided the scientific community with the basic foundation necessary to carry out further investigations that would inexorably lead to a unified theory of the structure of the nervous system. Dr. Freud's new staining technique with gold chloride provided a method to view the microscopic world of the neuron and trace the interconnections between different areas of the nervous system. Even though his work was instrumental in assuring that future scientists would be able to carry out the crucial investigations necessary for the development of the



“neuron doctrine,” when H. W. G. Waldeyer published his groundbreaking monograph in which he first coined the term “neuron,” Dr. Freud’s investigations in the area were all but ignored. It would be a few more years before the Spaniard, Santiago Ramon y Cajal (1852-1934), using Camillo Golgi’s (1843-1926) refined staining technique, would describe the synaptic cleft present between nerve fibers and the neuron; and many more years still, for the neuron doctrine to gain widespread recognition and acceptance following the vigorous defense of its principals by Dr. Ramon y Cajal before the international community (versus the prevailing “reticular theory” proposed and defended by Dr. Golgi). As Ernest Jones, Freud’s first biographer, wrote “It was not the only time that Freud narrowly missed world fame in early life through not daring to pursue his thoughts to their logical - and not far-off - conclusion.”

### **Sigmund Freud and Cocaine**

At the time he was completing his work on the neuropathology of the medulla oblongata, Dr. Freud became interested in alkaloid known as cocaine and began working on a comprehensive, scientific review of the therapeutic benefits of cocaine. He described his interest regarding the therapeutic benefits of cocaine in a letter to his fiancée, Martha Bernays, written from Vienna on Saturday, April 21, 1884, in which he reported:

“I am also toying with a project and a hope which I will tell you about; perhaps nothing will come of this, either. It is a therapeutic experiment. I have been reading about cocaine, the effective ingredient of coca leaves, which some Indian tribes chew in order to make themselves resistant to privation and fatigue. A German has tested this stuff on soldiers and reported that it has really rendered them strong and capable of endurance. I have now ordered some of it and for obvious reasons am going to try it out on cases of heart disease, then on nervous exhaustion, particularly in the awful condition following withdrawal of morphine (as in the case of Dr. Fleischl). There may be any number of people experimenting on it already; perhaps it won’t work. But I am certainly going to try it and, as you know, if one tries something often enough and goes on wanting it, one day it may succeed.

Freud illustrated in detail the experimental evidence of the physiologic effects of cocaine on animals as well as healthy human subjects, himself among them. (It was not uncommon at the time to experiment with pharmacological agents on oneself.) Freud describes the effects of cocaine on his person in his publication as:

A few minutes after taking cocaine, one experiences a sudden exhilaration and feeling of lightness. One feels certain furriness

on the lips and palate, followed by a feeling of warmth in the same areas, if one now drinks cold water, it feels warm on the lips and cold in the throat. On other occasions the predominant feeling is a rather pleasant coolness in the mouth and throat.

Following a summary of the physiological effects of cocaine, Freud proceeded to review the potential therapeutic uses of the alkaloid via extensive review of experimental evidence available at the time. These therapeutic properties included the stimulant effect of the drug, its therapeutic use in digestive disorders of the stomach, its use in cachexia, in the treatment of morphine and alcohol addiction, in asthma, its use as an aphrodisiac, and finally, its potential use as a local anesthetic. In fact, Freud’s paper was the first to describe the potential anesthetic properties of cocaine. As Freud wrote in this publication :

“Cocaine and its salts have a marked anesthetizing effect when brought in contact with the skin and mucous membrane in concentrated solution; this property suggests its occasional use as a local anesthetic, especially in connection with affections of the mucous membrane. According to Collin Ch. Fauvel strongly recommends cocaine for treating diseases of the pharynx, describing it as “le tenseur par excellence des cordes vocales.” Indeed, the anesthetizing properties of cocaine should make it suitable for a good many further applications.

At the same time, however, one of Freud’s medical school friends, Dr. Carl Koller, himself an aspiring ophthalmologist, was actively searching for a compound with local anesthetic properties to utilize during ocular surgery. He became interested in the compound that Freud had been studying, alkaloid of cocaine, after Freud discussed his work with him and allowed Koller to review his manuscript *Über Coca*. As a result of his conversations with Sigmund Freud, Carl Koller developed a solution of cocaine and demonstrated conclusively that it could be used to anesthetize the eye. Yet again, Sigmund Freud had missed an important opportunity to gain worldwide recognition as a clinician and researcher. He describes his regret at not having taken decisive action with respect to this discovery in his autobiographical sketch.

Even so, Freud’s role in the discovery of the first local anesthetic, cocaine, cannot, and should not, be overlooked.

### **Contribution on Childhood Paralysis**

Freud’s first purely clinical work evolved from his experience with victims of stroke in whom aphasia was common. Which led him to perform an in depth study of aphasia. Following Freud wrote and published a landmark manuscript on aphasia. In this book, Freud reviews, in great detail, the experimental evidence and the multitudinous clinical descriptions of the varying forms of aphasia and their clinical presentation. In addition, Dr. Freud attempts to debunk the theory that all aphasia





can be localized to two or three primary anatomical structures and begins his personal quest for a more unified theory of the mind. The book entitled, *On Aphasia: A Critical Study*, was published in 1891 and remains a classic in neurology to this day. In *On Aphasia*, Freud reviews the evidentiary data available during this period of time regarding the different forms of aphasia, both expressive and receptive in nature.

In 1891, the same year that he published *On Aphasia*, Dr. Freud, along with Oscar Rie, published a *Clinical Study on the Unilateral Cerebral Paralysis of Children*, perhaps his most famous non-psychoanalytic manuscript. This manuscript served as a precursor to his final book written in the area of neurology towards the end of the century. With this book, Dr. Freud begins his exploration of autistic disorders, known as cerebral paralysis during his lifetime. In cerebral paralysis, Freud found the substrate for a poorly localized neurological disorder that fostered his imagination and solidified his belief that many neurological and psychiatric disorders cannot be firmly localized to a specific area of the cerebral cortex. The foundation was thus set for his broad and speculative theory of psychoanalysis; a theory based on a theoretical construct of the mind that had little correlation with the brain's anatomic pathology.

A shorter text written by Dr. Freud regarding childhood diplegias entitled *On the Knowledge About Cerebral Diplegias of the Childhood Age (In Connection with Little's Disease)*, reflected on research in this area and was published in 1893. This text expanded on his earlier work in the area.

Finally, in 1897 Dr. Freud completed and published his final manuscript in neurology entitled, *Infantile Cerebral Paralysis*. *Infantile Cerebral Paralysis* represented Freud's crowning achievement in the area of childhood cerebral paralysis and childhood cerebral palsy, and established Freud as a well-respected expert on this topic during his lifetime. In his text, Freud provides, in exhaustive detail, the body of scientific

evidence available during his lifetime on the etiology, pathophysiology, nosology, risk factors, and treatment of these disorders of childhood; including an astounding description of Little's disease described by Dr. W. J. Little in his lectures entitled a "Course of Lectures on Deformity of the Human Frame." In this manuscript, Dr. Freud challenged the assertion made by Dr. William John Little that the cause of cerebral palsy is an obstetrical complication of birth resulting in lack of oxygen to the baby's brain. Dr. Freud believed that difficult birth was merely a symptom of the disease itself and not necessarily its cause. Freud went so far as to pronounce that the association of cerebral palsy with mental retardation, seizures, and sensory disturbances provided evidence that the damage sustained by the brain could only occur during the crucial period of time when the central nervous system was developing within the fetus. While Dr. Little's etiological hypothesis satisfied investigators throughout much of the 20th century, Dr. Freud's observations were finally verified in the 1980's when it was discovered that less than 10% of cerebral palsy cases were actually caused by birth complications leading to anoxic brain injury. It was this final manuscript in neurology, more than any other, that established Freud as a serious investigator and a veritable expert in the field of childhood diplegias.

It was through his observation of children that Freud began to form his hypothesis that the pathology of adulthood, particularly psychiatric disorders, developed during early childhood. For this reason, these early works on childhood cerebral paralysis were crucial to the development of psychoanalytic theory, particularly the important idea that childhood experiences play a crucial role in the formation of adult conscienceness. While his hypotheses were far from accurate on many accounts, his ideas, particularly regarding the existence of childhood sexuality and the subconscious mind, remain important in modern psychiatric thought and theory. Even so, the foundations for these ideas, including the texts described above, have been all but forgotten.

“ Following a summary of the physiological effects of cocaine, Freud proceeded to review the potential therapeutic uses of the alkaloid via extensive review of experimental evidence available at the time. These therapeutic properties included the stimulant effect of the drug, its therapeutic use in digestive disorders of the stomach, its use in cachexia, in the treatment of morphine and alcohol addiction, in asthma, its use as an aphrodisiac, and finally, its potential use as a local anesthetic. ”

# “I WISH I WOULD HAVE NEVER STARTED SMOKING”

*Goutam Mitra*



I started smoking since my last year in school when I was barely 16years old. I started smoking because it created a sense of pride in me. Puffing out smoke made me feel like a hero. Everybody else was doing it. By the time I was 20 I was hooked. Gradually I could feel that every puff I took gave me a sensation of relief.

Stress at work place, growing family responsibilities, made me reaching for up to 30 cigarettes a day and burning right through them. Giving up that 30-a-day could have saved me enough money in a month. I just did not care on how much money I was spending. I just went on buying packets and went on smoking them off. Wow what a feeling! What a relief.

Got married and had one son and a daughter. Gradually heard people pointing out at me and saying stop smoking, it will

injure your health. Wife and then children started behaving in a way as if I was committing a crime by smoking.

I remained hooked to smoking and went on enjoying my puffs which gave me celestial feel. My daughter grew up and I arranged a pompous marriage for her. On the happiest moment that night a severe pain struck me. An intolerable pain, which I can hardly express in words. In middle of her marriage doctor had to be called. The doctor rushed me to the hospital with pain of heart attack. It took a long time for me to recover.

Felt very bad for not hearing to my well wishers who had warned and predicted me of the ill health that I would suffer due to smoking. Felt further bad that I spoilt the best day of my daughter's life. Since then I stopped touching cigarettes to smoke again. At the age of 55 I felt transformed into a 80 year old man.

Now I feel great that I have over powered my inner self to control the urge for smoking. I participate in No Smoking Day. The point isn't to badger people into quitting – it's to encourage people just like me to think about how they could spend the money they would save by quitting – and of course the health benefits. I've been smoke free for 3years now. For anyone who's thinking about quitting, I would say do it now before you do any irreparable damage to yourself You'll feel better, you'll be richer, and there's definitely a huge sense of satisfaction in knowing that you've beaten it.

Unfortunately for me, the a has been done. I remember waiting in hospital for a procedure to insert two stents to hold open my blocked arteries. It was a very distressing time. I went to have a shower by myself one day, not realising that I should have been supervised, and then after locking myself in the bathroom I started to feel really ill. I remember wondering if this was it, and crying and cursing myself because what I was experiencing could perhaps have been avoided if I'd never smoked.

Fortunately the stents made a positive difference and after the procedure I am doing well, do feel better for not smoking. But I wish I'd never started. I have to take medication every day for my heart now, so smoking has left a legacy with me.

No Smoking Day is on 13 March 2013.

## Conference Calendar 2014

### NEUROSURGERY

Conference	Date	Month	Place
Asia and Australasian Society of Stereotactic and Functional Neurosurgery 9th	10 to 12	January	Shanghai, China
Association Of Spine Surgeons Of India 27th Annual Meeting 2014	23 to 26	January	Kolkata, India
The 15th National Conference of Indian Society of Neuroanaesthesiology and Critical Care 2014	31 Jan to 2 Feb	January	Jaipur, India
AANS/CNS Cerebrovascular Section Annual Meeting 2014	10 to 11	February	San Diego, U.S.A.
North American Skull Base Society 24th Annual Meeting 2014	14 to 16	February	San Diego, U.S.A.
Southern Neurosurgical Society 65th Annual Meeting 2014	19 to 22	February	Puerto Rico
7th Annual International Symposium On Stereotactic Body Radiation Therapy And Stereotactic Radiosurgery 2014 (SBRT 2014)	21 to 23	February	Naples, FL, U.S.A.
10th Annual NASS Evidence And Technology Spine Summit 2014	27 Feb to 1 Mar	February	Park City, U.S.A.
AANS/CNS Section On Disorders Of The Spine And Peripheral Nerves Annual Meeting	5 to 8	March	Orlando, U.S.A.
10th World Congress On Brain Injury 2014	19 to 22	March	San Francisco, U.S.A.
INTS 2014 - The 11th Symposium of The International Neurotrauma Society	19 to 23	March	Budapest, Hungary
30th International Congress of Clinical Neurophysiology (ICCN) and 58th Annual Meeting of the German Society for Clinical Neurophysiology and Functional Imaging (DGKN)	20 to 23	March	Berlin, Germany
American Association Of Neurological Surgeons 82nd Annual Scientific Meeting 2014	5 to 9	April	San Francisco, U.S.A.
World Forum of Spine Research 2014	15 to 17	May	Shaanxi Province, China
Spanish Pain Society National Congress 2014	22 to 24	May	Toledo, Spain
Microscopic and Endoscopic Approaches to the Skull Base	23 to 25	June	Strasbourg, France
53rd ISCoS Annual Scientific Meeting	2 to 4	September	Maastricht, Netherlands
10th Asian Congress Of Neurological Surgeons 2014	9 to 12	September	Astana, Kazakhstan
EANS European Congress of Neurosurgery 2014	14 to 17	October	Prague, Czech Republic
64th Annual Meeting of the Congress of Neurological Surgeons	18 to 23	October	Boston, Massachusetts

### NEUROLOGY

Conference Name	Date	Month	Place
ECON 2014 - Joint Annual Conference of Indian Epilepsy Association and Indian Epilepsy Society	31 Jan to 1 Feb	January	Kolkata, India
CHILDNEUROCON, the annual conference of Association of Child Neurology	7 to 9	February	Hyderabad, India
International Stroke Conference 2014	12 to 14	February	San Diego, U.S.A.
American Society For Experimental Neurotherapeutics 16th Annual Meeting 2014 (ASENT 2014)	20 to 22	February	Bethesda, U.S.A.
The 2nd International Conference on Heart & Brain	27 Feb to 1 March	February	Paris, France
40th Annual North American Neuro-Ophthalmology Meeting	1 to 6	March	Rio Grande, Puerto Rico
14th Asian Oceanian Congress of Neurology 2014 (AOCN 2014)	2 to 5	March	Venetian, Macao
9th National Congress Of Indian Stroke Association 2014 (ISACON 2014)	14 to 16	March	Thiruvanthapuram, India
30th International Congress of Clinical Neurophysiology	19 to 24	March	Berlin, Germany
Neuroprotection And Neurorepair 8th International Symposium 2014	9 to 12	April	Megdeburg, Germany
American Academy Of Neurology 66th Annual Meeting 2014 (AAN 2014)	26 April to 6 May	April	Philadelphia
13th International Child Neurology Congress	4 to 9	May	Foz do Iguacu, Brazil
European Stroke Conference 2014	6 to 9	May	Nice, France
CONy- The 8th World Congress on Controversies in Neurology	8 to 11	May	Berlin, Germany
17th Congress of the European Federation of Neurological Societies (EFNS)	31 May to 03 June	May	Istanbul, Turkey
18th International Congress of Parkinson's Disease and Movement Disorders.	8 to 12	June	Milwaukee, U.S.A.
ACN 2014 — Fourth International Conference Advances in Clinical Neuroimmunology	27 to 28	June	Cracow, Poland
11th European Congress on Epileptology	29 June to 3 July	June	Stockholm, Sweden
FENS 2014 — 9th Forum on NeuroScience	5 to 9	July	Milan, Italy
Asian and Oceanian 10th Epilepsy Conference 2014	24 to 27	August	Singapore
10th European Paediatric Neurology Society Congress (EPNS 2013)	25 to 28	September	Brussels, Belgium
WSC 2014 - 9th World Stroke Congress	22 to 25	October	Istanbul, Turkey
IANCON 2014 -Indian Academy Of Neurology Annual Conference 2014	6 to 9	November	Chandigarh, India
10th International Congress on Non-Motor Dysfunctions in Parkinson's Disease and Related Disorders	4 to 7	December	Nice, France