



SERUM TIMES

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SERUM MEDICAL BULLETIN

From the desk of the Editor-in-Chief

Dear Readers/Doctors,

Hope you are all well. We are in the peak summer season. It is a very tough time for the aged, persons with high blood pressure, and heart-related patients. It is also a time for waterborne diseases like diarrhoea, food poisoning, typhoid, cholera, and jaundice, and mosquito-borne diseases like dengue and malaria. There are other summer diseases, like sunburn, chickenpox, measles, mumps, eye infection, and fungal infection. It is a waste of time to enlarge the list. We suggest you be very cautious about all this.

Please maintain the following;

Stay hydrated, avoid sun exposure, maintain good hygiene, eat safe food, keep yourself clean, and wash your hands & face. Wear light coloured clothing, seek shaded and cool areas, and avoid going outside work at peak heat. Please consult a doctor whenever you feel anything is wrong with your health.

Recent studies show that senior citizens of Delhi are facing respiratory issues due to pollution. More than 30% experience chronic respiratory problems linked to prolonged air exposure. Other common health concerns include several non-communicable diseases (NCDs).

On 7th April, World Health Day was observed. On that day, several experts mentioned in the media that the rising severity of NCDs. This affects our Economic well-being also. In fact, 22% of Indians over 30 years are at risk of dying from an NCDs before they hit the age of 70, as experts pointed out. So, as NCDs are mainly considered as lifestyle diseases, creating awareness among the people is crucial. For this government, as well as civil society, NGOs have a role to play.

In this issue, we have elaborately discussed two important matters related to health. The Story 1 discusses Age-related Macular Degeneration or AMD. It is an eye disease that blurs one's central vision. It happens when aging causes damage to the macula, a part of the retina. This is the part of the eye that controls sharp, straight-ahead vision. It does not cause complete blindness, but losing one's central vision can make it harder to see faces, read, drive, or do close-up work like cooking or fixing things around the house. You can get a detailed discussion in the story about this health problem.

The Story 2 covers the findings of a recent study, which is also related to the senior persons. It is observed that degrading brain networks is first experienced around age 40. Actually, the brain changes with age. The volume of the brain and/or weight declines with age at a rate of around 5% per decade after age 40. This matter has been widely discussed in the story. These two stories may be interesting for you.

Thanking you.

Sanjib Acharya



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Age-related Macular Degeneration - its quality treatment was discovered recently

Story 1

Age-related Macular Degeneration or AMD is a problem with a part of the retina, called the macula, that is damaged, which affects a person's vision. In a severe case, it can result in loss of central vision. But surprisingly, people rarely go blind from it. It may develop in one or both eyes with different levels of severity. About 8% of people, or 170 million around the world, are known to have signs of AMD. There is a prediction that globally, 288 million people will have the condition by 2040.

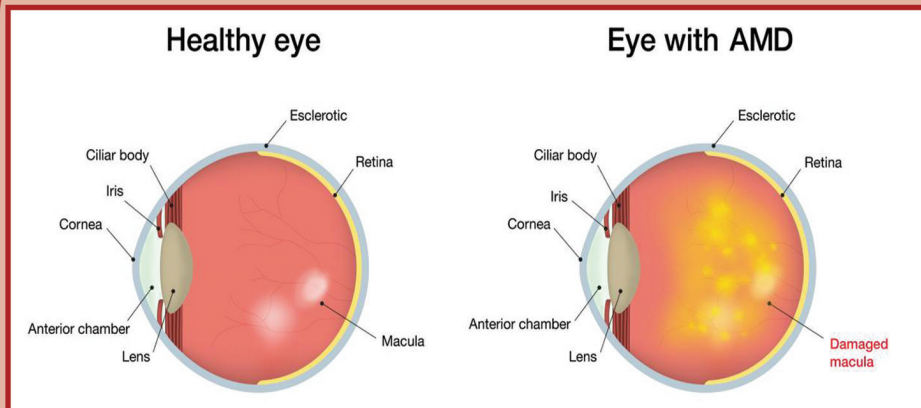
How does it form?

There are two types of AMD, one is dry AMD and two, wet AMD. Dry AMD is quite common, and about 80% of people with AMD have dry AMD. Dry AMD is when parts of the macula get thinner with age, and tiny clumps of protein called drusen grow. Drusen are yellow deposits under the retina. There can be different sizes of drusen, and small drusen are common in those in 50 and older. Not all drusen affect vision. Doctors say why drusen occurs is not clear, but large drusen is a sign of AMD.

Wet AMD is less common but much more serious. It occurs when new, abnormal blood vessels grow under the retina. These vessels may leak blood or other fluids, causing scarring of the macula. One loses vision faster with wet AMD.

What are the risk factors?

Age is a risk factor. But in addition to it having a family history of macular degeneration, overweight, smoking, high blood pressure, habit of eating a diet high in saturated fats and being white are some important factors that may help lead to the development of AMD.



Symptoms of AMD

These include blurred or distorted vision, dark or empty spots in the centre of the vision, difficulty seeing in low light, problems or changes in the way you see colours. Additionally, a person with AMD sees straight lines as curving or wavy is a clear symptom of having AMD.

How to test?

There are clinical exams with a slit lamp and by using several types of imaging like Fluorescein angiography (FA), Indocyanine green angiography (ICGA) and Optical coherence tomography (OCT).

Treatment

Wet AMD treatment is said to have been revolutionized in recent years after the discovery of vascular endothelial growth factor (VEGF). It is a family of compounds in the body. VEGF regulates the growth of abnormal new blood vessels in the eye known as neovascularization. This can lead to wet AMD.

Degrading brain networks is first experienced around age 40 - a recent study observes

Story 2

A recent study finds that the effects of the degradation of brain networks are first seen around age 44. The degeneration hits peak acceleration around age 67, then plateaus by age 90. This new study was led by Professor Mujica-Parodi of the Department of Biomedical Engineering at the State University of New York at Stony Brook, and she is the lead author of the study.

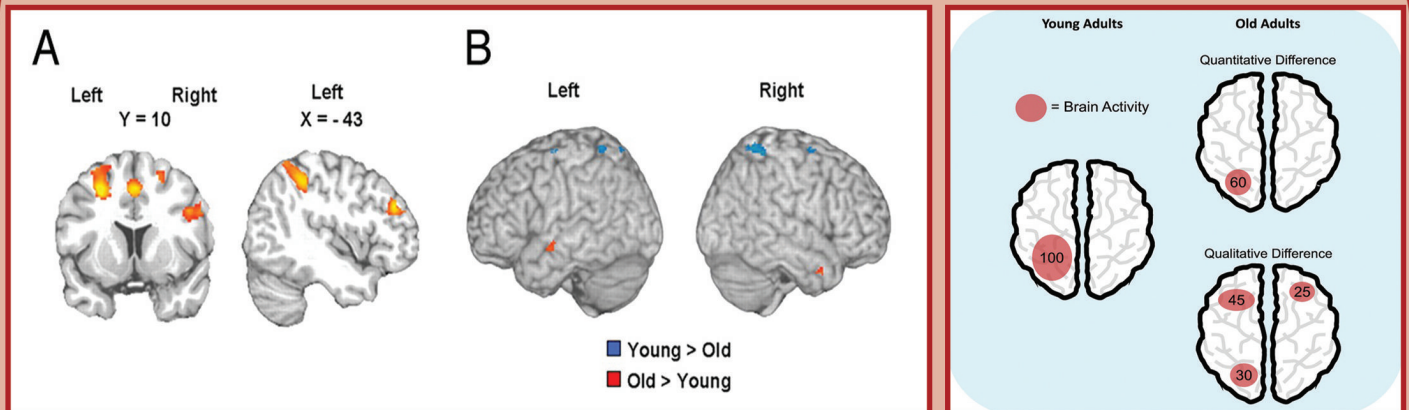
The problem that arises

The summary of the report published in a health journal mentions that the brain goes through a variety of changes, such as shrinkage of the brain and loss of some neurons, as we age. Some of this change can lead to age-related cognitive decline. As a result, memory loss, slower thinking, and trouble in learning new things can occur. In this situation, some interventions like medication and lifestyle changes are needed.

The challenges before the researchers and the research methodology

The researchers were looking for new ways to help slow down the progression of age-related cognitive impairment and find out the need for lifestyle changes, such as diet and exercise. They analysed neuroimaging data of more than 19,000 people from four datasets, including the UK Biobank and the Mayo Clinic Study of Aging. With the data, they investigated how the different brain regions or brain networks communicated at different ages. It is known that brain networks are groups of brain regions that communicate with each other to perform specific functions. These networks can be observed using functional MRI. It measures blood flow in the brain, and an EEG measures neuronal activity.

How aging affects the brain



Specialists say that when the brain network is destabilized, it becomes less consistent in its communication patterns over time. They switch between different configurations, defaulting from ones that are energy-consuming to those that require less energy to maintain. This switching behaviour may reflect a compensatory strategy by the brain to conserve energy when resources are limited, but also has functional consequences for cognition.

Conclusion of the whole research

The researchers find that brain networks degrade in a non-linear way with clear transition points. In general, physiological systems are tasked with maintaining a balance between the cell's energy demands and its energy supply. When the balance breaks down, it puts stress on it further and disrupts the balance. This is why chronic diseases are often degenerative, that is, they become worse and worse over time. Mujica-Parodi and her team also discovered that the primary driver of aging brain networks is neuronal insulin resistance.



CSR Activities & Events of **SERUM** throughout April, 2025



Apr 4: Annapurna Puja celebration and food materials distributed to the underprivileged in various locations of Kolkata



Apr 7: Sri Sanjib Acharya at the Suchetana Stall at the Literature & Little Magazine Fair, 2025



Apr 19: Ek Sondhya Bohu Sur, 2025 at Mahajati Sadan



Apr 13: Sri Sanjib Acharya at the blood donation camp & Sit and Draw competition organised by Sarat Sarani Pallibasibrinda, Krishnapur, Kolkata



Apr 26: Sri Sanjib Acharya at the birth anniversary celebration of Late Sri Purnendu Dasgupta at Birendra Mancha organised by Sutanuti Parishad



Apr 27: Sri Sanjib Acharya at the blood donation camp organised by Red & Gold Legacy at Hatkhola, Sovabazar



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