



Double Helical

October 2015

Vol 1, Issue XI, Rs. 100

Also available on
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Listen to your Heart



The Gift of Life

High blood pressure, smoking, lack of exercise, high level of cholesterol, excessive use of fats, improper diet and mental stress are some of the contributory factors for the increasing incidence of heart disease in India. Double Helical brings to you an in-depth guide on the various dimensions of heart disease, its causes and various treatment options...



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Double Helical is owned, printed and published monthly. It is printed at Polykam offset, Naraina Industrial Area Phase 1, New Delhi-110028, and published from G-1, Antriksh Green, Kaushambi, Ghaziabad-201 010. Tel: 0120-4219575, 9953604965.

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Dealing with Dengue



The Gift of life



Pregnant Possibilities



Alarming Flu

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Paying the Price of Unhealthy Living

Dear Readers, Thanks for your continued support. As always, we bring to you a number of health stories based on intensive reporting, research and analysis in this October 2015 issue of Double Helical, your favourite national health magazine. Your keen participation in our endeavor has encouraged us to bring qualitative improvement in both content and presentation of authentic and in-depth stories and features in the current issue.

To commemorate the World Heart Day (September 29), we are delighted to provide you with a comprehensive coverage on the most challenging task of heartcare in the present taxing times. High blood pressure, smoking, lack of exercise, high level of cholesterol, excessive use of fats, improper diet and mental stress are some of the contributory factors for the increasing incidence of heart disease in India.

Ayurveda prescribes natural ways of taking care of heart. According to this ancient science, heart is also to ojas (vital fluid), which sustains the consciousness or soul and keeps the person alive. Heart is also the seat of emotions like love. So, to establish love, harmony and peace, it is important that one has a healthy heart. In Ayurveda, ama, a toxic material produced by undigested food, is the main cause for heart diseases. Therefore, one must make sure that one eats only the amount and type of foods one can digest properly.

You can also read a story in this issue on the growing number of Indian couples turning to artificial methods to conceive. Every human being wishes to procreate and historically, infertility has been like a curse for individuals affected by it. Couples may find it difficult to conceive naturally due to different reasons. ART, an acronym used for Assisted Reproductive Technology, consists of a comprehensive programme that is offered to such couples. Assistance can be given to both men and women depending on the cause of infertility. Infertility management involves detailed investigations to reach a logical diagnosis and then specific treatment. Infertility centres these days provide comprehensive infertility management/ART Programme to patients. The various forms of treatments like Intrauterine

Insemination, (IUI) In Vitro Fertilization (IVF), Third Party Reproduction and Intracytoplasmic Sperm Injection (ICSI) are in vogue these days.

Approximately 40% of fertility in couples can be attributed to male sub fertility. ICSI has raised hopes of these couples. This method of treating predominantly male-factor infertility has been a breakthrough, and it has established itself as the preferred method of treatment in the field of assisted reproduction.

Also, as a part of our special story, we bring you a story on the state of organ donations in India. There is a crying need for raising awareness about organ donation to save millions of lives that are lost due to superstitious belief surrounding this most sublime of human acts. Lakhs of people lose their lives in the absence of finding donors for organ transplant. Survival rate in such critical case is pretty low as organ donation is still not in vogue in the country.

In a vastly populated country like India, where near about 200,000 people need a new kidney every year and around 100,000 need a new liver, only few percentage of the demand for new organs is met, which is around 2% - 3% of the total demand. Finding a donor match is difficult to begin with. In our country, this challenge is compounded by bureaucratic hurdles and lack of awareness. A lot of red-tapism and paperwork involved in getting a transplant done also contributes in worsening the situation. Under Indian law, for instance, it's relatively easy for close relatives to donate an organ, or part of it, to a family member in need. According to existing rules, if the potential donor is not related to the person who needs the organ, the transplant needs to be approved by a state-level committee or by a hospital committee that includes government officials. This results in unnecessary delay in the donating process.

Besides the above, there are many other informative and interesting stories for you to relish in this issue of Double Helical. We do hope you enjoy reading the magazine.

Amresh K Tiwary
Editor-in-Chief

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**READY TO
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Dealing with Dengue



Dr Vinay Labroo

The mosquito-borne disease has acquired menacing proportions today. But we must avoid panic and instead arm ourselves with adequate knowledge of its prevention as well treatment

BY DR VINAY LABROO

The sudden outbreak of dengue has created a scare in the national Capital and elsewhere. Although, the fright is natural (seeing the steep rise in dengue cases) but rather than worrying, it is more important that we should concentrate on the

ways to prevent the outburst of dengue. For this, it is important that we understand dengue and how it is spread.

Dengue or dengee is a mosquito borne disease transmitted via an infected female *Aedes aegypti* mosquito. When this infected mosquito

bites a person, the dengue virus gets spread in the blood, leading to high fever. Dengue mosquito bites during the day time usually and generally below the elbow or knee area.

Aedes aegypti mosquito breeds in clean water. As prevention is better than cure, so, it is very important that one should ensure that no water gets collected in the nearby surroundings, in order to prevent the breeding of mosquito. Put one tablespoon of petrol over standing water so that mosquitoes don't get required oxygen to breed. Use mosquito repellent creams and wear full sleeves clothes in order to prevent mosquito bite.

Bone breaking fever, severe joint and muscle pain or complete body pain are some symptoms one should watch out for. If you notice any of these indications immediately consult a doctor. Besides this, pain behind the eyes, headache, sore throat, mild skin rash followed by the feeling of vomiting and nausea are other signs of dengue fever.

A person suffering from dengue fever also loses appetite due to high fever. In extreme cases, gall bladder inflammation or liver inflammation, abdominal pain, black stools, minor bleeding from skin, nose and mouth may also occur, which should be seen as medical emergency.

Correct diagnosis is most important in order to identify dengue. After noticing the symptoms, first and foremost go for a dengue NS1 antigen test, viral isolation in culture (whose result appears after 6-10 days of infection), detection of viral RNA by PCR technique and specific IgM/IgG antibodies in paired sera (whose result appears after 5-7 days of infection). Depending upon the reports, the doctor may decide further course of treatment or whether the patient should be admitted or not.


In most dengue cases, the infection is mild but there is also a small percentage where the infection becomes severe resulting in dengue hemorrhagic fever (DHF).

In this, the blood platelet count



It is very important to ensure that no water gets collected in the nearby surroundings, in order to prevent the breeding of mosquito. Put one tablespoon of petrol over standing water so that mosquitoes don't get required oxygen to breed

becomes extremely low and the patient experiences, bleeding from nose, mouth or gums (caused by leakage in blood vessels) along with bruises on the body. Immediate treatment is necessary in such cases as the delay in treatment may lead to collapse of blood vessels or death.

After being diagnosed with dengue, people run for platelet transfusion, instead proper hydration of the body should be given more importance. Drink lots of water (5liters a day) or take coconut water or lemonade. Post dengue, the patient loses body immunity, thus, becoming more susceptible to other ailments. So, it is very important to have a well-balanced, diet rich in minerals, protein and vitamins. Paracetamol can be taken for bringing fever down. But, avoid taking any kind of painkillers as they can cause extensive bleeding (which can reduce the blood count even further) and damage to kidneys. 

(The author is Additional Director, Internal Medicine, Jaypee Hospital, Noida)

Disoriented Vision



Squint, a condition where the eyes do not look in the same direction, need not be taken lightly. It can lead to visual loss called amblyopia or lazy eye which can become permanent unless treated early in childhood

BY TEAM DOUBLE HELICAL

If your child's eyes do not move together and he tilts the head to one side, please don't take it for granted and immediately take him to an eye specialist. These symptoms are of a squint which leads to unsymmetrical points of reflection in each eye and inability to gauge depth. In order to improve vision, the weakened muscles in the affected eye or eyes must be put to work.

Squint is a condition where the eyes do not look in the same direction. Whilst one eye looks forwards to focus on an object, the other eye turns either inwards, outwards, upwards or downwards. Most squints occur in young children. In the initial stages, squint eyes can cause disorientation or double vision because the eyes don't align together. Says Dr Vimala Menon, Eye Specialist with Sight for Centre and Ex-Professor at Dr Rajendra Prasad Eye Centre, AIIMS, New Delhi, "A child with a squint may stop using the affected eye to see with. This can lead to visual loss called amblyopia or lazy eye which can become permanent unless treated early in childhood. This treatment involves patching the good eye, to force the use of the affected eye. Sometimes surgery is needed to correct the appearance of a squint."

Explains Dr Rajesh Ranjan, Senior Eye Specialist, Vasani Eye Centre, Preet

Vihar, East Delhi, "Squints that develop in children usually have different causes from those that develop in adults. In many cases of childhood squint, the reason why a squint develops is not known. In some cases of childhood squint (and most cases of adult squint), the squint occurs because of a disorder of the eye, the eye muscles, the brain or the nerves."

As per reports, about five in 100 children aged five years old have a squint. It is quite common to notice a brief squint when tired or daydreaming. Babies sometimes cross their eyes, it is quite normal for this to happen occasionally, especially when they are tired. Some squints are much more obvious than others. You might notice your child has an eye that does not look straight ahead. Another sign of squint is that your child might close one eye when looking at you, or turns his or her head on one side.

The movement of each eye is controlled by six muscles that pull the eye in specific directions. The lateral rectus muscle pulls the eye outwards. The medial rectus muscle pulls the eye inwards. The superior rectus muscle is mainly responsible for upwards movements, whilst the inferior rectus muscle mostly pulls the eye downwards. Finally, the superior and inferior oblique muscles help to stabilize the eye



"A child with a squint may stop using the affected eye to see with. This can lead to visual loss called amblyopia or lazy eye which can become permanent unless treated early in childhood. This treatment involves patching the good eye, to force the use of the affected eye. Sometimes surgery is needed to correct the appearance of a squint."

Dr Vimala Menon, Eye Specialist with Sight for Centre and Ex-Professor at Dr Rajendra Prasad Eye Centre, AIIMS, New Delhi

movements - particularly for looking downwards and inwards, or upward and outward movements. For example, to look to the left, the lateral rectus muscle of the left eye pulls the left eye outwards and the medial rectus of the right eye pulls the right eye inwards towards the nose.

Squint develops when the eye muscles do not work in a balanced way



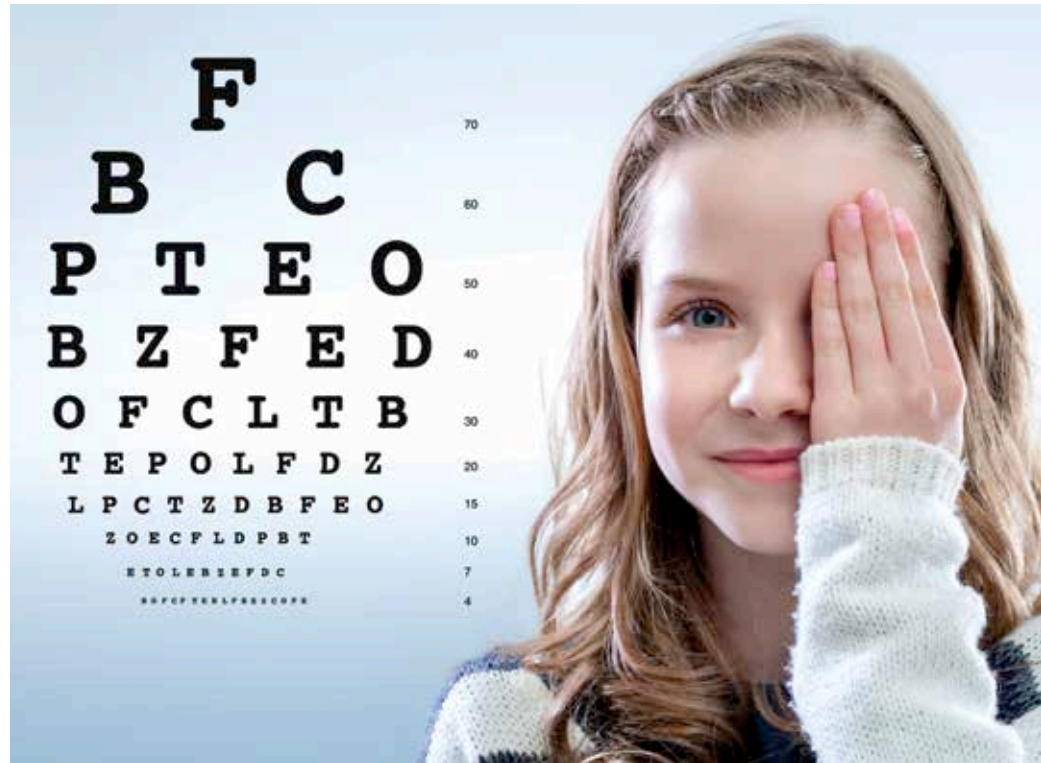


“Squints that develop in children usually have different causes from those that develop in adults. In many cases of childhood squint, the reason why a squint develops is not known. In some cases of childhood squint (and most cases of adult squint), the squint occurs because of a disorder of the eye, the eye muscles, the brain or the nerves.”

Dr Rajesh Ranjan, Senior Eye Specialist, Vasan Eye Centre, Preet Vihar, East Delhi

and the eyes do not move together correctly. It is important to know whether the squint is present all the time (constant), or comes and goes.

“A concomitant squint means that the angle (degree) of the squint is always the same in every direction that you look. That is, the two eyes move well, all the muscles are working, but the two eyes are always out of alignment by the same amount, no matter which way you look. But an incomitant squint means that the angle of squint can



vary. For example, when you look to the left, there may be no squint and the eyes are aligned. But when you look to the right, one eye may not move as far and the eyes are then not aligned,” adds Dr Vimala Menon.

According to Dr Rajesh Ranjan, a squint is related to refractive errors that include short sight (myopia), long sight and astigmatism. A stigmatism is a vision problem where the surface of the eye (the cornea) or the lens is more oval-shaped, rather than round. This leads to problems with focusing. These are conditions that are due to poor focusing of light through the lens in the eye. When the child with a refractive error tries to focus to see clearly, an eye may turn. This type of squint tends to develop in children who are two years or older, in particular in children with long sight. The squint is most commonly inward looking.

Most children with a squint have one of the above types of squint, and are otherwise healthy. In some cases, a squint is one feature of a more generalized genetic or brain condition. Squints can occur in some children

with cerebral palsy, Noonan’s or Down’s syndrome, hydrocephalus, brain injury or tumour, retinoblastoma - a rare type of eye cancer and several other conditions.

Amblyopia is sometimes called a lazy eye. It is a condition where the vision in an eye is poor and it is caused by lack of the eye’s use in early childhood. The visual loss from amblyopia cannot be corrected by wearing glasses. However, it is usually treatable. If amblyopia is not treated at early stage before the age of about seven years; the visual impairment usually remains permanent.

Squint is the most common cause of amblyopia. In many cases of squint, one eye remains the dominant focusing eye. The other, turned eye (the squinting one) is not used to focusing, and the brain ignores the signals from this eye. The turned eye then fails to develop the normal visual pathways in childhood and amblyopia develops in this eye.

Squint can be a cosmetic problem. Many older children and adults who did not have their squint treated as a child

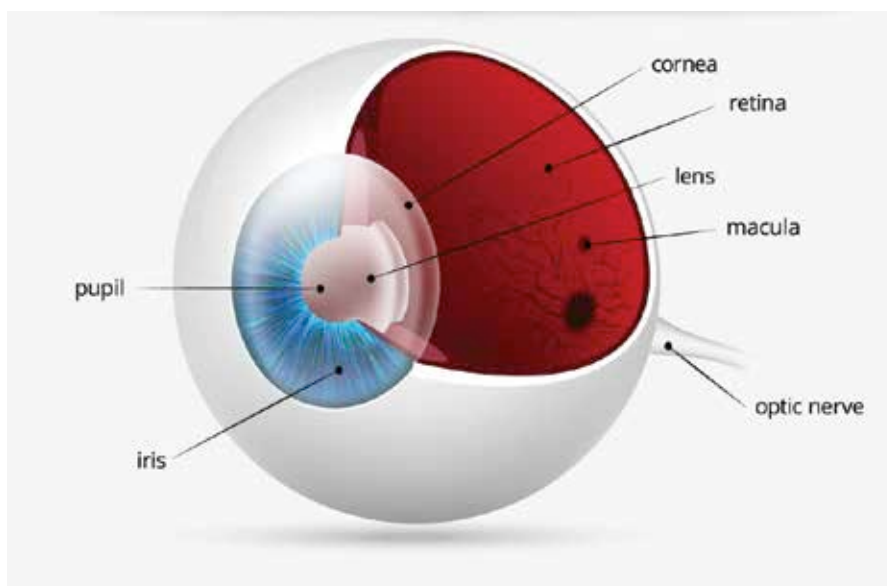


have a reduced impaired binocular vision. They develop squint; often have double vision, as their developed brain cannot ignore the images from one eye.

It is important to diagnose a squint (and amblyopia) as early as possible. Routine checks to detect eye problems in babies and children are usually done at the newborn examination and at the 6-to 8-week review. There is also a routine preschool or school-entry

vision check.


According to expert, any squint seen in a newborn baby should always be intermittent (come and go), reducing by two months of age, and gone by four months of age. A baby with a constant fixed squint, or with an intermittent squint that is worsening for two months, should be referred for assessment. A baby or child with a suspected squint is usually referred to



an orthoptist. An orthoptist is a health professional who is especially trained to assess and manage children with squint and amblyopia. If necessary, an orthoptist will refer a child to an ophthalmologist (eye surgeon) for further assessment and treatment.

Various tests can be done to check a child's vision (even if they are unable to read yet). Sight tests can even be done for babies. Tests to find a squint can involve covering and uncovering each eye in turn. This often shows which eye has the squint, and how it moves. The pupils of the eye can be checked with a torch, to check they become smaller (constrict) with light, and widen (dilate) when the light is removed.

Surgery is often needed to correct the appearance of the squint itself, and may help to restore binocular vision in some cases. The main treatment for amblyopia is to restrict the use of the good eye. This then forces the affected eye to work. If this is done early enough in childhood, the vision will usually improve, often up to a normal level. In effect, the visual development of the affected eye catches up. The common way this is done is to put a patch over the good eye. This is called eye patching. The length of treatment with an eye patch is dependent on the age of the child and the severity of the amblyopia. The patch may be worn for a few hours a week or for most of the day, every day. The treatment is continued until either the vision is normal or until no further improvement is found. It may take several weeks to months for eye patching to be successful.

Vision therapy can be used as a treatment to maintain the good work achieved by eye patching. This involves playing visually demanding games with a child to work the affected eye even harder - like eye training. If a child has a refractive error (long or short sight, for example), then glasses are prescribed. This corrects vision in the eye. It may also straighten the squinting eye, if the refractive error is the cause of the squint. 



Silent Vision Snatcher



If not treated in time, glaucoma may even lead to vision loss. It develops so slowly that it goes unnoticed in most of the people

BY DR. MAHIPAL SACHDEV

Kapil Jindal, a 42-year-old executive, felt on the top of the world with a steady income, good health prospects and a happy family. One day, however, on accidentally closing one eye, he noticed that his left eye seemed to have some areas of missing vision. He rushed to an ophthalmologist and was diagnosed as having advanced glaucoma in one eye and early glaucomatous changes

in the other. Suddenly, the world seemed dark and all his dreams shattered. After a comprehensive ophthalmic examination and an array of tests, a laser procedure was performed and anti-glaucoma drops were initiated. His pressure soon returned to near normal. A dialogue with his doctor made him fully understand the nature of this disease. He felt assured that together with his doctor's advice, timely checkups and

appropriate treatment, this silent vision snatcher could be kept at bay. Jindal is back to where he had left, a man with a new lease of life and new dreams to chase. About his experience, he says, “The more I have come to know about glaucoma from my doctor, the lesser are my fears. Thanks to medical intervention, glaucoma is no longer ruling my life.”

WHAT IS GLAUCOMA?

Glaucoma or ‘Kala Motia’ is a condition wherein an increased intraocular pressure damages the optic nerve thereby affecting vision. A fluid known as aqueous nourishes the front part of the eye. In the normal eye, the rate of production of aqueous matches the rate of its drainage, thereby maintaining optimal pressure inside the eye. With age, disease, trauma or other factors, the channels carrying this fluid may get blocked, increasing the pressure inside the eye. This increased pressure damages the optic nerve, which is the conduit of visual messages to the brain. Working silently, glaucoma damages the outer or peripheral vision first while maintaining the central vision and if not treated on time it may lead to loss of central vision and blindness.

WHY IS IT CALLED THE SILENT THIEF?

Glaucoma is called the silent thief of sight because in the early stages of the disease, there may be no symptoms. This condition threatens vision and is known to gradually steal sight without warning. By the time glaucoma is detected, the patient has already suffered extensive peripheral vision damage which can no longer be restored. The statistics reveal that by the time people realize that something is amiss and consult a doctor, 90% of them have lost half of their vision. It comes so slowly that it goes unnoticed in most of the people. Worldwide, it’s the leading cause of irreversible blindness. In fact, as many as 6 million individuals are blind in both eyes from this disease.



HOW MANY PEOPLE ARE AFFECTED BY GLAUCOMA?

It is the leading cause of blindness in the United States and a study presented at the World Ophthalmological Congress has projected India as the next glaucoma capital. Almost 68% Indians run the risk of developing the disease and nearly 1.2 lakh Indians go blind every year due to this disease.

Working silently, glaucoma damages the outer or peripheral vision first while maintaining the central vision and if not treated on time it may lead to loss of central vision and blindness.

YOU ARE AT RISK, IF:

- People belonging to families with a history of glaucoma
- You are 40 years of age or above (though it can rarely strike at any age)
- You have health problems such as diabetes
- People with thyroid gland related ailments
- You suffer from myopia or nearsightedness
- People suffering from hypertension
- People with any injury to the eye
- People with a history of prolonged use of steroid eye drops or any kind of steroid medication (oral, intravenous, inhalational or even by application of local steroid cream as in case of acne or other skin problems)
- You have had intraocular surgery in the past
- People with over-mature cataracts

WHAT ARE THE TYPES OF GLAUCOMA?

• **Primary Open Angle or Chronic Glaucoma:** This is the most common form of glaucoma. Damage to the vision in this type of glaucoma is gradual and generally painless. The affected person might not develop significant symptoms and may be entirely unaware of this disease until the optic nerve has been severely damaged.

• **Normal Tension Glaucoma:** A special type of glaucoma where even at lower intraocular pressure there may be damage to the optic nerve due to factors such as decreased blood flow into the eye. This commonly occurs in people with high blood pressure who are on anti-hypertensive medication. They may get bouts of low BP especially at night which can cause damage to the optic nerve.

• **Closed Angle or Acute Glaucoma:** In this type of glaucoma, the intraocular pressure increases very rapidly due to a sudden and severe block of fluid drainage within the eye. Significant symptoms such as pain, coloured halos around light bulbs, headache and decreased vision may develop, indicating the presence of acute glaucoma. This condition has to be treated urgently by an ophthalmologist to prevent permanent visual damage.

Other types of Glaucoma are:

• **Congenital Glaucoma:** If the child at birth or in early childhood has large eyes, i.e., cornea is large; has severe watering when exposed to light and the lids close forcefully or the black portion turns white, then this could be a case of childhood glaucoma and doctor must be urgently consulted.

• **Secondary Glaucoma:** In this type of glaucoma, eye has earlier been subjected to trauma, inflammation, surgery or prolonged use of steroids.

POSSIBLE SYMPTOMS OF GLAUCOMA:

Glaucoma in early stages generally does not show noticeable symptoms.



It is possible for a person suffering from chronic glaucoma to be completely unaware of the disease. Chronic Glaucoma generally progresses too slowly to get noticed. Some common symptoms of chronic glaucoma could be:

- Inability to adjust the eyes to darkened rooms such as theaters
- Poor night vision
- Frequent changes in eye glass prescription for reading glasses. Generally, over 40 years of age, everyone gets reading glasses and these change every 2 to 3 years. If they change very rapidly around

The statistics reveal that by the time people realize that something is amiss and consult a doctor, 90% of them have lost half of their vision. It comes so slowly that it goes unnoticed in most of the people

every 3 to 6 months, it could be a case of glaucoma

- Gradual loss of peripheral vision
- Blurred vision
- Headache

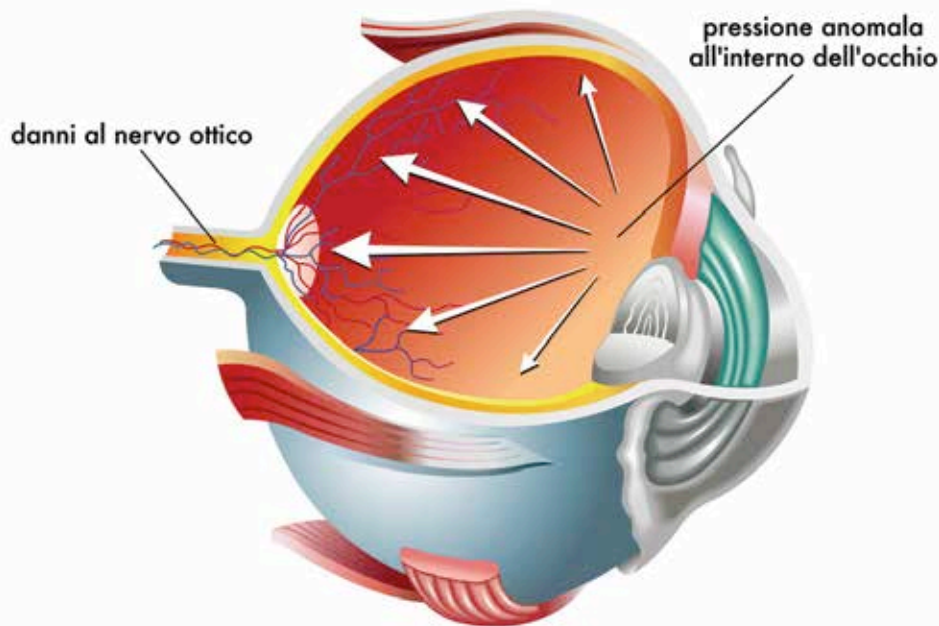
In the case of Acute Glaucoma resulting from rapid increase in the intraocular pressure, there could be severe symptoms. Common symptoms suggesting the presence of acute glaucoma could be:

- Seeing rainbow coloured halos around lights
- Cloudy vision with halos around light
- Severe eye pain, facial pain, nausea and vomiting
- Red eye

IS THERE A CURE FOR GLAUCOMA?

Glaucoma cannot be cured but it can be controlled so that further damage to the optic nerve can be slowed down or halted. This can only be done through disciplined and regular treatment from an ophthalmologist.

GLAUCOMA



The treatment of glaucoma is life-long.

Tests from Glaucoma

- **Perimetry:** Must for making diagnosis of all glaucoma patients. This test is essential not only to assess the extent of the existing damage, but also to document and measure the progression of the disease and the response to treatment. This test requires sophisticated machinery with advanced software. This exercise takes time and may have to be repeated at timely intervals or even immediately if patient is not cooperative.

- **Gonioscopy:** A lens is applied on the eye and angle is examined to see if it is open or closed type of glaucoma.

- **Other sophisticated tests:** OCT (Ocular Coherence Tomography), CCT (pachymetry) and Fundus photography. The OCT is a noninvasive test. This means that nothing touches the eye. The patient is simply asked to focus onto a light as the advanced machine and its software assess the status of the optic nerve and the nerve fibre

layer. Pachymetry or CCT is measured with the application of an ultrasonic probe onto the cornea.


WHAT DOES THE MANAGEMENT OF GLAUCOMA ENTAIL?

Glaucoma treatment may include medical management, surgical management or management by lasers. Medical management is done with eye drops. There are different formulations of eye drops some of which reduce aqueous inflow while others increase outflow. Please read the pamphlet given with the eye drops and check that you are not having any side effects mentioned in it. You should store the eye drops in a cool & dry place.

Management by lasers includes procedures such as trabeculoplasty, in which a laser is used to pull open the trabecular meshwork drainage area; iridotomy, in which a tiny hole is made in the iris, allowing the fluid to flow more freely; and cyclophotocoagulation, in which a laser beam treats areas of the ciliary body, reducing the production of fluid.

WHAT YOU OUGHT TO KNOW?

- Sometimes the symptoms of glaucoma are simply not noticeable therefore timely detection is a must. Yearly eye checkup should be done after 40 years of age.
- There is no proven way to prevent glaucoma. Frequent monitoring, regular checkups can help detect the disease in its early stages.
- Don't let glaucoma limit your life. You can continue with what you were doing before glaucoma was diagnosed. You can make new plans and start new ventures.
- Take your medicines exactly as prescribed. Use the right drop in the right way, as prescribed by the doctor.
- Try to schedule time for taking medication around daily routine such as waking, mealtimes and bedtime.
- Drinking large quantities of water on empty stomach early mornings should be stopped. This habit temporarily increases the Intra Ocular pressure

Surgical management includes various procedures where an opening is made to create a new drainage pathway for the fluid to leave the eye easily. Even despite surgery, you may have to use anti-glaucoma medication or go for a re-surgery. Also your regular checkups should continue even after surgery. 

(The author is Senior Consultant and Chairman, Centre for Sight Group of Eye Hospitals, New Delhi)



Listen to your Heart

High blood pressure, smoking, lack of exercise, high level of cholesterol, excessive use of fats, improper diet and mental stress are some of the contributory factors for the increasing incidence of heart disease in India. Double Helical brings to you an in-depth guide on the various dimensions of heart disease, its causes and various treatment options...

BY AMRESH KUMAR TIWARY

If you feel pain or stress on the left side of chest which can spread to jaw or neck and persists for 30 mins, it is likely that infraction myocardial has occurred. Mostly this pain occurs when patient is doing something like walking, running or taking exercise.

Most of the youth is facing this disease due to enjoying high cholesterol foods, especially pizzas which are eaten late night.

Sometimes this pain starts due to narrowness of coronary arteries and heart beat gets imbalanced. When this

imbalance increases, sudden death can happen. In tension, heart attack can occur. Patient feels that his beating heart will come out of chest. Sweat appears on his palms. He becomes restless. Some patients take medicines or tranquilizers.

Says **Dr Sanjeev Aggarwal, Department of Cardiology, Senior Consultant, Sri Balaji**



Action Medical Institute, “Heart enjoys the central place in human body. Nobody can live without it. It has main role in automatic nervous system. That’s why heart continues its role in whatever condition a man is. It circulates blood to the whole body.”

High blood pressure, smoking, no exercise, high level of cholesterol, excessive use of fats, improper diet are the main reasons of heart diseases. Mental stress is also a contributory factor. Due to eating offat-containing food, level of cholesterol increases in blood.

By avoiding smoking, high blood pressure, improper diet you can protect yourself from the heart problems. Take a balanced diet, avoid smoking and foods containing fats. Walk regularly. It lessens your weight and secondly it decreases cholesterol level of blood. Blood pressure also remains normal.

Coronary heart disease occurs when the coronary arteries which deliver oxygen to the heart muscle become narrowed or blocked as a result of the buildup of fat/cholesterol within the artery wall.

Dr Sanjeev Aggarwal, adds, “If the build-up is only mild, symptoms may include a feeling of pressure or tightness in the chest at times of increased activity or stress. When the blood supply to the heart muscle is severely reduced, chest pain (angina), heart attack (myocardial infarction) or rhythm disturbances (arrhythmia) may occur. The heart is a muscle that pumps blood to all parts of the body. When the heart chambers contract, blood is pumped out of the heart through the aorta (the main artery from the heart) carrying oxygen and nutrients to the rest of the body. The heart itself also needs oxygen to function. It’s the job of the coronary arteries to deliver oxygen-filled blood to the heart muscle.”

“Coronary heart disease is also known as atherosclerotic heart disease, ischaemic heart disease and coronary artery disease. It’s the result of the narrowing or blockage of coronary arteries by plaque formed by fat/cholesterol on the artery walls (a process known as atherosclerosis). There are many risk factors related to coronary heart disease. Some of these risk factors can be controlled through lifestyle changes and/or medications, while others cannot. The controllable factors include smoking, high blood pressure, diabetes, physical inactivity, obesity, and poor diet,” Dr



Sanjeev Aggarwal elaborates.

Depending on test results, various treatment options are considered such as medication, coronary angioplasty (with or without coronary artery stenting), or coronary artery bypass surgery (sometimes abbreviated to CABG). Treatment is aimed at reducing or eliminating symptoms and reducing the risk of having a heart attack.

Coronary Angioplasty and Stenting

Coronary angioplasty is a non-surgical technique used to widen narrowed coronary arteries. The procedure is similar to an angiogram and involves inserting a balloon-tipped catheter into a narrowed coronary artery. As with an angiogram the catheter is inserted through an incision in the groin or wrist. The patient is awake but is sometimes mildly sedated for the duration of the procedure. The balloon is positioned at the site of the narrowing in the coronary artery. It is then inflated, compressing the plaque and slightly stretching the artery wall. This increases the diameter of the artery and therefore improves the flow of blood to the heart.

Virtually all angioplasties also involve the placement of a stent. A stent is a small mesh tube that is placed in the narrowed coronary artery during the angioplasty procedure, acting as a scaffold to keep the artery open. The stent is mounted over the catheter’s balloon, so that when the

Keeping your Heart Healthy



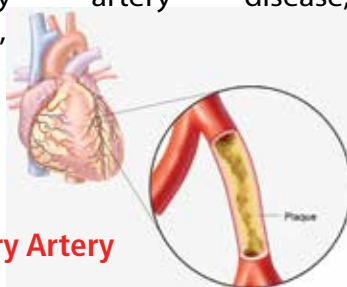
BY DR PURSHOTTAM LAL

Over the last two decades or so, the field of cardiology has witnessed rapid strides. Significant improvement has taken place as far as the treatment of various types of heart disease is concerned. More and more patients are nowadays treated with non-surgical means by interventional cardiology, thereby obviating the need for traumatic open heart surgery.



Interventional cardiology involves the intervention of the catheter and other devices through the groin under local anaesthesia just like angiography to treat various heart diseases non-surgically.

Broadly, the heart diseases are divided into four categories like coronary artery disease, valvular heart disease, congenital heart disease and heart rhythm disease.



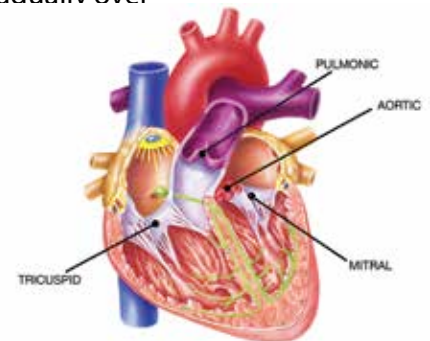
Non-Surgical Treatment of Coronary Artery Disease

The coronary arteries are tiny tube like structures that carry blood and oxygen to the heart muscle. If a blood vessel in the heart becomes only partly blocked, then chest pain (angina) may occur. However, if the heart vessels is totally blocked, heart attack takes place. In 1977, Dr Grunzig performed

the first balloon angioplasty. To deal with many limitations of balloon angioplasty new devices were introduced such as slow rotational angioplasty to open 100 per cent occluded artery by using hand held battery operated drill, coronary atherectomy to remove the fatty deposit from the artery with the help of shaving blade, rotablator embedded with diamond crystals to open up calcified arteries at very high speed rotation and stenting (spring like structure made of an alloy) to keep the artery open.

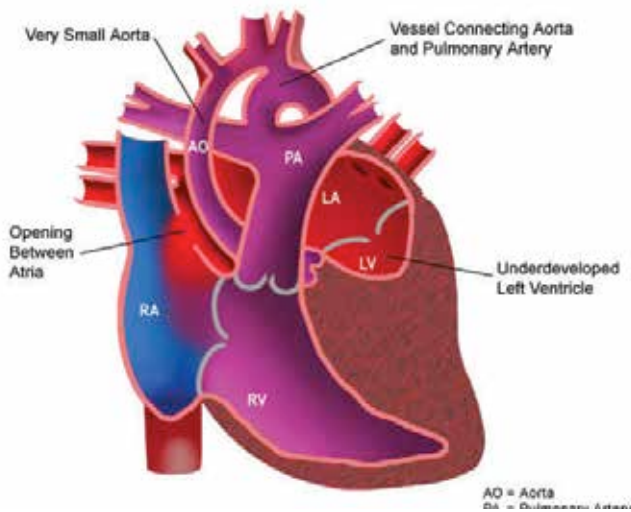
Drug eluting stents have played a revolutionary role in the treatment of coronary artery disease and have virtually replaced bypass surgery even in the complex situations. Latest advancement by using absorbable stents (wherein stent dissolves gradually over

a period of time not leaving permanent scar within the coronary artery) has given new outlook for non-surgical treatment of coronary arteries although long term results are still awaited.



Non-Surgical Treatment of Valvular Heart Disease

Rheumatic heart disease involving heart valves still remains common in India particularly in patients coming from low socio-economic groups. It causes narrowing of the heart valves or leakage in the valves or both. Narrowing of the mitral valve called mitral stenosis is the commonest and at times it is detected during later part of the pregnancy when the patient starts feeling extreme difficulty in breathing and palpitations. Unless this tightness in the valve is removed, it becomes dangerous for the life of the patient and the baby. In 1984, Dr Inoue introduced a balloon named Inoue Balloon to open the tight valve without surgery. This Inoue balloon has become the most popular and common balloon in the world to open up the narrow valves of the



heart and the procedure is called as Valvuloplasty. This balloon is primarily used for opening mitral valve (mitral valvuloplasty or PTMC).

The procedure of mitral valvuloplasty is done in the cath lab just like angiography and usually takes 15 minutes. During pregnancy, the procedure of valvuloplasty can also be done under echo guidance only without the use of cath lab to avoid any risk factors of radiations to the foetus. The patients who are having significant leak in their valves require open heart surgery. In case of aortic valve disease, balloons don't work very well and open heart surgery is preferred. The new advances in the Interventional Cardiology have brought up certain valves like core valve which can be used to replace

the diseased aortic valve without open heart surgery. The use of this valve is rather limited due to high cost and surgical replacement of the valve still remains the treatment of choice. In patients suffering from leaky valves (mitral regurgitation), the diseased valve has to be replaced with open heart surgery.

Non-Surgical treatment of Congenital Heart Disease

Medical and nonsurgical treatment for congenital heart disease varies depending upon types of congenital heart defects.

Common procedures to treat heart diseases include non-surgical closure of different types of holes in heart such as ASD, VSD, and PDA. Various devices such as Monodisc, Amplatzer, Double Button have been developed to treat selected cases without open heart surgery. Out of these devices Amplatzer Septal Occluder and Amplatzer Duct Occluder remains the most popular and commonly used devices. These devices are fitted in the hole with the help of catheters introduced through the groin under local anaesthesia. These special nonsurgical procedures offer many advantages, including short procedure time, no visible scarring, little or no pain, little or no blood loss and quick recovery with patients frequently able to resume normal activities the next day. The procedure has been a blessing for the young girls who otherwise would have suffered from big scar in the chest due to the open heart surgery and causing social stigma.

Advanced Treatments for Abnormalities of Heart Rhythm, Hypertension and Peripheral Vascular Disease and Abdominal aneurysm

In patients suffering from rapid heart beat in the form of PAT, ventricular tachycardia, atrial fibrillation, heart block, severe left ventricle dysfunction, various modalities of treatment in the form of radiofrequency ablations, variety of pacemaker and ICD implantations are available. These procedures are done nonsurgically and at times are life-saving procedures. Another treatment modality is being under investigation for hypertensive patients not responding to medical treatment. The procedure known as RDN involves the use of radiofrequency waves with the help of catheter. Patients suffering from obstruction in the arteries of the legs can be tackled with implantation of stents thus saving the patients from gangrene. Similarly special kind of stents can be used for the repair of abdominal aneurysms saving the patient from high risk surgery. A critical block in the carotid



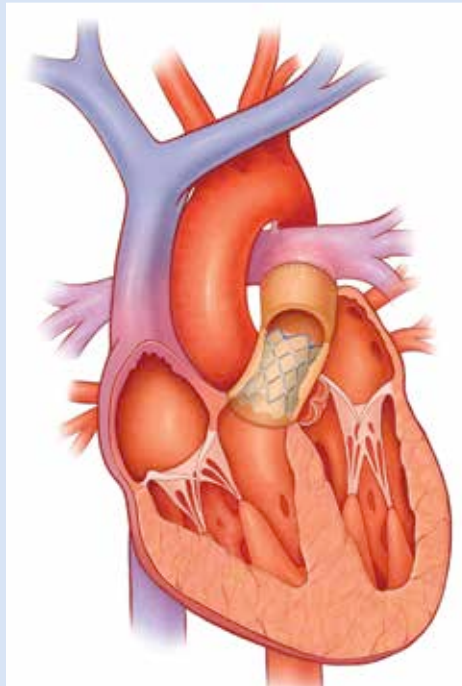
Treating Heart Blockage

BY DR K K AGGARWAL

Over the last two decades or so, the field of cardiology has witnessed rapid strides. Significant improvement has taken place as far as the treatment of various types of heart disease is concerned. More and more patients are nowadays treated with non-surgical means by interventional cardiology, thereby obviating the need for traumatic open heart surgery. Interventional cardiology involves the intervention of the catheter and other devices through the groin under local anaesthesia just like angiography to treat various heart diseases non-surgically.

Heart diseases can be congenital, valvular heart disease or blockage in the heart. The blockage in the heart affects 10-15% of people. For medical blockages, one can go for medical treatment, cardiac interventions or surgical interventions. Advances in medical treatment involve aggressive lifestyle management, newer options in diet therapy involving low carbohydrate diet and newer drugs. In 80% of cases today, one should be able to manage blockage with lifestyle and drug treatment.

If the arteries are blocked and cannot be managed with drugs, then the next option is to open the



artery and put a drug eluting stent (chhalla or spring). Most advances are in the types of stent with basic purpose of preventing stent clotting and stent re-blockages.

Stents can be of cobalt or platinum. Similarly, the drugs can be of different categories. Most of these drugs are also given in cancer in high dosage. The advances in stents are also in the field of absorbable stent where the stent is no longer seen after 6 months when placed in the artery. Next is the bypass surgery. Earlier bypass surgeries used to be done in a heart which had been stopped and the body put on heart lung machine. But now,

most of the surgeries are done on beating heart. Many centres are also doing robotic surgeries.

For those people, where bypass surgeries cannot be done, extra corporeal, shock wave myocardial revascularization therapy can be attempted. This uses lithotripsy machine which gives shock wave of 1/10th strength and creates new vessels in the heart. If still a person cannot respond and the heart is weak, it is possible to put a 3 lead pacemaker and finally a heart transplant. If still a patient dies, he can still be revived in the next 10 minutes of the death by administering CPR-1

The heart of an individual with heart block beats irregularly and more slowly than normal. In some cases the heart may actually stop for up to 20 seconds, caused by a delay, obstruction or disruption along the pathway that electrical impulses travel through to make the heartbeat.

Heart block more commonly affects elderly individuals with a history of heart disease or smoking. Heart block may affect people who appear healthy. It is frequently a sign of some other underlying heart problem. Electrical impulses that make the heart beat may be slowed or blocked as a result of injury or damage to the heart muscle, or blockage of a blood vessel. Even alterations to impulses that last only a fraction of a second can cause bundle branch block (heart block). Sometimes heart block can make it more difficult for the heart to pump blood properly through the circulatory system, meaning that muscles and organs, including the brain do not get enough oxygen to function properly. Heart block itself does not usually require direct treatment. However, the underlying health conditions which generally accompany it, such as coronary heart disease, do.

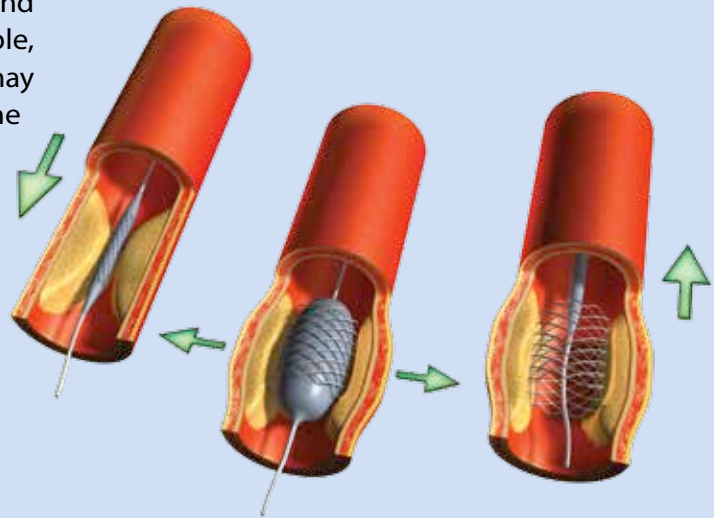
Heart block typically causes lightheadedness, fainting (syncope) and palpitations. Coronary artery disease, on the other hand, causes chest pain (angina) or heart attack (myocardial infarction).

A healthy human heart beats at approximately 60 to 80 times per minute. A heartbeat is one contraction of the heart muscles, which push blood around the body. Every muscle contraction is controlled by electrical signals that travel



between the atria (the upper chambers of the heart) and the ventricles (the lower chambers). In partial heart block, the electrical impulses are delayed or stopped. The heart does not beat regularly. In complete heart block, the electrical signals are completely stopped. The heartbeat will drop to about 40 times per minute.

A symptom is something the patient feels and reports, while a sign is something other people, such as the doctor detect. For example, pain may be a symptom while a rash may be a sign. The main signs and symptoms of heart block include slow or irregular heartbeats, shortness of breath, irregular heartbeat is felt (palpitations), lightheadedness, syncope (fainting), presyncope - a feeling that you are about to faint, possible pain or discomfort in the chest, and difficulty in doing exercise, because not enough blood is pumped around the body.



What are the causes of heart block?

In a healthy heart electrical impulses that travel inside a heart muscle signal it to contract - to beat. The impulses move along a pathway; from the atria (upper heart chambers), through the AV (atrioventricular) node, to the ventricles (lower heart chambers). Along this pathway there is a cluster of cardiac fibers which divide into two branches; the right and left bundles. Each heart ventricle has a branch. If there is damage to one of these branch bundles the heart may not beat properly. The impulses that tell the heart to beat may be blocked or slowed down, resulting in uncoordinated ventricular contractions.

Acute (sudden) heart block may also occur after a heart attack or a heart operation. In some cases, the condition may be congenital (the person is born with it).

Diagnosing heart block

An ECG (electrocardiogram) is the most common test for detecting bundle branch block (heart block). The device records the patient's heart's activity. A technician placed probes on the skin of the chest which reveal the patterns of electric impulses through the heart as wave patterns. Certain wave abnormalities may indicate bundle branch block. This test can also determine which bundle branch is affected (the left or right).

Holter tape - the patient wears a portable device which records all their heartbeats. It is worn under

the clothing and records information about the electrical activity of the heart while the person goes about his/her normal activities for one or two days. It has a button which can be pressed if symptoms are felt - then the doctor can see what heart rhythms were present at that moment.

Echocardiogram scan allows the doctor to see the heart muscles and valves.

Electrophysiology test - tiny electrical shocks are used to determine the cause of the abnormal rhythm in the heart.

Tilt-table test - the patient is placed on a tilt table bed which changes his/her position. This test may sometimes provoke abnormal heartbeats (arrhythmia).

What are the treatment options for heart block?

There is no heart-block-specific treatment. The majority of people with bundle branch block are symptom free and do not require treatment. However, those with underlying conditions which may be causing the heart block will need to have treatment for the underlying condition.


Because heart block affects the electrical activity of the heart, it may sometimes be more difficult to promptly diagnose other heart conditions, especially heart attacks. Medication is used to treat underlying conditions, such as hypertension (high blood pressure) or the effects of heart failure.



Coronary Artery Bypass Surgery (CABG)

Coronary artery bypass surgery involves using a blood vessel taken from elsewhere in the body to restore blood flow beyond the area of narrowed artery. This is done by grafting one end of the blood vessel to the blocked coronary artery below the blockage or narrowing and the other end to the aorta, thus “bypassing” the blockage. Chest wall arteries, arteries from the forearm, and veins from the legs can be used as graft vessels.

The operation takes approximately three to four hours and the average length of stay in hospital is five to seven days. The breastbone is cut during the procedure and can take up to eight weeks to heal. Patients are advised to limit activities during this time.

Exercise is good for your heart, as long as you stay within your cardiologist’s guidelines about what kinds of exercise you can do, and what you should avoid. You may be recommended a cardiac rehabilitation programme, which will help you develop a safe workout. Stop the exercise if you become overly fatigued or short of breath, and let your doctor know. If you have chest pressure or pain in your chest, neck, arm, jaw, or shoulder, stop exercising and contact doctor. If you have pain anywhere else in the body, stop exercising in case it’s an injury. If you have frequent skipped beats or irregular heartbeat, feel weak, dizzy or light-headed, nauseous, blurred vision and muscle cramps stop the exercise and call your doctor or seek emergency medical help. 

balloon is inflated in the narrowed section, the stent opens. The balloon is then deflated and removed, leaving the expanded stent in place.

The use of stents has been shown to significantly reduce the rate at which coronary arteries re-narrow. The majority of stents are made of metal, however some bio-absorbable stents made of a dissolvable polymer are also now in clinical use. Most stents are coated with a medication that further reduces the risk of re-narrowing of the artery. These are known as drug-eluting stents.

A medication called clopidogrel is usually prescribed after the stenting procedures. This, in combination with aspirin, is recommended to be taken for a period of time (usually 6 months) after stent implantation. Once the clopidogrel is stopped, aspirin is needed for life.

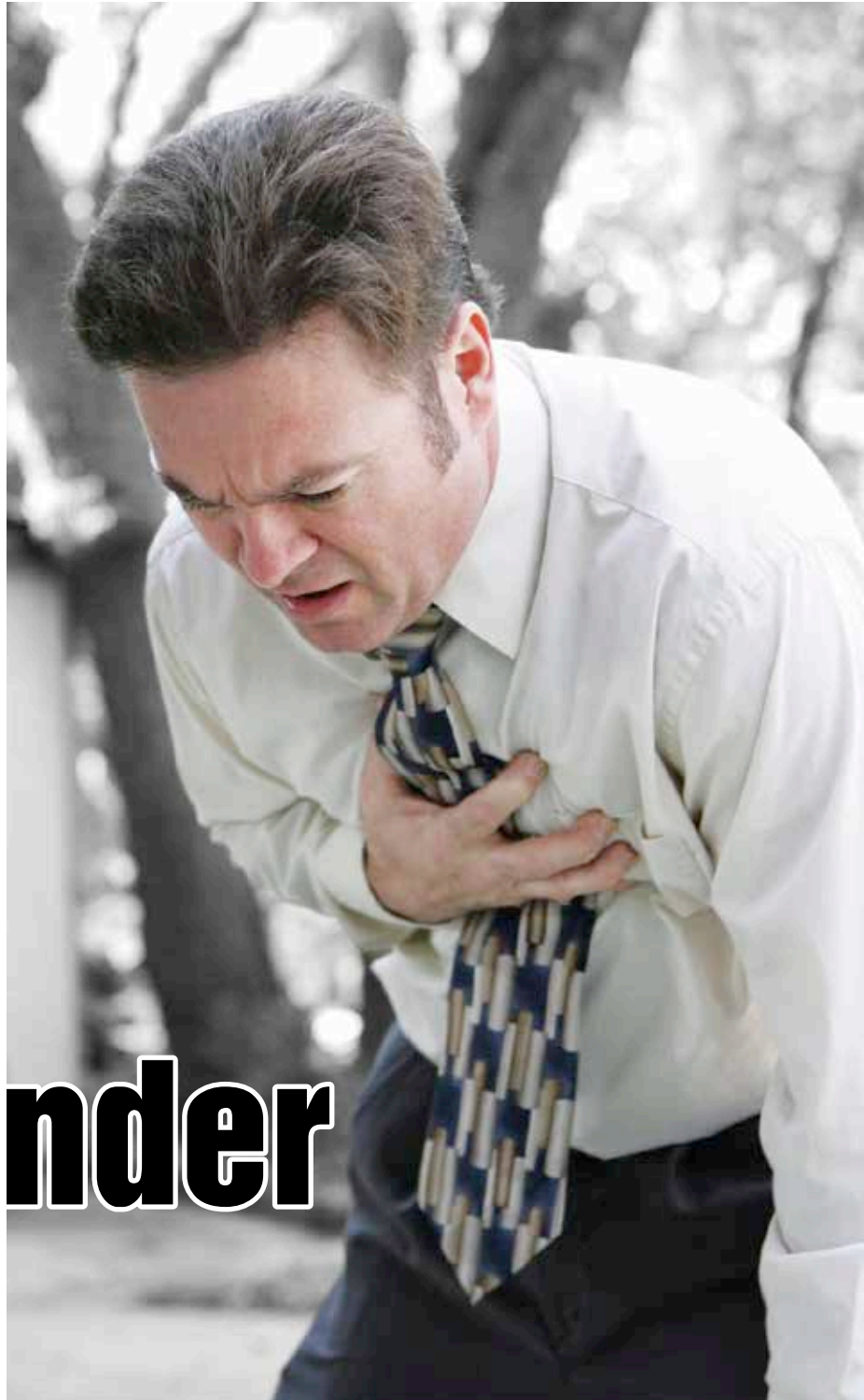
Coronary angioplasty and stenting has a high success rate but it is not an appropriate treatment for all people with coronary artery disease. If the narrowings in the coronary arteries are numerous and severe, surgery is required.



Today, young people's hearts seem to be aging much faster than their biological age. Lack of exercise, faulty lifestyle and stress are some of the risk factors that are leading to increasing incidence of youngsters who fall prey to cardiac arrests

BY DR RAZAT ARORA

Heart under Attack



A snapshot of the cardiovascular health reveals that in the current scenario, youth are more likely to be affected by heart diseases than adults. The problem of obesity is gradually acquiring the status of epidemic in the country and the excess weight has been fuelling diabetic and pre-

diabetic conditions. This paves the way for the lion's share of cardiovascular problems among today's youth.

Heart attacks and cardiac deaths among youth occur so frequently that they have begun to appear natural and inevitable. The World Heart Day was started in 2000 to inform people around the globe that heart disease and

stroke are the world's leading cause of death, claiming 17.3 million lives each year and the numbers are now rising. By 2030, it is expected that 23 million people will die from cardiovascular diseases annually. When a 70 or 80 year old succumbs, it gets little attention but when a 30 or 40 year old drops down, widening of eyes is expected. It is worrisome that out of 100, who suffer from cardiac ailments today, 40 percent are between 30 and 40 years of age. Till three decades back, the incidence of coronary artery diseases (CAD) that resulted in a heart attack was merely two percent. Today, it is up to an alarming 14 per cent.

Further, it is a myth that heart disease affect only men. The World Health Federation has revealed that heart disease is actually the number one killer among women, causing one in three female deaths: shockingly, that's about one death per minute, globally!

This alarming data indicates that the heart of the young people is in a big problem and is under attack. According to a recent India Today-Saffolalife study on 46,000 urban Indians, 78 per cent of men between 30 and 34 run the risk of heart attack. Their hearts seem to be aging much faster than their chronological age.


In 2009, the World Heart Federation and Marico Ltd in India coined the idea of heart age. Millions have now woken up to the idea of heart age. The Framingham Heart Study (FHS) algorithm calculates heart-age based on the biological age, gender, blood pressure, cholesterol levels, tobacco intake, diabetes and body mass index. Increasing numbers of young people are coming forward to get their heart-age calculated. Calculation is just the first step. Precaution and prevention are the main steps. It is important to figure out the factors which contribute to a weak heart at a young age.

The risk factors that contribute to coronary artery diseases include family history, high cholesterol levels, hypertension, abdominal obesity, diabetes, and metabolic syndrome. However, lack of exercise, faulty lifestyle and stress contribute significantly to the ailment. A giant contributor is smoking and several research studies have established that passive smoking is as hazardous as active. A child who is exposed to the smoke of cigarette for an extended period of time tends to develop cardiac problems very early in life.

The mortality rate of youngsters who fall prey to cardiac arrests is on the rise and increased awareness on exercise and healthy lifestyle is the only option to bring this down. While a child can be born with cardiac problems, the risk factor depends on how he conducts himself during adulthood. In today's world, stress is a part of life and mostly unavoidable, but half an hour of walk



or exercise at home or office, five days a week, can do wonders. A drastic change in lifestyle and eating habits is the need of the hour to tackle the alarming situation with a special focus on youth.

Consumption of a healthy diet starting from early childhood and adequate physical activity would ensure that we stay away from such degenerative diseases. According to the World Health Organisation, 80 percent of premature deaths from heart disease and stroke can be avoided if the main risk factors like tobacco, unhealthy diet are controlled and people lead a more active life. . 

By 2030, it is expected that 23 million people will die from cardiovascular diseases annually. It is worrisome that out of 100, who suffer from cardiac ailments today, 40 percent are between 30 and 40 years of age.

(The author is Interventional Cardiologist, Yashoda Superspeciality Hospital, Ghaziabad)

For your Heart's Sake



You should focus on healthy food habits and positive lifestyle changes for averting risk of heart diseases. **BY ABHIGYAN**

Tf you feel pain or stress on the left side of chest which can spread to jaw or neck and persists for 30 mins, it is likely that infraction myocardial has occurred. Mostly this pain occurs when patient is doing something like walking, running or taking exercise. Most of the youth is facing this disease due to enjoying high cholesterol foods, especially pizzas which are eaten late night.

The risk factors associated with heart diseases and stroke include hypertension (increased blood pressure), hypercholesteremia (increased cholesterol), hyperglycemia (increased glucose), smoking (tobacco in any form), obesity (physical inactivity), and inadequate consumption of fruits

and vegetables. A WHO data suggests almost 80% of premature deaths can be avoided if the main risk factors are taken control of.

When it comes to heart, 'the early you start the better you get'. Says **Dr Vinay Kumar Bahl, Professor and Head Department of Cardiology, AIIMS, New Delhi**, "Patients often come and tell us that they do not have any risk factors such as diabetes, hypertension and obesity. But the absence of these factors doesn't mean that they will not have a heart attack because there are some non-modifiable risk factors such as age and gender (if you are a male) and strong family history, which also put you at risk, however low. We are now witnessing heart attack at an early age of 20s and 30s which



is quite shocking, but this is the ground reality”

It is not only individual’s lifestyle but also the environment has a huge effect on one’s ability to make correct choices for our heart. Making even a few changes in the environment wherein we live, work and play can reduce our and our family’s risk factors manifold.

Says Dr (Prof) Harsh Wardhan, HOD, Cardiology, Primus Super Speciality Hospital, Gurgaon, “Today, aging gracefully means that one should make few positive changes in the lifestyle for averting risk of heart diseases”

According to him, one must focus on healthy food habits and lifestyle changes. Limit packed food consumption which is high in sugar and salt. Limit indoor or sitting activities like TV, video games etc. and organize outdoor activities such as walking, cycling or simply playing with your children in garden. Walk or cycle to work or just get off the bus or metro one stop early. Use mobile applications for calorie tracking, footstep watch and alike. Take the stairs and encourage others too. Have regular breaks from work to stretch and exercise at least 5 minutes each time. Visit your doctor and get preventive health check-up done timely. Include fresh fruits and vegetables in the diet. School and work lunch boxes should be replaced with healthy food stuff. Quit

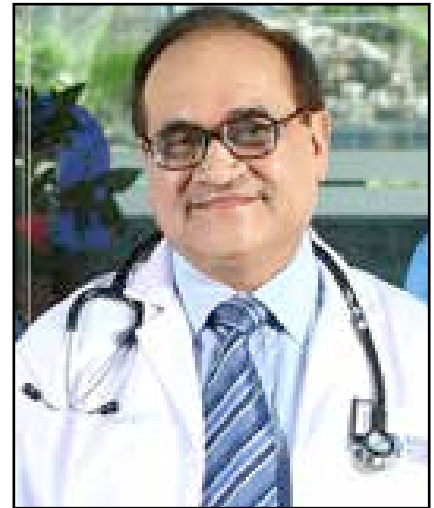
smoking at home and demand a smoke-free area at work place too.

Dr Bahl adds, “It is a myth that women usually do not suffer from heart ailments. Post-menopause, the risk of heart attack is as high or low in women as in men. Stress is a crucial risk factor. It can’t be calculated. But daily stress ups the blood pressure and can lead to anxiety and



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Dr Vinay Kumar Bahl, Professor and Head Department of Cardiology, AIIMS, New Delhi



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Dr (Prof) Harsh Wardhan, HOD, Cardiology, Primus Super Speciality Hospital, Gurgaon

depression. The secret to a healthy heart is, avoid ‘hurry, worry and curry’ as these lead to all sorts of diseases,”

The WHO advises that children from 5-17 years of age must go for moderate to vigorous physical activities at least 60 minutes daily and adults for 45-50 minutes. Children must be encouraged to limit their time watching TV or using computer to not more than 2 hours total daily. Aerobic exercises are better for the heart including brisk walking, swimming, cycling, muscle strengthening exercises, and yoga.

Walking: Take a firststep, go for walk.Walking is enjoyable, safe, inexpensive, easy to fit into almost anyone’s busy day and you can stick with it. You can walk to work, walk to the grocery store, and walk around your neighbourhood.Walking strengthens your heart, and increases blood circulation through your body, bringing more oxygen and nutrients to your organs.


Cycling: The pumping motion of the large muscles in your legs is a great aerobic exercise for your heart. Either a road cycle or a stationary cycle will work for this exercise routine. Pedalling at home on a stationary cycle can get you on the road to heart health when it’s too cold or too wet to cycle outside. The position of the seat and pedals are important to prevent injury when biking, so make sure your bike is properly adjusted for your body.

Swimming: It is one of the best aerobic exercises around. Two and a half hours of swimming per week will give you all

the aerobic heart health benefits you need. Another advantage of this exercise routine is that swimming puts less stress on your bones and joints. That can be especially beneficial if you’re starting out a little overweight or have a joint condition such as arthritis.

Exercise at Home and workplace: It is not always that one has to move out of house or go to gym for an exercise session. You can do physical activity by simply walking in home corridors or climbing stairs instead of going for escalators or lifts.

Playing sports: To stay active and healthy, one can opt for interesting sports activity according to interest and physical status of a person. One can go for football, badminton or cricket.

Deep Breathing Exercises: After an exercise session of walking, running or any other activities, it is very essential to cool down your heart rate to reach the level of resting heart rate. To achieve this, one can opt for deep breathing exercises and other breathing exercises to cool down and pace yourself 

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Double Helical is owned, printed and Published monthly. It is printed at Polykam offset, Naraina Industrial Area Phase 1, New Delhi-110028, and published from G-1, Antriksh Green, Kaushambi, Ghaziabad-201 010. Tel: 0120-4219575, 9953604965.

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Sustaining the Life Force

Ayurveda prescribes natural ways of taking care of heart, the basis of life and the seat of consciousness

BY DR PRATAP CHAUHAN

According to Ayurveda, the heart is one of the three main marma (vital organs). There are many types of srotas (channels) responsible for the circulation of various materials like dhatus (tissues), energy, wastes and prana (life air).

Prana vaha srotas, which are responsible for the flow of prana in the body, are the main srotas. The heart is the root of prana vaha srotas. All the main blood vessels originate from the heart. The heart is also the seat of consciousness or soul. It is also related to ojas (vital fluid), which sustains the consciousness or soul and keeps the person alive. Modern science too emphasizes the importance of heart. The heart is the basis of life and we should take proper care of it. Heart is the seat of emotions like love. So, to establish love, harmony and peace, it is important that one has a healthy heart.

Taking care of your heart

According to Ayurveda, ama is the main cause for heart diseases. Ama is the toxic material that is produced by undigested food. Therefore, one must make sure that one eats only the amount and type of foods one can digest properly.

Avoid over-eating and eating frequently. Eat a light breakfast and dinner. Lunch should be the main meal. Milk products, fried foods, cold foods and acidic foods should be taken in small quantities. White flour products, and foods that contain chemical preservatives and additives should be avoided. Animal products, especially red meat, are not good as they take a long time to be digested, and create a lot of toxins in the stomach.

Seasonal fruits and fresh vegetables (steamed or cooked), wholemeal bread or chapatti, salad, sprouts, vegetable soup, buttermilk, cottage



“ A herb that has been scientifically proven to prevent and cure heart diseases is Arjuna (*Terminalia Arjuna*). It can be taken in powder form or the bark of the tree can be boiled to make a tea. Rudraksha, which is a fruit from a tree found mainly in the Himalayas, also has a beneficial effect on the heart ”

cheese (paneer), a little quantity of fresh milk and ghee (clarified butter) make up an ideal list of food items to choose from. Anything sweet should be taken in moderation. Honey and jaggery are healthier than purified sugar.

Amla (Indian gooseberry) is very beneficial for the heart. It can be taken fresh, preserved or in powder form.


A very common cause of heart diseases is mental stress. Regular practice of yoga and pranayama (breathing exercises) reduces stress levels. Also, meditation has been scientifically proven to prevent as well as cure heart diseases.

A gentle head massage with or without oil several times a week is very beneficial. A full-body self-massage with oil once a week is also good.

Too much tea, coffee, alcohol and smoking is not good for the heart and should be given up. They weaken the liver and digestive power, and so form ama. Drinking water kept overnight in a copper pot strengthens the heart.

A herb that has been scientifically proven to prevent and cure heart diseases is Arjuna (*Terminalia arjuna*). It can be taken in powder form or the bark of the tree can be boiled to make a tea.

Rudraksha, which is a fruit from a tree found mainly in the Himalayas, also has a beneficial effect on the heart. These seeds can be strung together and worn in the form of a necklace, or the seeds may be soaked in water overnight and the water should be taken early in morning.

Obesity is a very common reason for heart disorders. If you have put on some extra pounds, you must reduce it by physical exercise and diet control. 

(The author is Ayurvedacharya and Director, Jiva Ayurveda, New Delhi)



The Weakening Shield

Vitamin D deficiency increases the risk of a host of chronic and infectious diseases

BY DR DHANANJAY GUPTA

Vitamin D is essential for bone health and is also known as the sunshine vitamin. It can be produced in the body with mild sun exposure or consumed in food or supplements. You don't get enough vitamin D if you don't get outside for at least a 15-minute daily walk in the sun. Dark toned people, as well as older individuals, tend to have much lower levels of vitamin D, as do people who are overweight or obese.

According to a survey, over 80 percent of India's population is vitamin D deficient. East Zone had highest percentage of abnormality with 86.6 per cent being detected with lower levels of Vitamin D while northern and southern zone had 81.3 per cent and 85.6 per cent respectively. Among the four zones,

western India showed the lowest percentage of abnormality with 69.8 per cent. Men are on the higher risk of vitamin D deficiency, as 73 lakh men had abnormal vitamin D levels. According to statistics, one out of eight men and one out of three women in India are affected by osteoporosis. Being "D-ficient" increases the risk of a host of chronic diseases – osteoporosis, heart disease, cancer, multiple sclerosis, and infectious diseases such as seasonal flu and tuberculosis.

Source of Vitamin-D

Vitamin D is both a nutrient we eat and a hormone our bodies make. Few foods are naturally rich in vitamin D, so the biggest dietary sources of vitamin D are fortified foods and vitamin supplements. The current recommendation for total

daily calcium intake is 1,200 mg, but no more than 1,500 mg (that is, diet + supplements).

Virtually all of our diets contain about 300- 400 mg of calcium, even those devoid of dairy products. This means for a vast number of people, supplemental calcium should not exceed 800 mg per day. Consumption of one or two tablets containing 400 to 800 mg of calcium a day is adequate for most patients. When in doubt, talk with your physician, endocrinologist, or registered dietitian for assistance with choosing dietary supplements.

Extra vitamin D is necessary for premature infants and those who are exclusively breast-fed to ensure proper growth and optimal health. People older than 65 years are likely to need 2,000 international units (IU) per day of vitamin

D, whereas 1,000 IU per day may be enough for people younger than 65 years. Those with low serum vitamin D levels are also treated with high doses (e.g., 50,000 IU capsules) for a shorter duration. However, this should be done under medical supervision. Daily consumption of vitamin D-fortified foods such as milk, fish oils, salmon, tuna, fatty fish, mushrooms, beef liver, cheese, egg yolks and other dairy products, is encouraged.

Vitamin D deficiency is on the rise in today's generation

Today, more cases of Vitamin D deficiency are reported because the present generation, as compared to the earlier generation, tends to lead sedentary lifestyle. Earlier children used to play outside but today they tend to indulge more in indoor games. Earlier the morning prayers in the school used to be conducted on the ground but today almost every school conducts their morning prayers in the auditoriums. Nowadays, most of the people prefer to use their own private cars rather than using public transport. Working from dawn to dusk in air-conditioned offices and time spent indoors have starved the supply of vitamin D in the body. The change in the lifestyle of the people has resulted in an increase in the cases of Vitamin D deficiency.

Some myths on Vitamin D:

- **Your body can produce enough vitamin D on its own.**

Most of the vitamin D in people comes from exposure to sunlight. Your skin produces vitamin D in response to exposure to UVB rays. The reason why many people suffer low blood levels of vitamin D in northern climates is because of the limited sunlight, especially during winter months. People with dark skin pigmentation are typically more deficient in vitamin D because they require more exposure to sunlight to produce the same amount as people with fair skin.

- **Clinical trials have proven that vitamin D prevents cancer.**

Vitamin D and disease prevention is



based on epidemiological evidence (evaluating rates of disease based on population data and often, self-reported vitamin D intake); not the conclusive evidence governments and experts prefer to make preventive health recommendations.

- **Tanning beds are a healthy way to boost vitamin D levels**


Direct exposure to sunlight spurs the body's production of vitamin D. Tanning beds, however, are not a viable substitute. The bulbs in the beds emit UVA rays, while vitamin D production requires UVB.

Diseases and conditions caused by vitamin D deficiency:

- Osteoporosis is commonly caused by a lack of vitamin D, which greatly

You don't get enough vitamin D if you don't get outside for at least a 15-minute daily walk in the sun. Dark toned people, as well as older individuals, tend to have much lower levels of vitamin D, as do people who are overweight or obese

impairs calcium absorption.

- "Rickets" is the name of a bone-wasting disease caused by vitamin D deficiency.
- Vitamin D deficiency may exacerbate type 2 diabetes and impair insulin production in the pancreas.
- Obesity impairs vitamin D utilization in the body, meaning obese people need twice as much vitamin D.
- Vitamin D is used around the world to treat Psoriasis.
- Vitamin D deficiency causes schizophrenia.
- Seasonal Affective Disorder is caused by a melatonin imbalance initiated by lack of exposure to sunlight.
- Chronic vitamin D deficiency is often misdiagnosed as fibromyalgia because its symptoms are so similar: muscle weakness, aches and pains.
- Your risk of developing serious diseases like diabetes and cancer is reduced 50%-80% through simple, sensible exposure to natural sunlight 2-3 times each week.
- Infants who receive vitamin D supplementation (2000 units daily) have an 80% reduced risk of developing type 1 diabetes over the next twenty years. 

(The author is Sr. consultant, Orthopaedics & Joint Replacement, Fortis Hospital)



The Gift of life

There is a crying need for raising awareness about organ donation in India to save millions of lives that are lost due to superstitious belief surrounding this most sublime of human acts.

BY DR SANJIV SAXENA



Tf you feel pain or stress on the left side of chest which can spread to jaw or neck and persists for 30 mints, it is likely that infraction myocardial has occurred. Mostly this pain occurs when patient is doing something like walking, running or taking exercise. Most of the youth is facing this disease due

to enjoying high cholesterol foods, especially pizzas which are eaten late night.

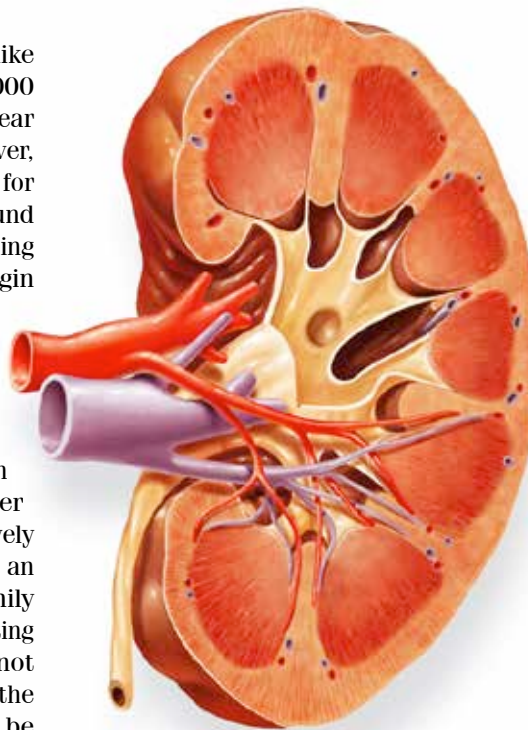
When an 18-year-old girl with a failing liver, passed away last month, the doctors treating her stated that she may have survived, had she had a liver transplant. It is an irony that the girl could not get a donor herself but she gave life to others in death. Her kidneys

have been used to save a patient while her heart valve and cornea have been preserved for donation. It was overwhelming that when her parents were told about the prospect of donating her organs, they immediately consented. They had just lost their daughter but they overcame the grief to help others in need. Lakhs of people lose their lives in the absence of finding donors for organ transplant. Survival rate in such critical case is pretty low as in India organ donation still is unthinkable.

In a vastly populated country like India, where near about 200,000 people need a new kidney every year and around 100,000 need a new liver, only few percentage of the demand for new organs is met, which is around 2% - 3% of the total demand. Finding a donor match is difficult to begin with. In India, this challenge is compounded by bureaucratic hurdles and lack of awareness. A lot of red-tapism and paperwork involved in getting a transplant done also contributes in worsening the situation. Under Indian law, for instance, it's relatively easy for close relatives to donate an organ, or part of it, to a family member in need. According to existing rules, if the potential donor is not related to the person who needs the organ, the transplant needs to be

approved by a state-level committee or by a hospital committee that includes government officials. This results in unnecessary delay in the donating process.

Most of the Indians, mainly the north Indians carry a superstitious belief that donating organ is an evil practice and an individual's soul will not rest in peace if the body parts are mutilated. This is mainly due to the lack of awareness prevailing over



there. The most common myth prevailing in the process of organ donation is that, if the doctor knows that the individual has given his consent for organ donation, he wouldn't work hard to save his life.

Organ transplantation can be lifesaving for patients with organ failure. Thousands of these patients may die because there are not enough donated organs to meet the demand. The main factor limiting organ donation is that less than half of the families of potential donors consent to donation. Many organs can be donated, including heart, intestines, kidneys, liver, lungs, and pancreas. Tissues that can be donated include corneas, heart valves, and skin. Donations may be used in people who have organ failure, who are blind, or who have severe burns or serious diseases. If you wish, you may specify which organs and tissues you would like to donate. While you are alive, you may donate a kidney or part of your liver to a specific / related matched patient. More than 6,000 transplants from living donors are performed each year. The Number can go up and save many more lives if people give consent for donating their organs after death.

Any person can become a donor irrespective of age, caste, religion, community, current or past medical

In a vastly populated country like India, where near about 200,000 people need a new kidney every year and around 100,000 need a new liver, only few percentage of the demand for new organs is met, which is around 2% - 3% of the total demand



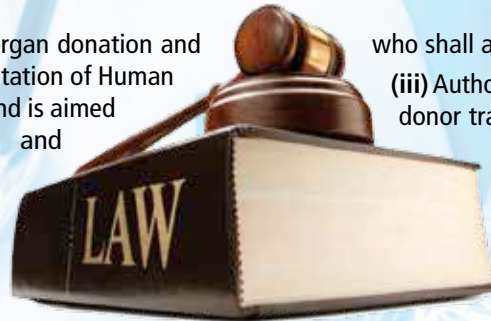
Laws and Rules Governing Organ Transplantation in India

The primary legislation related to organ donation and transplantation in India, 'Transplantation of Human Organs Act', was passed in 1994 and is aimed at regulation of removal, storage and transplantation of human organs for therapeutic purposes and for prevention of commercial dealings in human organs.

In India, matters related to health are governed by the laws of each state. The Act was initiated at the request of Maharashtra, Himachal Pradesh and Goa and was subsequently adopted by all states except Andhra Pradesh and Jammu & Kashmir. Despite a regulatory framework, cases of commercial dealings in human organs were reported in the media. An amendment to the Act was proposed by the states of Goa, Himachal Pradesh and West Bengal in 2009 to address inadequacies in the efficacy, relevance and impact of the Act. The amendment to the Act was passed by the Parliament in 2011, and the rules were notified in 2014. The same is adopted by the proposing states and union territories by default and may be adopted by other states by passing a resolution.

The main provisions of the Act (including the amendments and rules of 2014) are as follows:

- A.** Brain death identified as a form of death. Process and criteria for brain death certification defined (Form 10)
- B.** Allows transplantation of human organs and tissues from living donors and cadavers (after cardiac or brain death)
- C.** Regulatory and advisory bodies for monitoring transplantation activity and their constitution defined.
 - (i)** Appropriate Authority (AA) inspects and grants registration to hospitals for transplantation; enforces required standards for hospitals, and conducts regular inspections to examine the quality of transplantations. It may conduct investigations into complaints regarding breach of provisions of the Act, and has the powers of a civil court to summon any person, request documents and issue search warrants.
 - (ii)** Advisory Committee: consisting of experts in the domain



who shall advise the appropriate authority.

- (iii)** Authorization Committee (AC): regulates living donor transplantation by reviewing each case to ensure that the living donor is not exploited for monetary considerations and to prevent commercial dealings in transplantation. Proceedings to be video recorded and decisions notified within 24 hours. Appeals against their decision may be made to the state or central government.

- (iv)** Medical board (Brain Death Committee): Panel of doctors responsible for brain death certification. In case of non-availability of neurologist or neurosurgeon, any surgeon, physician, anaesthetist or intensivist, nominated by medical administrator in-charge of the hospital may certify brain death.

D. Living donors are classified as either a near relative or a non-related donor.

(i) A near-relative (spouse, children, grandchildren, siblings, parents and grandparents) needs permission of the doctor in-charge of the transplant centre to donate his organ.

(ii) A non-related donor needs permission of an Authorization Committee established by the state to donate his organs.

E. Swap Transplantation:

When a near relative living donor is medically incompatible with the recipient, the pair is permitted to do a swap transplant with another related unmatched donor/recipient pair.

F. Authorization for organ donation after brain death

- (i)** May be given before death by the person himself/herself or
- (ii)** By the person in legal possession of the body. A doctor shall ask the patient or relative of every person admitted to the ICU whether any prior authorization had been made. If not, the patient or his near relative should be made aware of the option to authorize such donation.

(iii) Authorization process for organ or tissue donation from unclaimed bodies outlined.

G. Organ retrieval permitted from any hospital with ICU facility once registered with the appropriate authority. Any hospital

having Intensive Care Unit (ICU) facilities along with manpower, infrastructure and equipment as required to diagnose and maintain the brain-stem dead person and to retrieve and transport organs and tissues including the facility for their temporary storage, can register as a retrieval centre.

H. Cost of donor management, retrieval, transportation and preservation to be borne by the recipient, institution, government, NGO or society, and not by the donor family.

I. Procedure for organ donation in medico-legal cases defined to avoid jeopardizing determination of the cause of death and delay in retrieval of organs.

J. Manpower and Facilities required for registration of a hospital as a transplant centre outlined.

K. Infrastructure, equipment requirements and guidelines and standard operating procedures for tissue banks outlined.

L. Qualifications of transplant surgeons, cornea and tissue retrieval technicians defined.


M. Appointment of transplant coordinators (with defined qualifications) made mandatory in all transplant centers.

N. Non-governmental organisations, registered societies and trusts working in the field of organ or tissue removal, storage or transplantation will require registration.

O. The central government to establish a National Human Organs and Tissues Removal and Storage Network i.e. NOTTO (National Organ & Tissue Transplant Organisation), ROTTO (Regional Organ & Tissue Transplant Organisation) and SOTTO (State Organ & Tissue Transplant Organisation). Website www.notto.nic.in. Manner of establishing National or Regional or State Human Organs and Tissues Removal and Storage Networks and their functions clearly stated. Secretary General, Indian Medical Association)

condition. However, patients suffering with active cancer, active HIV and active infection or intravenous drug use cannot do the same, though most cancer patients can donate cornea. There are two ways in which an individual can opt for organ donation: Opt In, where the donor gives consent, or Opt Out, where anyone who has not specifically refused is considered a donor. In India the Opt In system is adopted.

Organ transplant works on two principles, firstly, living donor transplant. Secondly, deceased donor transplant. In living donor transplant, a living person decides to donate his or her organ(s) to someone in need of a transplant. Living donors are usually family members or close friends of the person who requires a transplant. In deceased donor transplant, organs from a brain dead individual are transplanted into the body of a living recipient. The deceased individual in this scenario can only be a victim of brain death. This kind of transplant initially requires the recipient to wait on a list until a suitable organ is available based on the recipient's medical profile.

The need for the transplants is higher than the availability. The shortage of organs is virtually a universal problem. Even in developed countries, where rates of deceased organ donation tend to be higher than in other countries, organs from this source fail to meet the increasing demand. The prerequisites for the success of a transplantation programme include awareness, positive attitude of the public towards organ donation and consent by relatives for organ donation in the event of brain death. Lack of knowledge and understanding about organ donations, religious attitudes, and superstitious beliefs have generated fear and mistrust in the minds of the common man and, especially, the terminally ill patients. To increase the number of donors, initiatives should be taken to ease the entire process by making the people aware about registration for organ donation as this may help the doctors to find the donor more easily. 

(The author is Senior Consultant, Head of Nephrology Department, PSRI Hospital, New Delhi)





Inadequate Awareness

There is acute shortage of organs for transplant in India despite governmental intervention to stipulate the norms regarding organ donation

DR VINAY AGGARWAL

Ranjan Roy is engaged in creating awareness about eye donation among the common people. His main objective is to increase collection of eyes from all over the country and to educate the public about eye donation and prevention of corneal blindness.

Like Ranjan Roy, many individuals these days are engaged in generating mass awareness about organs donations. In fact, one donor can save

eight lives. As per a report, 250 people die every day in the absence of organs for transplant.

Donate Organs Save Lives is an independent online platform to further the cause of cadaver organ donation in India through educating the public about the importance of organ donation. The organization aims to help build a nationally coordinated approach to spread and gather information about organ and tissue donation for transplantation.

Human beings want to be remembered after their death. Still, there is little realization that the way to make a difference is by donating organs. It's a great legacy that one can leave behind.

There has been great advancement in the field of organ transplantation in India, but its power to save lives depends directly on the availability of organs. However, there is acute shortage of organs for transplant procedures, in India. The need for

organs is growing by the day.

The Deceased Organ Retrieval Sharing Organization (DORSO) is an autonomous and recognized agency for the Delhi State Deceased Organ Retrieval Transplant Authority. It wants to make a difference and enlighten the Indian Society about the new afterlife with organ donation. It has a specific role to monitor, evaluate, appraise and disseminate to the Delhi State Health Department on the periodic status of implementation of the cadaver programme.

It has been estimated that 200,000 people in India are annually diagnosed with organ failure needing transplantation as part of life saving measure. A majority of these patients are young where their only hope to live rests on a transplant of their failing organ.

Transplantation of human organs from one human being to another is now a reality that can change lives. Patients in India, however, are unable to benefit from this medical advancement.

Kidney transplants in India first started in the 1970s and since then India has been a leading country in this field on the Asian sub-



continent. The evolutionary history of transplants in the last four decades has witnessed a different facet of transplant emerging in each decade. The first 10 years were spent mastering the surgical techniques and immune-suppression. Its success resulted in a phenomenal rise in the numbers of transplants in the subsequent 10 years. But kidney donation from economically weaker sections started taking place with commerce in organ donation assuming disturbing proportions.

These were exploitative transplants leading to protests from many sections in India. The widespread hue and cry saw the passing of the Transplantation of Human Organ Act (THO) that made unrelated transplants illegal and deceased donation a legal option with the acceptance of brain death.

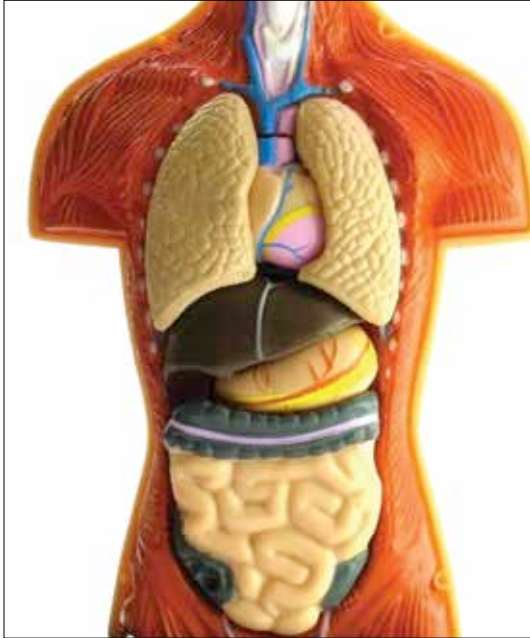
While the deceased donation

programme is yet to evolve, the living donation programme has been marred with constant kidney scandals. Although the history of cadaver transplants in India is recent, the first attempts to use a cadaver donor's kidney were undertaken in 1965 in Mumbai. The medical problems included technical difficulties in engrafting, immunological problems, and infection.

In India, despite the THO act, neither has the commerce stopped nor have the number of deceased donors increased to take care of organ shortage. The concept of brain death has not been promoted or widely publicized. Most unrelated transplants currently are being done under the cloak of legal authority from an authorization committee. The few deceased donations that are taking place are due to the efforts of a few non-government organizations (NGO) or hospitals that are highly committed to the cause.

To a large extent, the failure of the THO act has been because of the way it has been interpreted and





Human beings want to be remembered after their death. Still, there is little realization that the way to make a difference is by donating organs. It's a great legacy that one can leave behind.

implemented by authorities and hospitals.

Recently, the government has come under much criticism by the public and media. It has added a few legislations in the form of a Gazette to curb the illegal unrelated donation activities and has tried to plug the loopholes in the THO Act.

The main provisions of the THO Act and the newly passed Gazette by the Government of India include the following:

For living donation - The relatives who are allowed to donate include mother, father, brothers, sisters, son, daughter, and spouse. Recently, in the new Gazette grandparents have been included in the list of first relatives. The first relatives are required to

provide proof of their relationship by genetic testing and/or by legal documents. In the event of there being no first relatives, the recipient and donor are required to seek special permission from the government appointed authorization committee and appear for an interview in front of the committee to prove that the motive of donation is purely out of altruism or affection for the recipient.

Brain-death and its declaration - Brain death is defined by the following criteria: two certifications are required 6 hours apart from doctors and two of these have to be doctors nominated by the appropriate authority of the government with one of the two being an expert in the field

of neurology.

Regulation of transplant activities by forming an Authorization Committee (AC) and Appropriate Authority (AA.) in each State or Union Territory. Each has a defined role as follows:

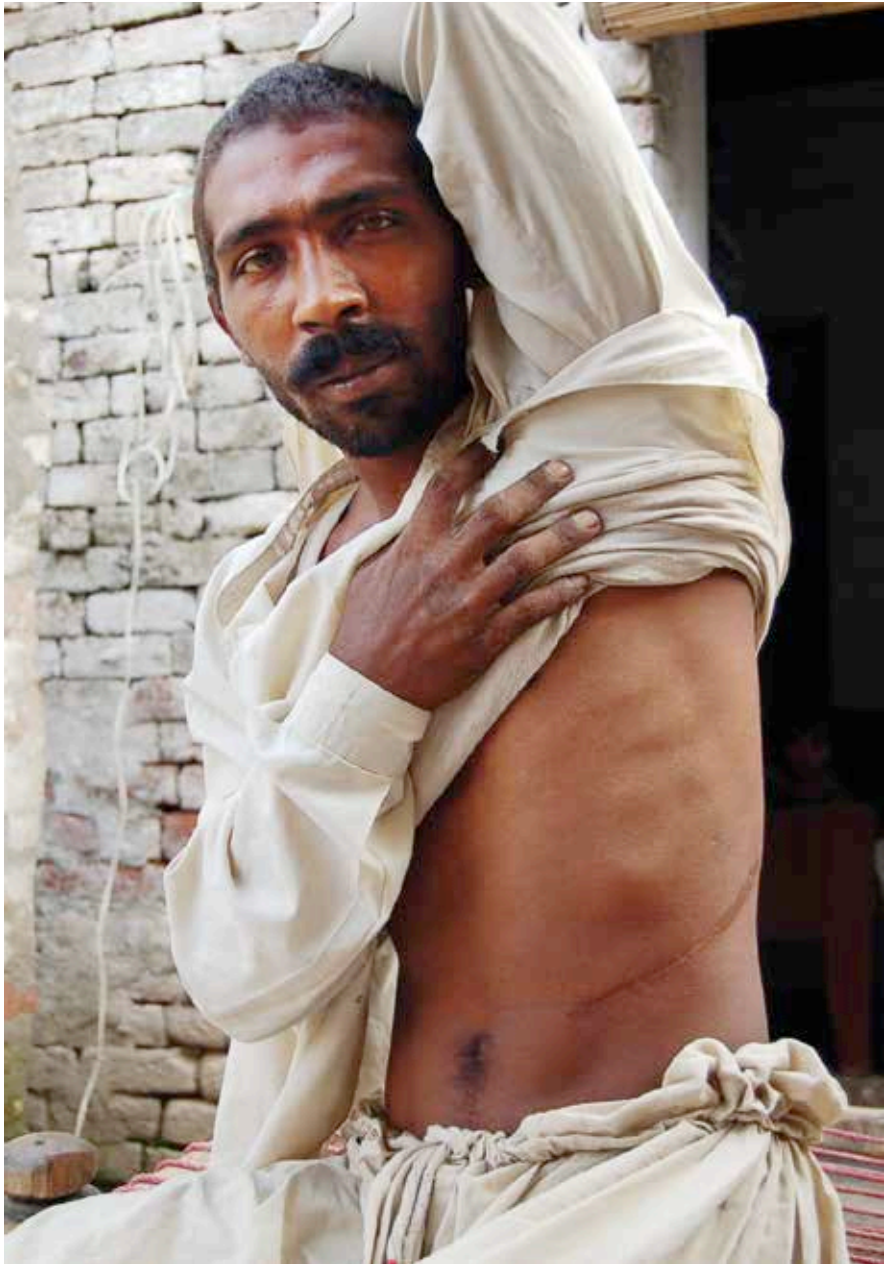
Role of Authorization Committee (AC) - The purpose of this body is to regulate the process of authorization to approve or reject transplants between the recipient and donors other than a first relative. The primary duty of the committee is to ensure that the donor is not being exploited for monetary consideration to donate their organ. The joint application made by the recipient and donor is scrutinized and a personal interview is essential to satisfy to the AC the genuine motive of donation and to ensure that the donor understands the potential risks of the surgery. Information about approval or rejection is sent by mail to




the concerned hospitals. The decision to accept or reject a donor is governed by Sub Clause (3), Clause 9 of Chapter II of the THO Act.

Role of Appropriate Authority (AA): The purpose of this body is to regulate the removal, storage, and transplantation of human organs. A hospital is permitted to perform such activities only after being licensed by the authority. The removal of eyes

Transplantation of human organs from one human being to another is now a reality that can change lives. Patients in India, however, are unable to benefit from this medical advancement.



from the dead body of a donor is not governed by such an authority and can be done at other premises and does not require any licensing procedure. The powers of the AA include inspecting and granting registration to the hospitals for transplant surgery, enforcing the required standards for hospitals, conducting regular inspections of the hospitals to examine the quality of transplantation and follow-up medical care of donors and recipients, suspending or canceling the registrations or erring hospitals,

and conducting investigations into complaints for breach of any provisions of the Act. The AA issues a license to a hospital for a period of 5 years at a time and can renew the license after that period. Each organ requires a separate license. 

(The author is Founder Chairman, Max Super Speciality Hospital, Vaishali and Ex-President, Indian Medical Association, New Delhi)

Commodification of Organs



In the wake of growing commercialisation of organ trade, potential donors need to be protected from being exploited. They need to be educated them about the likely outcomes of selling an organ

BY DR A K AGARWAL

The commercialization of organ donation is a growing phenomenon in India. Like other problems such as child labour and prostitution, the organ trade has a societal angle to it. It relates to the exploitation of the poverty-stricken people by alluring them with financial gains that at times can be large and can meet their immediate short-term financial needs. Unlike other similar exploitative social situations, organ donation requires an invasive surgical procedure that has both physical and psychological implications.

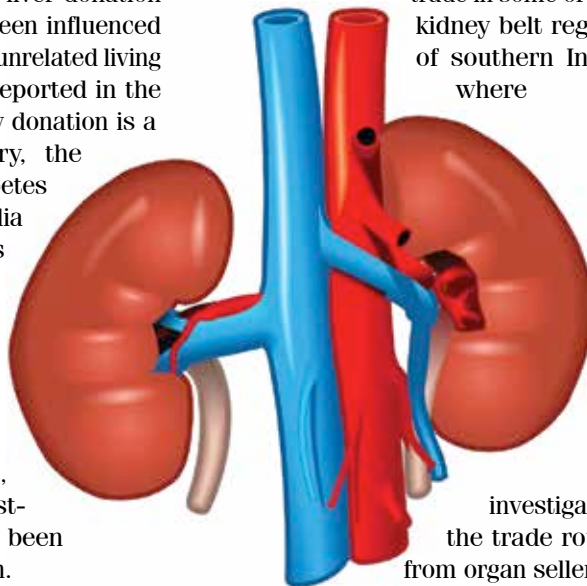
The more recent live liver donation programme has also been influenced by kidney donation and unrelated living donations have been reported in the media. Although kidney donation is a relatively safe surgery, the rising incidence of diabetes and hypertension in India makes the young donors potentially risk their health in the long-term. In some of the studies, it has been noted that when the motive of donation has been purely commercial, donors in the post-operative period have been more prone to ill-health.

Earlier when the donation was purely altruistic, there was the feel-good factor and the psychological recovery was much better. In an interesting field study on Economic and Health Consequences of Selling a Kidney in India, it was found that 96% of participants (over 300) sold their kidneys to pay off debts. The average amount received was \$1070. Most of the money received was spent on debts, food, and clothing. The average family income declined by one-third after removal of the kidney and the number of participants living below the poverty line increased. A total of three-fourths of the participants were still in debt at the time of the survey.

About 86% of participants reported deterioration in their health status

after nephrectomy. A total of 79% would not recommend that others sell a kidney. The article concludes that among the paid donors in India, selling a kidney does not lead to a long-term economic benefit and may be associated with a decline in health.

Lawrence Cohen, an anthropologist from Berkeley, interviewed patients in India and found that most of the donors were women who were deeply in debt and most of the money was squandered by their husbands in gambling and debts and the promise of a better future was never realized. In his research, Cohen found one-way trade in some of the kidney belt region of southern India where he



investigated the trade route from organ sellers - usually poor rural women - to hospitals and recipients - often wealthy people from Sri Lanka and Bangladesh or from the Gulf States. Cohen found that poor people sold their kidneys to get out of debt or to support their families; yet most of these families were back in debt very shortly minus their kidneys.

When kidney donation is used as an option for quick financial gain, many donors do not realize that like any other major surgery it takes time to recoup health and has a certain amount of inherent risks. In their enthusiasm to get the money, they are somewhat blinded to all the explanations given about the surgery.

Giving in to market forces and making organs a commodity is fraught



Dr A K Agarwal

Earlier when the donation was purely altruistic, there was the feel-good factor and the psychological recovery was much better. In an interesting field study on Economic and Health Consequences of Selling a Kidney in India, it was found that 96% of participants (over 300) sold their kidneys to pay off debts

with dangers and erodes social, moral, and ethical values and is not an alternative that can be acceptable to overcome the problem of organ shortage in a civilized society. In her article on 'The End of the Body: The Global Traffic in Organs for Transplant Surgery', Nancy Scheper-Hughes, an anthropologist from Berkeley, states that by their very nature markets are indiscriminate, promiscuous, and inclined to reduce everything, including human beings, their labour and even their reproductive capacity to the status of commodities, to things that can be bought, sold, traded, and



Like other problems such as child labour and prostitution, the organ trade has a societal angle to it. It relates to the exploitation of the poverty-stricken people by alluring them with financial gains that at times can be large and can meet their immediate short-term financial needs


sometimes even stolen.

The Transplantation of Human Organ Act (THO) was passed in India in 1994 to streamline organ donation and transplantation activities. Broadly, the Act accepted brain death as a form of death and made the sale of organs a punishable offence. With the

acceptance of brain death, it became possible to not only undertake kidney transplantations but also start other solid organ transplants like liver, heart, lungs, and pancreas.

Despite the THO legislation, organ commerce and kidney scandals are regularly reported in the Indian media. In most instances, the implementation of the law has been flawed and more often than once its provisions have been abused. In approximately one-third of all liver transplants, the organs have come from the deceased donor programme as have all the hearts and pancreas transplants. In these states, a few hospitals along with committed NGOs have kept the momentum of the deceased donor programme.

India is currently having a deceased donation rate of 0.05 to 0.08 per million population. We need to find a

solution on how we can utilize the potentially large pool of trauma-related brain deaths for organ donation. There has been severe criticism of the ethics of commerce in organ donation and transplant tourism by international bodies. The legal and ethical principles that we follow universally with organ donation and transplantation are also important for the future as these may be used to resolve our conflicts related to emerging sciences such as cloning, tissue engineering, and stem cells. 

(The author is Professor of Excellency and former Dean, Maulana Azad Medical College, New Delhi)

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S A V A N A



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Pregnant Possibilities

Today, the number of Indian couples turning to artificial methods to conceive has gone up considerably. So, has the success rate of the Assisted Reproductive Technology (The ART)

BY DR SONIA MALIK



Every human being wishes to procreate and historically, infertility has been like a curse for any individual affected by it. Couples may find it difficult to conceive naturally due to different reasons. ART, an acronym used for Assisted Reproductive Technology, consists of a comprehensive programme that is offered to such

couples.

According to a survey conducted in nine Indian cities, out of the 2,562 people who participated in it, nearly 46 percent were found infertile. Results from another parallel survey conducted among 100 infertility specialists showed that nearly 63 percent of the infertile couples belonged to the child-bearing age (31-40)

Assistance can be given to both men and women depending on the cause of infertility. Infertility management involves detailed investigations to reach a logical diagnosis and then specific treatment. Infertility centres these days provide comprehensive infertility management/ART Programme to patients. The various forms of treatments like Intrauterine Insemination, (IUI) In Vitro Fertilization (IVF), Third Party Reproduction and Intracytoplasmic sperm injection (ICSI) are in vogue these days.

Intracytoplasmic sperm injection

(ICSI, pronounced “eeksee” or “icksy”) is an in vitro fertilization procedure in which a single sperm is injected directly into an egg. The technique was developed by Gianpiero Palermo around 1991 in Brussels. Today it has become the treatment of choice for men with weak sperms that cannot travel themselves into the egg.

Approximately 40% of fertility in couples can be attributed to male sub fertility. ICSI has raised hopes of these couples. This method of treating predominantly male-factor infertility has been a breakthrough, and it has established itself as the preferred method of treatment in the field of assisted reproduction.

When can ICSI be performed?

ICSI is an amazing procedure that can be performed with ejaculated sperms or even with sperms retrieved from the epididymis or testis! Men with obstruction in their passages can father a child by using their own sperms that

have been extracted by a surgeon. ICSI can also be offered to patients of previous IVF failures due to failed fertilization and patients with unexplained infertility. ICSI is different from conventional insemination since we clean away the follicle cells from around the eggs and an embryologist chooses the sperm to be injected. A small number of eggs do not tolerate the injection procedure and you can expect that about 5% of eggs die as a direct result of ICSI. However, fertilization rates, embryo quality and pregnancy rates are the same as for couples who do not have ICSI.



How is ICSI performed?

The process involves the injection of a single sperm within the ooplasm of the oocyte. Following the first ICSI birth in 1992 thousands of babies have been born around the world. Sperms for ICSI can be obtained from ejaculation, even when only few are present, or through surgical retrieval from epididymis or testis.

Microinjection is normally performed under a specialized microscope with the aid of a micromanipulator which allows small movements under high magnification. The scientist/embryologist sits on the ICSI station, looks either directly into the microscope or at a monitor that magnifies the image and then injects the egg by moving two

manipulators that look and function like joysticks. He holds the oocyte with one hand and injects through the other.

IVF

Reproduction is the process wherein there is fusion of the male and female gametes resulting in the exchange of genetic material, thus forming a new individual with an entirely different genotype.

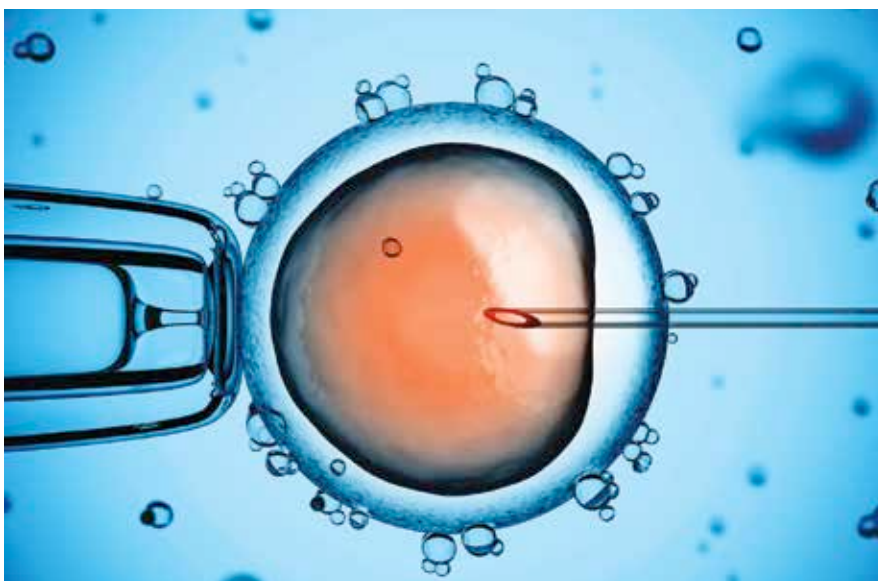
Mammals reproduce through sexual reproduction but technology now allows mammals to reproduce "asexually" through the process of in vitro fertilization. In this technique, the entire process of fertilization takes place outside a woman's body. This involves extracting a woman's eggs, fertilizing

Assistance can be given to both men and women depending on the cause of infertility. Infertility management involves detailed investigations to reach a logical diagnosis and then specific treatment

the eggs in the laboratory with sperm, and then transferring the resulting embryo(s) into the woman's uterus through the cervix (embryo transfer) where it can develop. Most couples transfer two embryos; however, more may be transferred in certain cases. IVF is the most common form of ART and it is often the treatment of choice for a woman with blocked, severely damaged, or absent fallopian tubes.

Evaluation and Preparation of a Couple

Proper evaluation of infertile couple before IVF is very important for success of IVF and prevention of complications. Any ART procedure should be preceded by traditional fertility workup & at this stage it should be decided whether ART should be instituted, postponed for other treatment modalities or refused to the couple. Once the patient has been selected to undergo ART treatment, thorough testing of patient should be undertaken to correct any problems



Worrisome Scenario

It is believed that 10% of the general population suffers from some form of infertility. Given that India has a population of over 1.2 billion, the number of Indians suffering from infertility is huge. A major finding of a recent survey was that infertility problems prevailed even among the young generation. Nearly 34 percent of the couples, aged between 21 and 30, opted assisted reproduction technology (ART) after they experienced difficulties in conceiving naturally.

Infertility is a term used to explain the inability of a woman to conceive after two years of constant efforts. IVF (In Vitro Fertilization) is an artificial method known as Assisted Reproductive Technology (ART) adopted by people who experience difficulties in conceiving naturally. It is the process of manually combining an egg and sperm in a laboratory.

Infertility problems have been a source of concern in India lately. According to a 2013 World Bank estimate, the drop in fertility started about 10 years ago in India, with a steady 17 percent decline from the year 2000.

Many factors including changes in lifestyle, stress and the recent trend of late marriages contribute to this occurrence. While poor sperm count (41 percent) played a major role in male infertility, female infertility was caused mainly by polycystic ovarian disorder or PCOD (40 percent).



which may lead to IVF failure. At this stage, it should also be decided whether specific procedure such as egg, sperm or embryo donation is required.

Routine tests before proceeding for IVF:

- o Baseline hormones to test for ovarian reserve
- o Semen analysis
- o Semen culture and sensitivity
- o Strict sperm morphology
- o Vaginal swab culture and sensitivity
- o Infection screening e.g. HIV, HbsAg and VDRL of both husband and wife
- o Evaluation of the uterine cavity by transvaginal USG and Hysteroscopy (if required)
- o General investigations like haemoglobin, blood sugar etc.
- o Specific tests if the couple is suffering from a specific disease e.g. lupus.

Intracytoplasmic sperm injection (ICSI, pronounced “eeksee” or “icksy”) is an in vitro fertilization procedure in which a single sperm is injected directly into an egg. The technique was developed by Gianpiero Palermo around 1991 in Brussels. Today it has become the treatment of choice for men with weak sperms that cannot travel themselves into the egg. Approximately 40% of fertility in couples can be attributed to male sub fertility. ICSI has raised hopes of these couples. This method of treating predominantly male-factor infertility has been a breakthrough, and it has established itself as the preferred method of treatment in

the field of assisted reproduction.

Male Infertility Programme

Ever since the human race evolved on the earth, it is the female who has been seen as the carrier of pregnancy and it was taken for granted that it was solely the female who was responsible for procreation. So, if anything was amiss, the woman supposed to be at fault. All research focused around the development of medication and technology in female infertility. While such innovations improved success in female infertility, no attention was being given to the male counterpart. This was also because infertility was the realm of the gynaecologist! There were no special doctors for males with problems. In developing countries like India, another reason was a complete denial by the males in accepting themselves to be the cause of infertility in the couple!

However, the last century saw rapid advances in the management of the infertile male both in diagnostics and treatment. The WHO gave guidelines for a proper semen examination and based on that treatment was decided.

Today, male infertility programme involves not only the standard testing procedures like semen analysis but also special tests to determine the fertilizing potential and quality of the sperm. This is called the DNA Fragmentation test. Occasionally, we find that all sperms in a sample are non-motile but we are not sure of its viability. In such cases, we carry out the HOS test. In patients who are azoospermic on testing, testicular fine needle aspiration is undertaken. If this too does not show sperms in the sample, we proceed to a testicular biopsy. The sample is checked for sperms and if positive, it is frozen or cryopreserved till the wife is readied for ICSI. Men who have mild male factor infertility, can be offered IUI but those that have weak sperms are treated by either IVF or ICSI and recently IMSI.



Third party reproduction

Third party reproduction refers to the use of oocytes, sperm, embryos or uterus that has been provided to a couple/single individual (called intended parents) by a third person (donor) in order to help them/him or her to become a parent.


According to the present Indian guidelines on ART drafted by the ICMR, all donors except the surrogate need to be anonymous to the commissioning couples. The ICMR guidelines also state that this activity of supplying various gametes and surrogates will not be carried out by the IVF centre but separate entities called ART Banks. All the legal issues are also the responsibility of these banks. Once the requirement is fulfilled, the medical fitness of the donor is assessed. After fulfilling the various

Today, male infertility programme involves not only the standard testing procedures like semen analysis but also special tests to determine the fertilizing potential and quality of the sperm. This is called the DNA Fragmentation test

formalities, the couple and their donor/surrogate is taken into the third party programme.

Recurrent Pregnancy Loss Programme

There is nothing more painful than losing a pregnancy repeatedly! It is not only devastating for the patient but also the treating doctor! RPL is defined as a situation where a woman has lost three or more than three pregnancies. In fact, RPL may be caused by chronic infections like genital tuberculosis! We also discovered that majority of recurrent failures whether at implantation or later pregnancy is due to an impaired blood circulation within the pelvis especially the uterus. The cause for this may vary.

Doctors carry out tests to rule out the cause of RPL and accordingly treat the patient. In case the patient has a genetic cause, the patient and her husband are informed regarding the defect and counseled regarding future implications. Endocrinal causes like PCOS can also be the reason and needs to be tackled by taking insulin lowering medication. There is no need to go through extensive testing after a single pregnancy loss. This could have happened by chance and one should not worry about it. 

(The author is Programme Director, Southend Fertility and IVF, New Delhi and President, Indian Fertility Society)

Beyond Myths



Diet and exercise do play their part in treating arthritis, the disease about which there are many misconceptions

BY DR RAMNEEK MAHAJAN

Mrs Ritu Agarwal, a 65-year-old woman from Delhi, has been suffering from pain, swelling and discomfort in both of her knees for the past six months. Earlier, she was a very active lady and used to do her daily household chores; play with her grandchildren; sit in the temples and sing bhajans with her friends. But now, all her activities have come to a standstill as she has been diagnosed with severe arthritis. The pain is affecting her daily life and she is not able to give time to her family.

Arthritis affects 15%, i.e., over 180 million people, in India. Its prevalence is higher than that of many well-known diseases such as diabetes, AIDS and cancer. Most types of arthritis are

caused by many factors acting together. You may be naturally more likely to develop certain disorders as a result of your genetic make-up. A variety of external factors may increase the risk further if you're susceptible to the condition in question. These include environmental factors – e.g. previous injury, infection, smoking, and

Arthritis can start suddenly without any obvious cause, and at any age. Sometimes something in your lifestyle or medical history – or a combination of these – could be responsible

occupations which are very demanding physically.

Most forms of arthritis run in families to a small extent. The way your body is made (based on the genes passed on from your parents) makes you more or less likely to develop the disease in question. Arthritis Research UK supports research that helps us to understand the genetic side of arthritis. This could lead to prevention of some forms of arthritis.

Lifestyle and trigger factors

Arthritis can start suddenly without any obvious cause, and at any age. Sometimes something in your lifestyle or medical history – or a combination of these – could be responsible. A number of factors may increase your risk of developing a condition if you are

already susceptible to it:

- A physically demanding job can increase your risk of osteoarthritis, particularly if it involves heavy repetitive activity.
- A previous injury can also increase your risk of osteoarthritis.
- Infections or an allergic reaction can cause short-lived arthritis.
- Some foods may appear to make your arthritis worse, although your diet or food intolerance is unlikely to cause arthritis.

Few myths about Arthritis

- **There's only one kind of arthritis** - It's just not true." It could be gout, crystals, autoimmune rheumatoid arthritis, virus-caused arthritis or as many as 100 other kinds of the disease. That means if you think—or know—you have arthritis, you should slow down before you stock up on glucosamine supplements. So, it's better to go see a doctor and find out what you've got.
- **My diet has nothing to do with it** - It is not that certain foods are cure-alls, but having a healthy diet is a crucial factor in managing arthritis because your overall health is very important. The foods that can help the most, are those traditionally included in a Mediterranean diet,




such as olive oil, lean meats and fish, vegetables and foods rich in omega-3 fatty acids. Diet is especially important because people with arthritis are more likely to have type 2 diabetes, heart disease or be obese.

- **I can't exercise** - This may be the biggest myth. Most people think they cannot exercise because they start feeling pain when they move. But due to inactivity, the sufferer's joints just continue to deteriorate. The best workouts are low-impact, range-of-motion-based exercises, such as



Due to inactivity, the sufferer's joints just continue to deteriorate. The best workouts are low-impact, range-of-motion-based exercises, such as water aerobics or walking on a level surface. Yoga can help too

water aerobics or walking on a level surface. Yoga can help too.

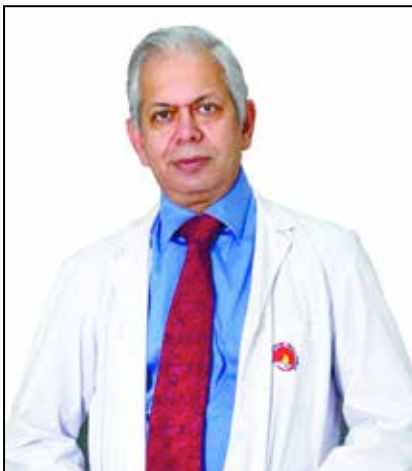
- **I can cure arthritis with anti-inflammatory spices** - Although ginger, turmeric, and other spices do have anti-inflammatory properties—and eating them certainly can't hurt—there's little human-research data available to back them up as a treatment for chronic inflammation. As of now, there's no accepted standard for how much of these ingredients are needed in order to provide any real benefit to the arthritic joints.
- **Glucosamine supplements will rebuild my joints** - Glucosamine is a natural compound that's found in your joints and the cartilage around them. Patients think taking it as a pill will rebuild joints, but it doesn't. Unless you inject it into the joint which can be done at your doctor's office, otherwise there's no way of getting it into your joints. And it doesn't restore your joints, although some people say they get some pain relief from it in the short term.
- **Cracking my knuckles can cause arthritis** - There is no conclusive evidence that cracking knuckles and joints can cause arthritis later in life. Still, some experts caution you're better off not doing it anyway. 

(The author is Director, Orthopaedics & Joint Replacement, Saket City Hospital, New Delhi)

Coping with Cartilage Corrosion

There are many types of arthritis, a chronic pain condition, necessitating a different approach to treatment. Pain relief and slowing down the process of joint destruction, is the goal of disease management strategies

BY DR SUNEEL KUMAR



If you are experiencing symptoms like aching joints, difficulty in dressing or combing hair, gripping objects, sitting or bending over, joint being warm to the touch, morning stiffness for less than an hour, pain when walking, and stiffness after resting, swelling of joint and loss of motion in a joint, you must

consult an orthopaedician. You might have arthritis because these are its common symptoms.

In common parlance, Arthritis is a condition that affects more than 10% of the adult population. There are more than 100 different types of arthritis. The false notion that all forms of arthritis are alike has led people to try treatments that have little effect on their arthritis symptoms. Since each type of arthritis is different, each type calls for a different approach to treatment. That means an accurate diagnosis is crucial for anyone who has arthritis.

There are two major types of

arthritis — osteoarthritis, which is the “wear and tear” arthritis, and rheumatoid arthritis, an inflammatory type of arthritis that happens when the body’s immune system does not work properly. Gout, which is caused by crystals that collect in the joints, is another common type of arthritis. Psoriatic arthritis, lupus, and septic arthritis are other types.

Osteoarthritis is also called degenerative joint disease or degenerative arthritis. It is the most common chronic joint condition. Osteoarthritis results from overuse of joints but most commonly it is an aging phenomenon. It can be the

Osteoarthritis is also called degenerative joint disease or degenerative arthritis. It is the most common chronic joint condition. Osteoarthritis results from overuse of joints but most commonly it is an aging phenomenon

consequence of demanding sports where joints may be injured or obesity, which places increased load on weight bearing joints. Osteoarthritis in the hands is frequently inherited and often happens in middle-aged women. Osteoarthritis is most common in joints that bear weight — such as the knees, hips, feet, and spine. It often comes on gradually over months or even years. Except for the pain in the affected joint, you usually do not feel sick, and there is no unusual fatigue or tiredness as there is with some other types of arthritis.

With osteoarthritis, the cartilage gradually breaks down. Cartilage is a slippery material that covers the ends of bones and serves as the body's shock absorber. As more damage occurs, the cartilage starts to wear away, or it doesn't work as well as it once did to cushion the joint. As an example, the extra stress on knees from being overweight can cause damage to knee cartilage. That, in turn, causes the cartilage to wear out faster than normal.

As the cartilage becomes worn, cushioning effect of the joint is lost. The result is pain when the joint is moved. Along with the pain, sometimes you may hear a grating sound when the roughened cartilage on the surface of the bones rubs together. Painful spurs or bumps may appear on the end of the bones, especially on the fingers and feet. While not a major symptom of osteoarthritis, inflammation may occur in the joint lining as a response to the breakdown of cartilage.

Rheumatoid arthritis is the most common type of inflammatory arthritis. About 75% of those affected are women. In fact, between 1% and 3% of women are likely to develop rheumatoid arthritis in their lifetime.

Rheumatoid arthritis is an autoimmune disease. That means that the immune system attacks parts of the body. The joints are the main areas affected by this malfunction in the immune system. Over time, chronic inflammation can lead to severe joint damage and deformities. About one

out of every five people who have rheumatoid arthritis develop lumps on their skin called rheumatoid nodules. These often develop over joint areas that receive pressure, such as over knuckles, elbows, or heels.

Symptoms of rheumatoid arthritis can come on gradually or start suddenly. Unlike osteoarthritis, symptoms of rheumatoid arthritis are often more severe, causing pain, fatigue, loss of appetite, stiffness.

With rheumatoid arthritis, you may feel pain and stiffness and experience swelling in your hands, wrists, elbows, shoulders, knees, ankles, feet, jaw, and neck. Sometimes the pain occurs in one body part. But more commonly, r h e u m a t o i d arthritis pain occurs in combinations of several joints such as in the hands, knees, and feet.

With rheumatoid arthritis, the joints tend to be involved in a symmetrical pattern. That is, if the knuckles on the left hand are inflamed, the knuckles on the right hand will also be inflamed. After a period of time, more of your joints may gradually become involved with pain and swelling and may feel warm to the touch. The joint swelling is persistent and interferes with activities. For example, it can interfere with opening

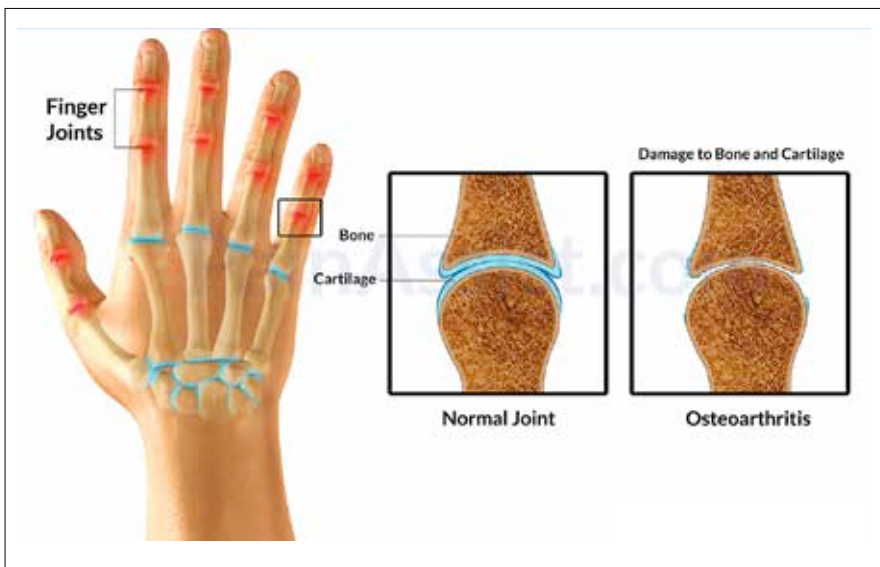
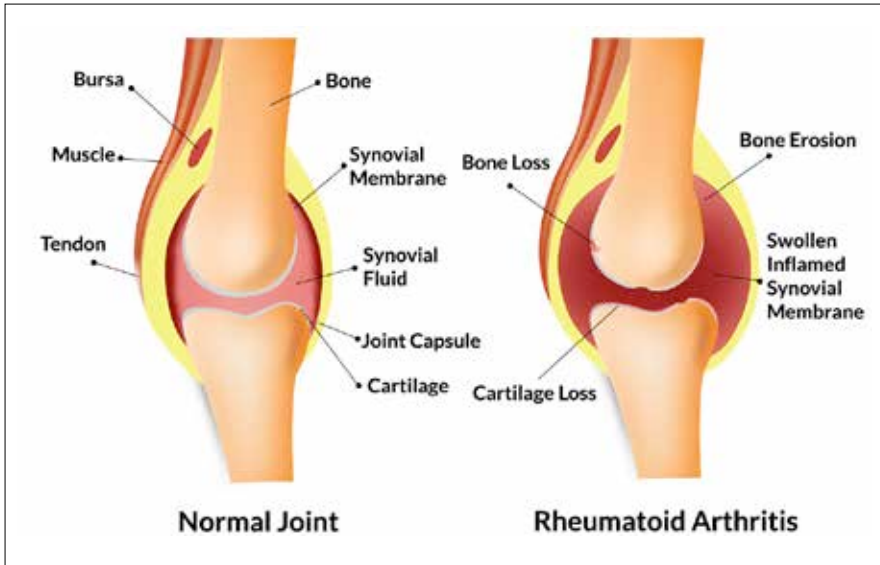


Medication and other arthritis treatments may have analgesic (pain-relieving) effects, anti-inflammatory effects, and disease-modifying effects. The goal is to feel better, maintain a good quality of life, and slow down joint destruction

a jar, driving, working, and walking — the very activities that allow us to function in our daily lives.

Arthritis is a chronic pain condition. Pain relief is the goal of treatment and disease management strategies. Currently, there is no cure for arthritis. The treatment is aimed at controlling symptoms and slowing progression of the disease. In other words, medication and other arthritis treatments may have analgesic (pain-relieving) effects, anti-inflammatory effects, and disease-modifying effects. The goal is to feel better, maintain a good quality of life, and slow down joint destruction. People with certain types of arthritis, such as rheumatoid arthritis may achieve remission with treatment. But, remission is not a cure. Arthritis is a chronic disease. It doesn't go away with treatment.

Researchers are continually developing new and better treatments



for arthritis. Take an interest in learning more about what is in the pipeline. You can discuss potential new treatments with your doctor, as you decide together whether a new treatment will be an appropriate option for you or if it would be better to stay the course with your current treatment.

Over-the-counter (OTC) medications for pain relief, like acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen sodium, provide relief from arthritis pain. The OTC acetaminophen can reduce mild and moderate arthritis pain that often accompanies osteoarthritis.

In addition to medications, there are supplements and creams that you can purchase over the counter that may also alleviate arthritis pain.

Among the most popular supplements used by people with osteoarthritis are glucosamine and chondroitin. In those with moderate to severe knee pain from osteoarthritis, the combination of glucosamine and chondroitin sulfate may be effective in providing pain relief, although medical studies have not shown clear proof that they are helpful in everyone.


In addition to over-the-counter NSAID medications, pain physicians can suggest prescription NSAIDs to

treat arthritis pain and inflammation. Prescription NSAIDs may also be available in topical and injectable forms. Besides ibuprofen and naproxen, other examples of prescription NSAIDs include diclofenac and others.

Potent anti-inflammatory agents like Synvisc One can be injected to reduce pain and inflammation. Ozone Gas injections have also clinically proven to be extremely effective at pain relief.

The stem cell/Platelet Rich Plasma (PRP) therapy involves injecting platelets from the patient's own blood to rebuild a damaged tendon or cartilage. It has been successful in not only relieving the pain, but also in jumpstarting the healing process. The patient's blood is drawn and placed in a centrifuge for 15 minutes to separate out the platelets. The platelet-rich plasma is then injected into the damaged portion of the tendon or cartilage.

The surgery procedures are used as a last resort. Like all other surgeries, these surgeries have their own issues like associated risks and high hospitalization and recovery times. However, the success rate for surgeries is limited to 60-70 percent.

The symptoms and effects of RA may come and go. A period of high disease activity (increases in inflammation and other symptoms) is called a flare. A flare can last for days or months. Ongoing high levels of inflammation can cause problems throughout the body. Here RA can affect organs and body systems leading to dryness, pain, redness, sensitivity to light and impaired vision in eye, dryness and gum irritation or infection in mouth, small lumps under the skin over bony areas. Inflammation and scarring can result in shortness of breath in lungs and inflammation of blood vessels that can lead to damage in the nerves, skin and other organs. 

(The author is senior consultant and HOD, Department of orthopaedics, Sri Balaji Action Medical Institute, New Delhi)

Alarming Flu

Cases of swine flu are increasing with alarming frequency in India. The major challenge which the health departments is facing is how to identify the deadly fever

BY ABHINAV KUMAR

The increasing incidence of swine flu in India seems to be alarming with the national capital Delhi having recorded number cases like previous year.

The H1N1 virus outbreak had previously occurred India during the 2009 flu pandemic. The virus killed 981 people in 2009 and 1763 in 2010. The mortality decreased in 2011 to 75. It claimed 405 lives in 2012 and 699 lives in 2013. In 2014, a total of 218 people died from the H1N1 flu, India recorded 837 laboratory confirmed cases in the year.

Every year, there was a rise in number of cases and deaths during winter as temperature affects virus. During 2014–15 winter, there was a spurt in cases at the end 2014. In 2015, the outbreak became widespread through India. On 12 February 2015, Rajasthan declared an epidemic.

They all belonged to different areas of the city. The Indian Medical Association (IMA) believes that seasonal flu is far more fatal than H1N1. To put things in perspective, swine flu kills one in 10 lakh people annually as opposed to the one in a lakh by seasonal flu annually. So, there is no need to panic, those with underlying health conditions can talk to their doctors about vaccination.

Andhra Pradesh and Telengana have been the worst hit with 60 cases and 12 deaths while the national capital is also witnessing a steep rise, with over 110 cases and four deaths so far. Rajasthan has reported 23 positive cases and nine deaths. The virus has also set foot in Haryana infecting eight people.



What is the government doing?

The Health Ministry claims it has placed an order for procuring 30,000 doses of the drug to treat a potential outbreak in India. The central government is also in the process of adding four more laboratories to test cases more efficiently. Concerns over swine flu are increasing with sporadic cases being

reported from across the country. The major challenge which the health departments under the ministry are facing is how to identify swine flu cases when patients of common cold, with similar symptoms to swine flu, are thronging the hospitals in increased numbers. Aware of these issues, health ministry has directed the officials to collect swab samples to test patients suffering from swine flu symptoms.

With direction from the ministry, the health department is providing facility of free testing of swine flu for BPL, under-five children, pregnant women, people above 60 and those patients who are suffering from chronic diseases like renal disease, heart and second stage of cancer. All these categories are susceptible to swine flu and mortality rate is quite high. A team of National Centre for Disease Control (NCDC) is in

The increasing incidence of swine flu in India seems to be alarming. Concerns over swine flu are increasing with sporadic cases being reported from across the country

Reported cases by states

By 20 March, according to the data released by the Health Ministry, 31,974 cases had been reported and 1,895 person had died to the disease Although Delhi and Tamil Nadu reported a large number of cases, the death toll was lower due to better awareness and a better developed health care sector

State	Reported cases	Number of deaths	Notes
Rajasthan	6,559	415	As of 30 March 2015
Gujarat	6,495	428	As of 30 March 2015
Delhi	4,137	12	As of 20 March 2015
Maharashtra	4000+	394	As of 30 March 2015
Madhya Pradesh	2,185	299	As of 30 March 2015
Telangana	2,140+	75	As of 30 March 2015
Tamil Nadu	320	14	As of 20 March 2015
Karnataka	2,733	82	As of 30 March 2015
Punjab	227	53	As of 30 March 2015
Andhra Pradesh	72	22	As of 20 March 2015
Uttar Pradesh	165	36	As of 19 March 2015
Chhattisgarh	Nil	17	As of 20 March 2015
Goa	7	1	
Jammu and Kashmir	109	16	As of 20 March 2015
Himachal Pradesh		20	As of 20 March 2015
Kerala	25	12	As of 20 March 2015
Uttarakhand		11	As of 20 March 2015
Odisha	22	5	As of 11 March 2015
West Bengal	58	24	As of 20 March 2015
Assam	10	1	As of 9 March 2015
Manipur	5	2	As of 12 March 2015
Mizoram	4	Nil	As of 20 March 2015
Nagaland	1	Nil	As of 18 February 2015
Total	33,761	2,035	As of 30 March 2015

touch with the senior health department officials on preventing the situation from worsening.

Causes and symptoms

Sudden drop in temperature is the reason. Every winter, influenza cases are on the high, this is nothing new. And

just like the flu, the symptoms are clogged chest, breathlessness etc.

Dr Manisha Yadav, Medical Practitioner, explains, “It’s hard to explain whether you have swine flu or seasonal flu, because most symptoms are the same. People with swine flu may be more likely to feel nauseous and



throw up than people who have seasonal flu. But a lab test is the only way to know for sure. Even a rapid flu test you can get in your doctor’s office won’t tell you for sure. In 2009, H1N1 was spreading fast around the world, so the World Health Organization called it a pandemic. Since then, people have continued to get sick from swine flu, but not as many.”

In a majority of the cases, swine flu symptoms are like a regular flu and can be easily managed at home. People with underlying health complications like asthma, heart and lung and kidney ailments, pregnancy, face the risk of complications. One in four such patients will need hospitalisation.

Dr H P Singh, Senior Child Specialist, Mother Child care Clinic, vaishali Ghaziabad, says, “Swine flu is transmitted from person to person by inhalation or ingestion of droplets containing virus from people sneezing or coughing; it is not transmitted by eating cooked pork products. The newest swine flu virus that has caused swine flu is influenza A H3N2v (commonly termed H3N2v) that began as an outbreak in 2011. The “v” in the name means the virus is a variant that normally infects only pigs but has begun to infect humans. There have been small outbreaks of H1N1 since the pandemic; a recent one is in India where many deaths have been reported.”

Swine flu is contagious, and it spreads in the same way as the seasonal flu.

Coping with the Menace

As the cases of swine flu are re-surfacing across the country, it is important to demolish myths about the disease and adopt the right ways to deal with its threat

BY DR SWAPNIL SHIKHA



With two deaths being reported recently, the threat of swine flu has re-emerged in the country. In the first instance, a 50-year-old H1N1 influenza-afflicted woman from Ahmednagar in Pune died, while a 35-year-old woman succumbed to swine flu while undergoing treatment at a private hospital in Visakhapatnam, Andhra Pradesh. The outbreak of H1N1 has caused panic among the people.

Swine flu is a respiratory disease caused by influenza viruses that infect the respiratory tract of pigs. The outbreak of this flu was first observed in Mexico in 2009 and declared a pandemic of H1N1 virus by the World Health Organization (WHO). Colloquially called swine flu, the resurgence of the H1N1 strain in 2015 has made it one of the most dreaded infections in India. Swine flu's relentless killing spree continues in India as it has made more than 2000 people succumb to it. The total number of people in India affected by the virus recorded more than 35,000 and is progressively rising each day. The worst hit states are Rajasthan, Gujarat, Delhi, Maharashtra, Telangana, Karnataka, MP & UP.

Decoding H1N1 virus

Influenza viruses are of three types designated A, B & C. The H1N1 is a subtype of influenza A. It gets transmitted through direct exposure or contact with infected pigs or through contaminated droplets of infected patients while coughing or sneezing. Early recognition of signs & symptoms of swine flu is a diagnostic challenge as it closely resembles that of seasonal flu. The patient complains of fever, chills, cough, sore throat, running nose, bodyache, headache, fatigue, diarrhoea and vomiting. With the advent of RT-PCR assays in a throat/ nasopharyngeal swab sample, the diagnosis of swine flu has become fairly easy & rapid. Further, India has

stockpiles of 60,000 adult doses & 1000 paediatric doses of oseltamivir, the antiviral drug which is being used to treat the disease.

Danger signs of swine flu

- Difficulty in breathing or shortness of breath
- Pain or pressure in the chest/abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu like symptoms improve but then return with fever & worse cough

Myths & facts about swine flu

Myth: One can get swine flu by eating pork.

Fact: Despite the name of the disease being derived from pig, eating pork products doesn't spread swine flu. However, one can contract the infection through infected pigs. It spreads from person to person through aerosols containing the virus.

Myth: H1N1 outbreaks cannot be prevented.

Fact: The CDC recommends immunization to prevent infection in most of the people.

Myth: A seasonal flu shot offers protection against H1N1 as well.

Fact: The vaccinations for seasonal flu & H1N1 are different & to gain protection against both, one should receive both the vaccines.

Myth: Any surgical mask can protect against swine flu.

Fact: The blue/green surgical masks that are commonly available are only marginally useful. Such masks manage to block only large virus containing droplets whereas the

viruses which are relatively smaller easily pass through. Special masks designated N-95 or N-99 offer greater protection.

Myth: There is no cure for swine flu.


Fact: The antiviral prescription drug Oseltamivir shortens the duration & severity of illness if taken within 48 hours of the onset of symptoms. It decreases the infectivity & protects against other strains of influenza as well.

Myth: One can contract swine flu only once during his life.

Fact: The H1N1 virus is just like the other seasonal flu viruses & can easily reinfect a person.

Tips for prevention

- Wash hands frequently with soap.
- Clean surfaces with a disinfectant or warm water regularly.
- Drink plenty of fluids.
- Avoid close contact with people who are sick. Keep your distance > 1 metre from the others.
- Cover your mouth & nose with an N-95 mask (three layered).
- Change the mask every 6 to 8 hours.
- Avoid mass gatherings & crowded places & prefer staying at home.
- High risk individuals should go for vaccination.
- Eat immune boosting foods like whole grains, fresh vegetables & vitamin rich fruits.

To conclude, don't panic during an H1N1 outbreak. Keep a track of your signs & symptoms & consult your doctor immediately because timely diagnosis and intervention can be life saving. 

(The author is Director, Amrapali, Healthcare)

When people who have it cough or sneeze, they spray tiny drops of the virus into the air. If you come in contact with these drops or touch a surface (such as a doorknob or sink) that an infected person has recently touched, you can catch H1N1 swine flu.”

Anti-viral medicine, Tamiflu is needed in respiratory distress. It remains effective since there has been no mutation. For the prevention of the disease, cover your mouth and nose while sneezing, and maintain a distance of at least three feet from the person who is coughing and sneezing. Washing hands regularly helps in warding off infections as well.

Dr Anup Mohta, Director, Chacha Nehru Bal Chikitsalaya, East Delhi, said, “While swine flu isn’t as scary as it seemed a few years ago, it’s still important to protect yourself from getting it. Like seasonal flu, it can cause more serious health problems for some people. The best protection is to get a flu vaccine, or flu shot, every year. Swine flu is one of the viruses included in the vaccine.”



What is Swine Flu?

According to **Dr Narendra Saini**, Infectious Disease Expert at Max Super Speciality Hospital, Vaishali (Ghaziabad) and Former Secretary General, Indian Medical Association. “Swine flu is a respiratory disease caused by viruses (influenza viruses) that infect the respiratory tract of pigs, resulting in nasal secretions, a barking cough, decreased appetite, and listless



In a majority of the cases, swine flu symptoms are like a regular flu and can be easily managed at home.


behaviour. Swine flu produces most of the same symptoms in pigs as human flu produces in people. Swine flu can last about one to two weeks in pigs that survive.

Adds **Dr Narendra Saini**, “Swine influenza virus was first isolated from pigs in 1930 in the U.S. and has been recognised by pork producers and veterinarians to cause infections in pigs worldwide. In a number of instances, people have developed the swine flu infection when they are closely associated with pigs (for example, farmers, pork processors), and likewise, pig populations have occasionally been infected with the human flu infection. In most instances, the cross-species infections (swine virus to man; human flu virus to pigs) have remained in local areas and have not caused national or worldwide infections in either pigs or humans.”

Symptoms of swine flu in humans are similar to most influenza infections like fever (100 F or greater), cough, nasal secretions, fatigue, and headache. Vaccination is the best way to prevent or reduce the chances of becoming infected

with influenza viruses. Two antiviral agents, zanamivir (Relenza) and oseltamivir (Tamiflu) have been reported to help prevent or reduce the effects of swine flu if taken within 48 hours of the onset of symptoms. The most serious complication of the flu is pneumonia.

“People who have swine flu can be contagious one day before they have any symptoms and as many as seven days after they get sick. Kids can be contagious for as long as 10 days. Like seasonal flu, swine flu can lead to more serious complications, including pneumonia and respiratory failure. And it can make conditions like diabetes or asthma worse. If you have symptoms like shortness of breath, severe vomiting, abdominal pain, dizziness, or confusion, call your doctor or helpline 911 right away,” advises Dr Narendra Saini.

Consult with your doctor to learn more about your specific heart defect and the treatment that can help you. Some mild cases do not need any treatment at all. Others may be treated with medications, surgery or other procedures. Your doctor should monitor your heart so precautions can be taken to ensure your long-term health. Actively taking part in your health care and continually making healthy choices with your doctor’s guidance can help lower your risk of future heart problems. Reporting new or worsening symptoms to your doctor can also help alleviate future problems. 

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