

ISSN 0513-3149

Rs.15



YOUR HEALTH

An Official Monthly Publication in English of the Indian Medical Association since 1952 for the people to propagate Health Awareness in the Community



Volume 72 • Number 1 • January 2023 • Kolkata

YOUR HEALTH

OF INDIAN MEDICAL ASSOCIATION HEADQUARTERS (KOLKATA)

Sir Nilratan Sircar IMA House, 53 Sir Nilratan Sarkar Sarani (Creek Row),
Kolkata-700014, West Bengal, Ph: 033-22364200/9123674412,
Email: yourhealthofima@gmail.com,yourhealthoffice@gmail.com



Dr Ketan Desai
Chief Patron
Past National President, IMA



Dr Sahajanand Prasad Singh
Imm Past National President
Indian Medical Association



Dr Sharad K Agarwal
National President
Indian Medical Association



Dr Anilkumar J Nayak
Hony. Secretary General
Indian Medical Association



Dr Shitij Bali
Hony. Finance Secretary
Indian Medical Association

Your Health Office Bearers (2022-24)



Dr Kakali Sen
Hony. Editor
Your Health of IMA



Dr Samarendra Kumar Basu
Hony. Secretary
Your Health of IMA



Dr Sankar Sengupta
Hony. Associate Editor
Your Health of IMA



Dr Bibartan Saha
Hony. Associate Editor
Your Health of IMA



Dr Sarbari Dutta
Hony. Jt. Finance Secretary
IMA Hqs.

Your Health Committee Members (2022-24)



Dr Soumik Goswami
Member
Your Health Committee



Dr Sourav Nag
Member
Your Health Committee



Dr Rajib Biswas
Member
Your Health Committee



Dr Satabdi Dalui
Member
Your Health Committee



Dr Suvadeep Bose
Member
Your Health Committee

Your Health Advisory Board (2022-24)



Dr Molla Abdul Kasem
Advisory Board
Your Health Committee



Prof. Dr Koushik Lahiri
Advisory Board
Your Health Committee



Dr Biplabendu Talukdar
Advisory Board
Your Health Committee



Dr Sudip Kumar Ghosh
Advisory Board
Your Health Committee



Dr Chinmay Nath
Advisory Board
Your Health Committee

TEAM IMA (2022-24)



Chief Patron
Past President, WMA, MCI, IMA
Dr Ketan Desai



National Vice President
(2022-23)
Dr Sharad Kumar Agarwal



Imm. Past National President
(2022-23)
Dr Sahajanand Prasad Singh



National President
(2023-24)
Dr R.V. Asokan



Hony. Secretary General
(2022-24)
Dr Anikumar J Nayak



National Vice President
(2022-23)
Dr. Jayesh M Lele



National Vice President
(2022-23)
Dr Sachchidanand Kumar



National Vice President
(2022-23)
Dr Shailesh H Shah



National Vice President
(2022-23)
Dr Daggumati Shree Harirao



National Vice President
(2023-24)
Dr R Gunasekaran



National Vice President
(2023-24)
Dr. Suresh Gutta



National Vice President
(2023-24)
Dr Ashok Sharda



National Vice President
(2023-24)
Dr Shiv Kumar Utture



Hony. Finance Secretary
(2022-24)
Dr Shittij Bali



Hony. Joint Secretary
from NCR (2022-24)
Dr Munish Prabhakar



Hony. Joint Secretary
from National Capital
Region (2022-24)
Dr. Prakash Lalchandani



Hony. Joint Secretary
from rest of the country
(2022-24)
Dr. M. Venkatachalapathy



Hony. Joint Secretary
stationed at Calcutta
(2022-24)
Dr. Pradeep Kumar Nemani



Hony. Joint Secretary
nominated by National
President (2022-23)
Dr Anand Prakash



Hony. Jt Finance Secretary
from rest of the country
(2022-24)
Dr Mahendra Nath Thareja



Hony. Joint Finance Secretary
stationed at Calcutta
(2022-24)
Dr Sarbari Dutta

IMA College of General Practitioners



Hony. Asst. Secretary
from NCR (2022-24)
Dr Thakur Padmanabhan



Hony. Asst. Secretary
from rest of the country (2022-24)
Dr Paramjit Singh Maan



Dean, IMA-CGP
(2022-23)
Dr Rayapu Ramesh Babu



Dean, IMA-CGP
(2023-24)
Dr Satyajit Borah



Vice Dean, IMA CGP
(2022-24)
Dr Poonam Singh



Hony. Secretary
IMA CGP (2022-24)
Dr. R Anburajan



Hony. Joint Secretary IMA CGP
from Tamilnadu (2022-24)
Dr M Thiraviam Mohan



Hony. Jt. Secy., IMA CGP
from Tamilnadu (2022-24)
Dr D Senthil Kumar



Hony. Joint. Secy. IMA CGP
from rest of the country (2022-24)
Dr Satish joshi



Hony. Joint. Secy. IMA CGP
from rest of the country (2022-24)
Dr Sunil Bhikhabhai Chenwala



Hony. Joint. Secy., IMA CGP
from rest of the country (2022-24)
Dr Yeshwant Vasantrao Gade



Hony. Joint Secy. IMA CGP
from rest of the country (2022-24)
Dr Pavankumar N Patil

TEAM IMA (2022-24)

Journal of IMA



Hony. Editor-JIMA
(2022-23)
Dr Nandini Chatterjee



Hony. Editor-JIMA
(2023-24)
Dr Sanjoy Banerjee



Hony. Associate Editor
JIMA (2022-24)
Dr Ranjan Bhattacharyya



Hony. Associate Editor
JIMA (2022-24)
Dr Prasanta Kr. Bhattacharyya

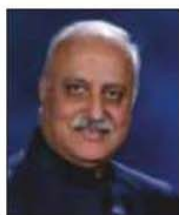


Hony. Secretary
JIMA (2022-24)
Dr Sibabrata Banerjee



Hony. Asstt. Secretary
JIMA (2022-24)
Dr Meenakshi Ganguly

IMA Academy of Medical Specialities



Chairman, IMA AMS
(2022-23)
Dr Pankaj Mutneja



Chairman, IMA AMS
(2023-24)
Dr Nomeeta Shiv Gupta



Vice Chairman, IMA-AMS
(2022-24)
Dr Nibedita Pani



Hony. Secretary, IMA-AMS
(2022-24)
Dr Sirrang Abkari

IMA AKN Sinha Institute



Director
IMA-AKNSI (2022-23)
Dr G N Prabhakara



Director
IMA-AKNSI (2023-24)
Dr Ramneek Singh Bedi



Hony. Executive Secretary
IMA-AKNSI (2022-24)
Dr Sanjiv Ranjan Kr. Singh



Hony. Joint Secretary
IMA-AKNSI (2022-24)
Dr Deepak Kr. Singh



Hony. Joint Secretary
IMA-AKNSI (2022-24)
Dr Parul Vedgama

Your Health of IMA



Hony. Editor
Your Health (2022-24)
Dr Kakoli Sen Mandal



Hony. Associate Editor
Your Health (2022-22)
Dr Sankar Sen Gupta



Hony. Associate Editor
Your Health (2022-24)
Dr Bibartan Saha



Hony. Secretary
Your Health (2022-24)
Dr Samrendra Kumar Saha

Apka Swasthya of IMA



Hony. Editor
Apka Swasthya (2022-24)
Dr Sudhir Singh



Hony. Associate Editor
Apka Swasthya (2022-24)
Dr Arun Kumar Tripathi



Hony. Secretary
Apka Swasthya (2022-24)
Dr Ritu Garg



Chairman
IMA HBI (2022-24)
Dr A K Ravikumar



Hony. Secretary
IMA HBI (2022-24)
Dr Dinesh Bhujangrao Thakare



Treasurer IMA HBI
(2022-24)
Dr Rajeev Balkrishna Agarwal

IMA Hospital Board Initiative



Contents

- 06** **Editorial**
- Dr Kakali Sen
- 07** **From the desk of Secretary**
- Dr Samarendra Kumar Basu
- 08** **Role of Non-healing UIPlatelet Rich Fibrinin cers**
- Dr. Amitabha Bhattacharya
- 10** **Care of Mothers**
- Dr. Sumaiya Naaz
- 12** **Everything You Want to Know About Gryphon (XBB)
: The New COVID Variant**
- Dr Karan Juneja
- 13** **Beware of Bites**
- Prof. Dr. Keshab Mukhopadhyay
- 14** **Advantages of medical insurance**
- Jayanta Bhowmick
- 15** **NCC-PvPI on Drug Safety Data**
-
- 16** **Strong attenuation of SARS-CoV-2 Omicron
BA.1 and increased replication of the BA.5
subvariant in human cardiomyocytes**
- Dr Rajeev Jayadevan
- 19** **Public Awareness of Obesity and Bariatric Surgery**
- Dr Om Tantia
- 21** **Tobacco heating systems for harm reduction**
- Dr. Jitendra Mohan Hans

Disclaimer : the views and information expressed and provided in the Articles are the views and information of the respective authors. Your Health of IMA is not responsible for the authenticity of the contents of the Articles and Your Health cannot be held responsible or liable for any claim or damage arising out of any action or belief on the basis of the contents of the Articles.



Dr Kakali Sen
Hony. Editor, Your Health

Welcome to all of you by the Editorial Team 2022-2024 of Your Health Publication of Indian Medical Association Headquarters. We are the only English Health Magazine of Indian Medical Association Headquarters, established in 1952. This is the 71st Year of Your Health and we will emphasize more on maximum outreach of this esteemed Health Magazine amongst the Medical Practitioners, Youth and the Community People, especially the Care Givers, Paramedics, Elites, Sports persons and others.

Your Health addresses all major health priorities, including reproductive, maternal and child health; communicable, non-communicable and environmental diseases; universal health coverage; and access for all to safe, effective, quality and affordable medicines and vaccines. It also calls for more research and development, increased health financing, and strengthened the capacity of all countries in health risk reduction and management.

“The insertions of gender-based violence awareness in national programs, and the call for increased sensitization of health systems to provide 'care free and with dignity in the public and private sector,' are innovative contributions to better health care.”

With regard to the improvement of maternal and child health, the policy “seeks to address the social determinants through developmental action in all sectors.” It states that “research on social determinants of health” will be promoted, combining this with “neglected health issues such as disability and transgender health”; while giving importance on Panchayati raj institutions “to play an enhanced role at different levels for health governance, including the social determinants of health.” In highlighting the need for “an empowered public health care,” the NHP explains the need “to address social determinants of health effectively by enforcing regulatory provisions.” The insertions of gender-based violence awareness in national programs, and the call for increased sensitization of health systems to provide care “free and with dignity in the public and private sector,” are innovative contributions to better health care.

I often hear others comment, “It's too late to make a change now. I'm too old!” Worse yet, so many people actually believe that, but I don't! I believe that it is never too late to change. You are never too old or out of shape to make improvements and renew your life. Being healthy and aging well is not a single choice to be made once and then never re-visited. It is a series of constant choices that add up to a way of living and constant renewal.

Aging well encompasses all of the following aspects of our being: physical, mental, emotional, and spiritual. It also includes the community around us. This year, choose to make small consistent choices to renew these areas of your life. This will make all of the difference in aging well. Each person's physical journey as he/she ages is different. Taking consistent and appropriate action now can vastly change future outcomes.

Strategies for better health in 2023 include:

Walk more!

Walking is one of the most fundamental activities we perform as humans. Research is very clear that frequent movements (like walking) are the key to avoiding many chronic conditions. Walking lowers your risk of Alzheimer's disease, heart disease, stroke, and diabetes. It can lower blood sugar levels when performed directly after meals. Elevated blood sugar levels are a major contributing factor to excessive internal inflammation which is associated with most chronic illnesses. Walking can also be an essential component in psychological well-being. Walking as exercise and generally walking more during the day should be considered the first line defense in slowing the aging process and maintaining functional independence.

Embrace fashion.

The first step in adopting a new healthy behavior is to envision and feel what it would be like as if you had already adopted that new behavior. This allows your brain an opportunity to already feel what it would be like to make a change without fully doing so. This can be very motivating. Investing in gadgets or new work out attire, including new walking shoes, can be both motivating and fun. Get in the mindset of

continued on page 20...



Dr Samarendra Kumar Basu
Hony. Secretary, Your Health

From the Desk of Secretary

Healthy Food Practices is the Key to be Happy

Wish you a very Healthy New Year 2023! If you and your family are healthy, you will be happy and prosperous. So I thought, I should talk about some healthy food practices to start with the year.

The key to a healthy diet is to eat the right amount of calories for how active you are so you balance the energy you consume with the energy you use. If you eat or drink more you'll put on weight because the energy you do not use is stored as fat. If you eat and drink too little, you will lose weight. You should also eat a wide range of foods to make sure you're getting a balanced diet and your body is receiving all the nutrients it needs. It's recommended that men have around 2,500 calories a day (10,500 kilojoules). Women should have around 2,000 calories a day (8,400 kilojoules).

Higher fibre starchy carbohydrates : Starchy carbohydrates should make up just over a third of the food you eat. They include potatoes, bread, rice, pasta and cereals. Choose higher fibre or wholegrain varieties, such as wholewheat pasta, brown rice or potatoes with their skins on. They contain more fibre than white or refined starchy carbohydrates and can help you feel full for longer.

Eat lots of fruit and vegetables : It's recommended that you eat at least 5 portions of a variety of fruit and veg every day. Why not chop a banana over your breakfast cereal, or swap your usual mid-morning snack for a piece of fresh fruit? A portion of dried fruit (which should be kept to mealtimes) is 30g. A 150ml glass of fruit juice, vegetable juice or smoothie also counts as 1 portion, but limit the amount you have to no more than 1 glass a day as these drinks are sugary and can damage your teeth.

Eat more fish: Fish is a good source of protein and contains many vitamins and minerals. Aim to eat at least 2 portions of fish a week, including oily fish. Oily fish are high in omega-3 fats, which may help prevent heart disease. Most people should be eating more fish, but there are recommended limits for some types of fish.

Avoid saturated fat and sugar : You need some fat in your diet, but it's important to pay attention to the amount and type of fat you're eating. There are 2 main types of fat: saturated and unsaturated. Too much saturated fat can increase the amount of cholesterol in the blood, which increases your risk of developing heart disease. Try to eat less saturated fat and choose foods that contain unsaturated fats instead, such as vegetable oils and spreads, oily fish and avocados. All types of fat are high in energy, so they should only be eaten in small amounts. Sugar: Regularly consuming foods and drinks high in sugar increases your risk of obesity and tooth decay. They can also cause tooth decay, especially if eaten between meals. Free sugars are found in many foods, such as: sugary fizzy drinks, sugary breakfast cereals, cakes, biscuits, pastries and puddings, sweets and chocolate, alcoholic drinks,

Eat less salt: Not more than 6g a day for adults : Eating too much salt can raise your blood pressure. People with high blood pressure are more likely to develop heart disease or have a stroke. Even if you do not add salt to your food, you may still be eating too much. About three-quarters of the salt you eat is already in the food when you buy it, such as breakfast cereals, soups, breads and sauces.

Exercise : Regular exercise reduces your risk of getting serious health conditions. Being overweight or obese can lead to health conditions, such as type 2 diabetes, certain cancers, heart disease and stroke. Being underweight could also affect your health.

Plenty of Water : You need to drink plenty of fluids to stop you getting dehydrated. The government recommends drinking 6 to 8 glasses every day. This is in addition to the fluid you get from the food you eat. All non-alcoholic drinks count, but water, lower fat milk and lower sugar drinks, including tea and coffee, are healthier choices. Try to avoid sugary soft and fizzy drinks, as they're high in calories. Remember to drink more fluids during hot weather or while exercising.

Never skip breakfast : Some people skip breakfast because they think it'll help them lose weight. But a healthy breakfast high in fibre and low in fat, sugar and salt can form part of a balanced diet, and can help you get the nutrients you need for good health. A wholegrain lower sugar cereal with semi-skimmed milk and fruit sliced over the top is a tasty and healthier breakfast.



Role of Non-healing Ulcer Platelet Rich Fibrin

Dr. Amitabha Bhattacharya, MBBS, DPH, M.Phil (WBUHS)
Hony. Past Editor, Your Health

Blood is composed of both solid and liquid components. Liquid content is known as plasma and small solid components are red cells, white cells and platelets etc. Among all these solid components, platelets are very much important for clotting the blood. It contains

hundreds of protein called as growth factors. Platelet rich plasma contains concentric protein, which is also known as autologous conditioned plasma. It is derived from whole blood and red blood cells should be removed by centrifugation. Platelet rich plasma are very much important to heal the injuries like musculoskeletal problems. It releases growth factors which is 5-10 times more than human blood.

Platelet rich fibrin is another type of PRP which is also called as second generation PRP. It is the blood product which is produced by centrifugation at a comparatively lower speed than in PRF with distinct layers.

Difference between PRP and PRF :

- PRP is produced by centrifuging the blood at 2400 rpm for 10 minutes then second spin 3600 rpm for 15 minutes, but in the case of PRF centrifuge the blood at 2700 rpm for 15 minutes.
- PRP is collected in a tube containing anticoagulant but in PRF, no anticoagulant is used.

Platelet Rich Fibrin (PRF) :

Platelet rich Fibrin contains concentric protein, platelets and leucocytes. It is derived from whole blood and present in a complex fibrin matrix which helps to accelerate wound healing, tissue regeneration, increases stimulation of growth factors which is 5-10 times more than human blood. It also helps to form new blood vessels.

Non healing ulcers :

Non healing wounds are developed by the failed progression of repair and regeneration process through time with zero anatomical and functional improvement which called as ulcers as well.

Causes of non-healing ulcer :

There are many causes of non-healing (chronic) ulcers

and they include :

- Problems with blood supply or drainage
- Nerve damage
- Excess pressure
- Cancer
- Infection.
- Diabetes
- Leprosy etc.

When determining the cause of a non-healing ulcer, it is always important to assess the blood supply and nerve function to the area. If cancer or unusual infection is suspected, a skin biopsy may be required. It is important to seek medical attention early for non-healing ulcers, so that appropriate diagnostic testing can be done and treatment commenced at an early stage.

Autologous versus Allogenic:

Autologous — The patient's own stem cells are used.

Allogenic- The stem cells come from a donor.

Syngeneic — The stem cells come from all identical twin.

Role of PRF in Non-healing Ulcer :

Platelet-rich fibrin enhances wound healing by promoting the healing process secondary to its Growth factors. These include platelet-derived Growth factors (α , β , and $\alpha\beta$), fibroblast Growth factor, vascular endothelial Growth factor, epidermal Growth factor, insulin-like Growth factor, and transforming Growth factor. These Growth factors stimulate mesenchymal cell recruitment, proliferation, extracellular matrix degeneration, and cell differentiation for tissue regeneration. These factors are released from granules in response to platelet activation by inducers of platelet aggregation.

Stages of healing :

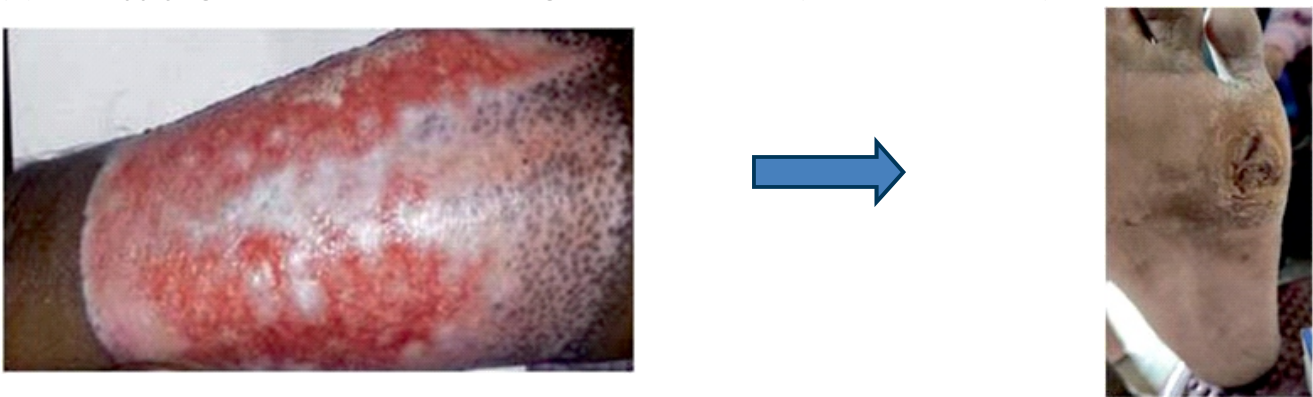
- Haemostasis (Blood clotting)
- Inflammation
- Proliferation (Growth of new tissue)
- Maturation (Remodeling)

(A) After applying the 1^o PRF in the ulcer region of the left hand



Fig 1 — Freshly prepared Autologous PRF

(B) After applying the 2ⁿ° PRF in the same region of the left hand (between 1-2 weeks)



(C) Formation of granulation tissue

Fig 1 — Shows the stages of healing (PRF)

- (I) Diabetic foot,
- (II) After one week of 1^o PRF,
- (III) After the 2^o PRF, formation of granulation tissue

Case 2:

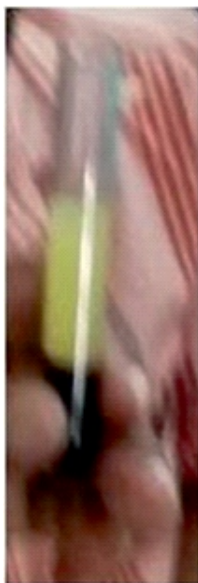


Fig 2a — Freshly prepared Autologous PRF

Fig 2b -Stages of healing (PRF)

CONCLUSION

Platelet rich fibrin is the new and very much promising technique in the field of Regenerative medicine to regrowth and helps to heal the damaged tissues of the body through activating body's own mechanism of healing via haemostasis, inflammation, proliferation and maturation. In current scenario non healing ulcers are very common in diabetic patient. Controlling diabetes through other methods are also effective but in modern medicine application of PRF improves the granulation tissue formation that's why cell therapy is very much active method to get rid of these non-healing ulcers.



Dr. Sumaiya Naaz

Amidst my duty hours being posted at obstetrics and gynaecology department during my internship presently, I often get involved and interact with many newly mothers. Be of any age, a third gravida (third time Mother) or a newly Mother, the degree of love and compassion they have for their newly born is remarkable.

Here some peeks to my reflections from one of my favourite incident that I lived. I was giving my evening rounds when I came across one of my patient who in general is very jolly and always smiling, I saw her crying while she was sleeping, dreaming. I gave soft strokes on her head to wake her up. She gently opened her eyes, saw me and smiled. I asked her what's the matter, Was it your baby in the dreams that made you cry? She rocked her head harmonising with my words and again smiled. Her baby was shifted in the SNCU due to low birth weight. She just saw her baby once when he was born. Then onwards she never saw him as she wasn't well enough to pay him a visit in the children ward. A moment of deep reflection for me, both the mother and the child was ill, however, what the mother cared was all for her child. As rightly said, "A mother is a person who seeing there are only four pieces of pie for five people promptly announces she never did care for pie.

" This Mother's Day it's important to know how to take care of the lady who almost take care of us throughout her life, made sure that our tummy is full even if requires at the cost of her empty stomach, who constantly compromises on her own health to give us a better life. I, in this article, will be focusing on points how to take care of a would be Mother and a Mother after the birth of her baby.

What should be the first step a mother and her family should do after learning that she's pregnant?

The very first step to be taken is to visit an antenatal clinic for the well being of the mother and the baby. Ideally, she should attend the clinic once a month during the first 7 months; twice a month, during the next month and thereafter, once a week. In case if it becomes too difficult for the mothers to visit the clinic too often, a minimum of 4 visits are the must for her to keep as target.

- **1st visit** : within 12 weeks, preferably as soon as the pregnancy is suspected for the first check up.

- **2nd visit** : between 14 and 26 Weeks.
- **3rd visit** : between 28 and 34 Weeks.
- **4th visit** : between 36 Weeks and until the baby is born

What type of foods should a pregnant woman eat? Can we find it easily in our homes?

There is an increase in the energy requirement during pregnancy and also during feeding babies. On an average, a normal healthy woman should gain about 9-11 kilos. There is a remarkable correlation with weight gain of the mother and the baby's birthweight.

Eating nutritious local foods such as milk, fruit, pulses, eggs, gud, green leafy vegetables, kaala channa, and meat (if you are not vegetarian) during pregnancy will make you feel strong- physically and mentally and help you fulfil the increased demand. You should only use iodized salt in your cooking.

A very wide know phrase that we Doctors often extend to Mothers, "If you have a habit of taking 3 meals a day, have an extra meal for your child."

It is important to note that there is no food prohibited for her. She should eat all types of food.

There is so much work and responsibility with household chores. There is no time to rest.

Taking rest during pregnancy is very important and allows the baby to grow and be born healthy. Pregnant women need a minimum of 2 hours of rest in the afternoon and 8 hours of sleep at night.

Light household work is advised however, manual physical labour during pregnancy especially late pregnancy may adversely affect the health of both the mother and the baby.

What other points on personal hygiene should be taken care of?

Regular bath and keeping oneself, body and hair clean and tidy is a general requirement for all and sundry.

One should indulge in regular intake of more green leafy vegetables, fruits and plenty of fluids to avoid constipation.

Mothers should take care of her breast hygiene. In case of any irregularity noted should be informed to the physician as soon as possible.

Mothers having a habit of drinking and smoking

should be cut down to nil due to the hazardous impact that it has upon both the mother and the baby. Babies born to smoking mothers are usually small enough to thrive and those to drinking mothers if thrive are observed to have physical and mental problems. The mother even loose her fertility.

Is intercourse during pregnancy allowed?

restricted especially during the late months of pregnancy.

Medications/drugs during pregnancy.

Use of any drugs during pregnancy should be soon brought in front of the Doctor. There are many drugs that might interfere with the development of the baby. It is highly advisable to refrain oneself from taking any medication until advised by an expert, a physician.

Warning signs that a mother should always know and ring a bell.

If a mother or family member notices any of the following should immediately take the Mother to the clinic.

- Swelling of the feet. (Slight swelling is common during pregnancy).
- Fits and convulsions
- Headache
- Blurring of the vision
- Bleeding or discharge per vagina
- Any other unusual symptoms

What are the recommendations after the baby is born?

Breast feeding should be initiated as soon as the baby is born. Nothing besides the breast milk is required for the first 6 months. This also helps establish the bond between the Mother and the Baby. The Mother should be involved in regular feeding. Failure to do so might lead to accumulation of milk in the breast to which pain and infection might follow.

The mother should continue having food the way she was having during her pregnancy to meet up the increased demand during lactation.

She should take care of her hygiene especially her surrounding cleanliness and spend most of her time with her Baby. The Father should also spend most of his time with the Mother and the Baby enabling more comfort, interaction, bonding, physical and mental peace.

What are the danger signs that should be taken care of after the baby is born?

She should go to the hospital or health centre immediately, day or night.

SHE SHOULD NOT WAIT if she has any of the following danger signs:

- vaginal bleeding has increased
- fits
- fast or difficult breathing
- fever and too weak to get out of bed
- severe headaches with blurred vision
- calf pain, redness or swelling; shortness of breath or chest pain.
- She should go to the health centre as soon as possible if she has any of the following signs:
- swollen, red or tender breasts or nipples
- problems urinating, or leaking
- increased pain or infection in the perineum
- infection in the area of the wound (redness, swelling pain, or pus in wound site)
- smelly vaginal discharge
- severe depression or suicidal behaviour (ideas, plan or attempt).

What are the best ways to make mothers feel good about themselves?

The best way to make them feel good about themselves is by giving them the thing which she keeps the least for themselves,

TIME. ENCOURAGE MOTHERS TO DO THINGS FOR THEMSELVES THAT THEY ENJOY SUCH AS

- meeting a friend
- getting out of the home or walking, or things which help them to let their feelings out
- singing, drawing or writing
- spiritual relief through prayer
- meditation

Giving her a break for the regular work or the least assisting with More hands at work. Spending more time with her. Mothers are those souls whose existence supports a whole generation. The importance to her health is not a want but a need that should always be given consideration.

Her compassion weighs that of a mountain, Her love is beyond infinity, Her care, showers like a fountain, Warmth is what felt in her vicinity. Pain in the form of labour that she feels, Every moment brings her near to death, And then the sight of the child appeals, Healing her souls, her every breath. Her commitments are beyond any return, Her compromises has no price, Mothers are entitle to many, as she has earn, No wonder God, the Almighty has kept under her foot, the Paradise. Nothing can we do, to pay her back, For her commitments are beyond any count, The least we can do, is to acknowledge her with complementary feedbacks, Take good care of her and keep her every wish into account.



Dr Karan Juneja
Chairman, IMA Junior Doctors Network (Haryana)

What's the Deal with Omicron's New Variants?

So what's the deal with Gryphon (XBB) the new COVID variant? What are these new variants? Why do we need vaccines, are they even working? There's a race going on for global supremacy between Omicron's sub-variants. Only the most contagious and evasive mutation will win (Vogel, 2022). If you're an avid Game of Thrones reader, perhaps the use of the phrase "Dance of the Variants" might be acceptable here to describe the current global state of competition for the "Viral Throne".

Why Is XBB The Star?

This is our way of asking why XBB is receiving so much media attention out of all the new COVID-19 variants?

XBB is receiving a lot of media attention right now, with some news outlets even calling it the "Nightmare Variant". This attention is partly because of an interview with Boston doctors that seems quite click-baity. But also due to an interview with the WHO COVID technical lead, Maria Van Kerkhove, in which she shared her team's fears that XBB might become increasingly resistant against our vaccines.

XBB is an interesting case. It's a recombinant of the BA.2.10.1 and BA.2.75. This means that two different COVID-19 variants (BA.2.10.1 and BA.2.75) infected an individual and swapped their genes, making a new hybrid variant = XBB.

Where Did XBB Come From?

Since August, the XBB strain, also known as Gryphon, has been found in several nations. These include Australia, Bangladesh, Denmark, India, Japan, and the United States. Of course, researchers are confirming further locations, so there is a possibility of additional places.

Can Vaccines Fight Back?

Omicron variations, in general, are terrible for vaccines. But BA.2.75.2, BQ.1.1 and XBB are the most immune evasive strains ever tested by Focosiso et al., (2022).

Is XBB More Severe?

No, according to a statement released by the Singapore Ministry of Health (where XBB is widely

Everything You Want to Know About Gryphon (XBB): The New COVID Variant

circulating) the majority of patients are reporting mild symptoms such as sore throat or slight fever, especially if they have been vaccinated.

But it should be noted that hospitals in Singapore are continuing to see a rise in hospitalized patients. With the Singapore Ministry of Health encouraging patients to stay away unless absolutely necessary.

Should We Worry About XBB? = Early Data Says No

The severity of XBB in comparison to other Omicron sub-variants is not more significant. But scientists at the WHO are cautious about the viruses 'growth potential' = how quickly it can infect people.

What About The Other Variants?

The other sub-variants, like BQ1 and BQ1.1, have been popping up in Nigeria, the UK, Japan, Canada, France, Belgium, New Zealand, Denmark, the U.S., Italy and even in South Africa, to name just a few places. A study has just come out of the USA which analysed new COVID-19 variants with the aim to accurately and reliably predict the next dominant variant. In this study, Chen et al., (2022) found that the 'binding free energy' or BFE of a variant is a good predictor of how infectious the variant will be.

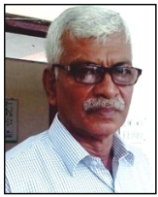
This basically boils down to scientists have a way of measuring and comparing variants to predict which one will become dominant. This is important because as people stop mass testing between borders and COVID gets pushed to the back of peoples minds, scientists have less and less data to work with. Meaning, it's getting increasingly difficult to understand accurately which COVID variants are circulating and impacting people (WHO, 2022).

This has left experts predicting that BA.2.10.4, BA.2.75, BA.2.75+R346T, and BQ.1.1 have a high chance of becoming the new dominant COVID-19 strains (Chen et al., 2022).

We are mostly unaware of just how much bacteria and viruses we come into contact with every day.

While our immune system is exceptionally capable of protecting us most of the time, it is not invincible. That is why vaccination, especially childhood vaccinations, are extremely important.

Continued on page 18...



Prof. Dr. Keshab Mukhopadhyay
 Formar Principal CONJNMH, Kalyani, WB.

From the dawn of civilisation human kind have flourished amidst Mother Nature sharing our habitat with various flora and fauna. At times man tamed the wild to ease their burden, sometimes domesticating the fauna, hunting them for food and fur and other products, and also sometimes executing those animals which threaten our very existence. In our country, due to its tropical climate, it is seen that in the rainy season reptiles (snakes), arthropods (flies, mosquitoes, scorpion) and rabid mammals (cats, dogs) often venture into human settlements and bite us often out of fear or in an attempt to collect their food. Although there is no central data on the number of bites occurring, there is no denial that these different bites are the reason for huge casualty in the human population and have taken their toll time and again. These blight have plagued human kind from time immemorial, often finding their place in our folklore like Manasamangal. It has been found in the last few years there has been a tremendous chaos and casualties due to malaria, chikungunya, dengue, etc due to mosquito bites, but many of them can be prevented with little bit of precautionary measures like cleaning the drains, changing the water in the water cooler regularly so that mosquito cannot breed, clearing the bushes, cleaning the stagnant water, using mosquito net at night, use of mosquito repellents and agarbatis in the evening and morning hours. Even municipal corporations if takes measures to destroy the breeding places of mosquitoes and destroying the larvae by spraying insecticidal agents can be added advantage for the general population.

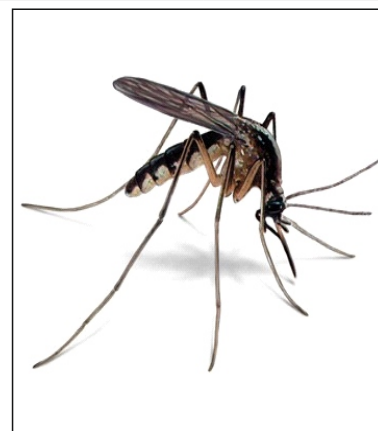
A little bit of precautionary measures like moving out of the home with a light source like torch and a stick may prevent many snake bite events.

Covering the utensils containing foods with a lid may prevent many of the fly borne gastroenteritis.

We must deter from animal cruelty and if a rabid animal is near our residence we must immediately inform the Municipal Corporation or respective authorities. Also the pet animals should be properly immunised.

Beware of Bites

The purpose of this special “bite” issue is to create awareness among general population against the different types of bites prevalent around us and the “Do's & Don'ts” to save the precious human lives without destroying the ecosystem.





Jayanta Bhowmick
ITU Management Service (Founder)

It is true that health is wealth. In the current scenario our lifestyle has changed compared to the past & along with the increasing prevalence of lifestyle diseases such as diabetes, hypertension, stroke and heart attack among the young as well as the elderly people in India is becoming a major cause of concern. Such a medical emergency can occur anytime, irrespective of our present good health or disciplined lifestyle. Therefore, it is important to have forethought and protect our family and self from any unexpected medical situation. It is wise to be prepared and stay financially protected to deal with health-related risks in advance. If we have dependent elderly parents at home this is even more important as they are more vulnerable to various diseases. Also if a requirement for hospitalisation for surgery arises, the expenses can rise to excessive levels.

Therefore, keeping these conditions in mind we must have a comprehensive all covered medical insurance for all members of our family.

Here are some reasons why having a medical insurance policy is important as well as beneficial:

Benefits of individual health insurance

1. Medical emergency expenses Coverage

Health insurance plans offer protection against high medical costs. It covers hospitalization expenses, day care procedures, domiciliary expenses, ambulance charges, Medical tests, Medicines besides many others.

2. Cashless facility

Most of all medical insurance providers today provide a cashless facility with their policies under certain conditions. This can be very beneficial as in case of an emergency the hospitalization expenses are settled between your insurer and the hospital, therefore not requiring the policyholder to bear the expenses from our own pocket. This very feature ensures that we do not have to feel the impact of immediate cash requirement should an emergency occur. In many cases, a third party administrator or TPA pays the bill directly to the hospital. To avail of this benefit, it is imperative to get admitted at any of the insurer's network hospitals.

Advantages of Medical Insurance

3. No-claim Bonus (Cumulative bonus) or No-Claim Discount

If a claim is not filed by a policyholder against a medical insurance plan, the insurer deposits certain percent of bonus to the customer in the form of additional cover. A medical insurance plan may not provide a desired cover in the first year, but offer a significant amount as cumulative bonus in subsequent years. Some insurers also offer this bonus in the form of discount in the premium payable in subsequent years, whereas others even offer this bonus as a combination of both.

4. Pre- and post-hospitalisation cost coverage

Nowadays, most insurance companies also cover both pre- and post-hospitalisation expenses in some medical plans. In other words, this means that not only costs incurred with respect to main treatment (received by the insured while he or she is admitted in a hospital) are covered, but also those arising out of tests and consultation fees beyond that. However, there are certain time constraints to avail such cover. Besides, insurers often also cover transportation charges.

5. Riders

A rider offers specific features under a policy in addition to main features under certain conditions. For example, today a customer can buy an regular insurance policy and get a rider that provides protection against a defined set of critical illnesses such as heart disease and cancer; another option is to purchase an independent critical illness insurance policy, wherein the insurers provides a lump sum in case the insured is diagnosed with any of the eligible critical illnesses. Medical insurance policies come in many forms. While some insurers cover preventive check-ups and doctor's consultation charges in their medical insurance policies, others offer protection against multiple critical illnesses.

6. Health check-ups

Most of all medical insurance policies offer periodic health check-ups free of cost under certain conditions. In certain cases, these check-ups are

continued on page 15...

NCC-PvPI on Drug Safety Data

The National Coordination Centre-Pharmacovigilance Programme of India (NCC-PvPI), Indian Pharmacopoeia Commission (IPC) is collecting, collating and analyzing the reported drug safety data from stakeholders with the objective to identify Signal/PIL changes and recommending to the Central Drugs Standard Control Organization (CDSCO) for taking appropriate regulatory actions.

In view of the above, NCC-PvPI conducted 22nd Signal Review Panel (SRP) Meeting on 22nd November 2022 through hybrid mode at IPC and recommendations of the panel are as follows;

S. No.	Suspected Drugs	Adverse Drug Reactions	SRP recommendations
1	Paracetamol	Fixed Drug Eruption (FDE)	The SRP confirmed as Signal and recommended to include FDE as an Adverse Drug Reaction (ADR) in PIL of Paracetamol marketed in India.
2	Losartan	Muscle Spasms	SRP recommended for the inclusion of Muscle Spasms as an ADR in PIL of Losartan marketed in India.
3	Piroxicam	Fixed Drug Eruption	SRP recommended for the inclusion of FDE as an ADR in PIL of Piroxicam marketed in India.
4	Albendazole	Diarrhoea	Advisory to be issued for the sensitization of health care professionals and to be shared with Programme Division of Public Health Programmes & DCG(I).

...continued from page 14

Advantages of Medical Insurance

also covered through a cashless mode, wherein the insured is not required to bear the expense from his or her own pocket at any given time.

7. Tax benefits

Health care plans provide tax benefits.

Premiums paid towards your health care policy are eligible for tax deductions under Section 80D of the Income Tax Act, 1961.



Dr Rajeev Jayadevan

Co-Chairman, National Task Force IMA for Coronavirus Epidemic

Dear Editor,

Since its first description in South Africa in November 2021, the SARS-CoV-2 Omicron variant rapidly outcompeted the previously dominating Delta variant. Omicron is the fifth variant of concern (VOC). It contains an unusually high number of mutations compared to previous VOCs, especially in the viral Spike protein, and shows high transmissibility and efficient escape of neutralizing antibodies. Due to these characteristics, it received this designation much faster than the four previous VOCs Alpha, Beta, Gamma, and Delta. However, the original BA.1 Omicron variant seems to be less pathogenic than early SARS-CoV-2 strains and other VOCs. While SARS-CoV-2 primarily infects the respiratory tract, Coronavirus disease 19 (COVID-19) is a multi-organ disease, and patients show infection and disorders in the gastrointestinal, cardiovascular, and neurological systems. Thus, the ability of the various SARS-CoV-2 variants to infect and propagate in different cell types and organs clearly plays a key role in viral pathogenicity. Especially, cardiomyocytes express high levels of the primary SARS-CoV-2 receptor ACE2 and are highly permissive for viral replication.

Cardiac injury and cardiomyopathies are common complications of COVID-19. Clinical manifestations leading to severe or even fatal outcomes include myocarditis, heart failure, arrhythmia, and Takotsubo cardiomyopathy (TCM). The mechanism(s) underlying heart injury in COVID-19 are not entirely clear. Direct effects of SARS-CoV-2 on cardiomyocytes are supported by their high susceptibility to virus infection and detection of viral RNA and Spike protein in autopsy cardiac tissues of COVID-19 patients. In addition, it has been shown that SARS-CoV-2 infects and efficiently replicates in cardiomyocytes but not in cardiac macrophages, fibroblasts, or endothelial cells. The BA.1 Spike shows altered ACE2 affinity, reduced dependency on TMPRSS2 for proteolytic activation, changes in cell tropism and reduced fusogenicity compared to the original HU-1 strain and the Delta VOC. However, it is currently not known whether early SARS-CoV-2 strains, Delta and Omicron BA.1, differ in their replication fitness, cytopathicity and

Strong attenuation of SARS-CoV-2 Omicron BA.1 and increased replication of the BA.5 subvariant in human cardiomyocytes

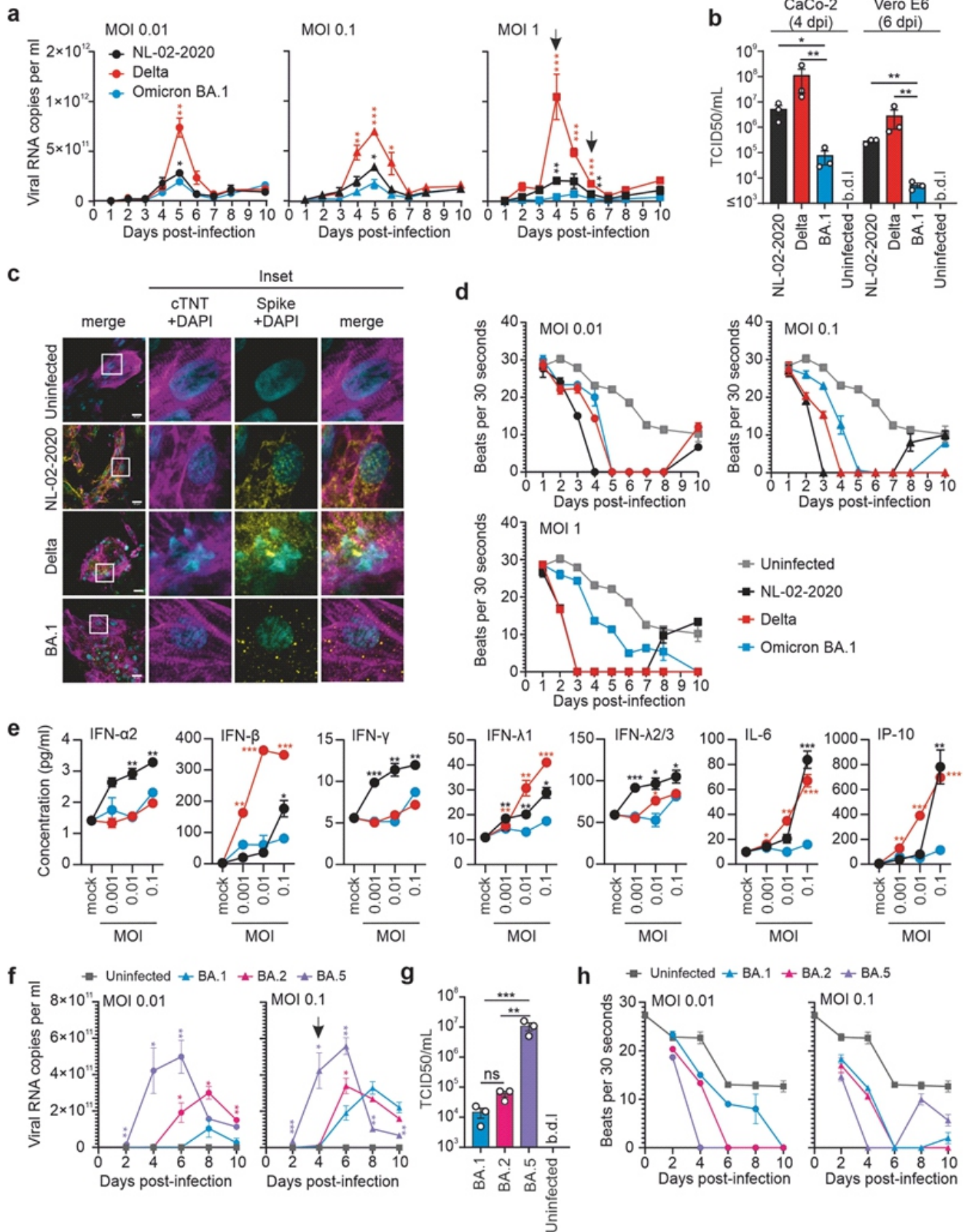
fusogenicity in human cardiomyocytes.

To determine their susceptibility to viral replication and cytopathic effects, beating iPSC-derived human cardiomyocytes were infected with three different multiplicities of infection (MOI) of the early NL-02-2020 strain of SARS-CoV-2, Delta (B.1.617.2), or Omicron (BA.1, B.1.1.529) VOCs. These cultures consist of >90% ventricular cardiomyocytes (Supplementary Fig. 1). In agreement with previous data, cardiomyocytes were highly susceptible to SARS-CoV-2 replication (Fig. a). Infection at lower MOI (0.01 or 0.1) was associated with moderately delayed viral replication kinetics. However, virus production generally achieved a similar maximum at about 5 days post-infection (Supplementary Fig. 2).

On average, the NL-02-2020 and Delta strains reached significantly higher levels of viral RNA (Fig. a) and produced about 2–3 orders of magnitude more infectious virions (Fig. b) than BA.1. In agreement with increased fusogenicity, the Delta variant caused stronger cytopathic effects (CPE) than NL-02-2020, while BA.1 induced only modest and delayed CPE (Supplementary Fig. 3). Confocal microscopy analysis of infected cultures at 3 dpi revealed that those infected with NL-02-2020 and Delta lost their well-organized cardiac Troponin T-positive sarcomeric structure (Fig. c, Supplementary Fig. 4). In contrast, the sarcomeric structure was preserved in BA.1-infected cultures.

The spontaneous beating of cardiomyocytes in culture provides a sensitive indicator of cell functionality. Recording of beating behavior of cardiomyocytes, revealed rates that steadily decreased from about 30 to 10 beats per 30 s over the 10-day incubation period in uninfected cultures (Fig. d; Supplementary Movie 1). Cultures infected with NL-02-2020 or Delta generally stopped beating completely by day 3–5. Despite strong CPE the cultures infected with BA.1 showed a higher survival of cardiomyocytes. Cultures infected with BA.1 were typically attenuated and delayed (Fig. d, S with NL-02-2020 and the lowest MOI of Delta restarted some albeit locally clustered beating on days 8–10. In comparison, the effects of BA.1 on the beating acupplementary Fig. 5). Induction of inflammatory cytokines plays a key

Continued on page 18...



role in the pathogenesis of COVID-19. Analysis of the cardiomyocyte culture supernatant obtained at 4 days post-infection revealed that NL-02-2020 and Delta induced higher levels of interferons and proinflammatory cytokines than BA.1 (Fig. e and Supplementary Fig. 6). For example, striking differences were detected in the induction of IL-6 and IP-10, representing important markers of disease severity and predictors of mortality in COVID-19. Despite lower levels of replication, NL-02-2020 induced higher levels of IFN- α 2, IFN- γ , and IL-8 than Delta, possibly indicating that the latter evolved an increased ability to avoid innate immune activation. Altogether, these results suggest that both attenuated replication as well as lower proinflammatory cytokine induction in cardiomyocytes contribute to the reduced pathogenicity of BA.1. Infection of human coronary artery endothelial cells (HCAEC) may contribute to COVID-19-associated cardiac disease. Thus, we also analyzed the susceptibility of this cell type to SARS-CoV-2 infection. We found that supernatants of primary HCAEC contained high levels of viral RNA 6 days after infection with Delta and BA.1, while no viral RNA was detected in cultures infected with the NL-02-2020 strain (Supplementary Fig. 7). However, in agreement with published data, the cell culture supernatant did not contain infectious virus. Irrespective of the viral dose, Delta showed higher levels of viral RNA production and stronger CPE, as well as slightly higher proinflammatory effects

compared to BA.1 (Supplementary Fig. 7). At the beginning of this study, BA.1 dominated the COVID-19 pandemic. Since then, several subvariants of Omicron emerged and outcompeted the original BA.1 VOC. BA.2 differs by a total of ~40 mutations from BA.1 and is the precursor of BA.5, which contains a deletion of

H69/V70 and additional changes of L452R, F486V and R493Q in Spike and currently (August 2022) dominates the pandemic. Recent evidence suggests that BA.5 is not only more resistant to neutralizing antibodies but may also be more virulent than BA.1. We found that BA.5 replicates with faster kinetics and higher efficiency (Fig. 1f, Supplementary Fig. 8), produces more infectious virus (Fig. 1g), causes stronger CPE (Supplementary Fig. S9), and more rapidly disrupts beating (Fig. 1h, Supplementary movie 2) in cardiomyocyte cultures compared to BA.1, while BA.2 displayed an intermediate phenotype.

In summary, replication and cytopathic effects of the initial BA.1 Omicron VOC in spontaneously beating cultures of human cardiomyocytes are strongly attenuated compared to the early NL-02-2020 strain and the Delta VOC. However, BA.2 and especially BA.5 showed higher replication and caused stronger CPE than BA.1, consequently displaying features more similar to the Delta VOC. This does not come as a surprise since BA.5 shares some mutations in Spike thought to increase fusogenicity, such as L452R, with Delta. Our results add to the evidence that efficient evasion of adaptive immune responses by BA.1 came at the cost of reduced fusogenicity. However, acquisition of additional changes by BA.5 restored the full replicative potential and may potentially increase both transmissibility and virulence. Our finding that BA.1 is strongly attenuated in iPSC-derived human cardiomyocytes suggests that this variant is less likely to cause cardiac injury and cardiomyopathies compared to other SARS-CoV-2 VOCs. It will be interesting to see whether this is confirmed by patient data and if Omicron-adapted vaccines may drive the evolution of attenuated forms of BA.5 and future SARS-CoV-2 variants.

...Continued from page 12

Everything You Want to Know About Gryphon (XBB): The New COVID Variant

After Shocks: Is Long COVID The Next Pandemic?

Yes! Long COVID is real and is not a hoax. It is possible for those who have recovered from COVID-19 with minor symptoms to have long-term complications. Keep an eye out for symptoms and consult your healthcare provider for further advice.

MANAGING LONG COVID

The Silver Lining

The new COVID-19 variants show no evidence of increased severity. This means that even through COVID is getting more infectious with each new dominant omicron sub-variant, hospitalizations and

mortality from COVID is at its lowest point since the pandemic began (CDC, 2022).

This suggests that, especially in South Africa with our 97% COVID antibody rate, many people have developed some protection from their past infections and vaccinations.

Awareness about variants and health doesn't end here. Do you know that October (and the rest of 2022) are full of important health awareness dates? Some of these include diabetes awareness, prematurity awareness, malaria and stroke awareness, as well as many other significant dates.



Dr Om Tantia, Bariatric and Metabolism Surgeon
ILS Hospital

Public Awareness of Obesity and Bariatric Surgery

The 21st century has shown development in all possible spheres. Luxury, entertainment, lifestyle has all been drastically changed with time. The Medical field has also left no stones unturned to combat the fast pace of revolution. Today, with increasing sedentary lifestyle, hormonal factors and faulty dietary habits, obesity has been a popular disorder and is gradually taking an epidemic toll globally.

The body structure of an individual is composed to bear a particular amount of weight known as the Ideal Body Weight. Once the individual starts weighing more than his ideal body weight, he starts accumulating extra fat and hence develops an extra body weight. This further brings upon hormonal disorders leading to other co-morbidities. The ratio of an individual's height with its body weight is known as his BMI (Body Mass Index) which is one of the tools to calculate the severity of Obesity.

Some problems which are directly related to obesity are.

1. **Metabolic syndrome:** The syndrome represents a group of obesity related risk factors that tend to occur together or individually.
 - It includes a large apple shaped waistline, with high deposition of fat around the abdominal region
 - Higher Triglyceride levels in the blood again leading to several by-problems
 - Lower HDL Levels leading to less amount of good fats
 - Hypertension cause increased pressure of blood flow in the arteries
 - Higher fasting blood glucose levels caused due to improper function of insulin
2. **Coronary Heart Disease:** Greater the BMI (Body Mass Index-Height to weight ratio), greater is the threat of Coronary heart disease wherein a new substance called plaque starts building its shelter in the coronary arteries which are assigned the task of carrying the oxygen rich blood in the body. The narrowing due to the blockage may lead to insufficient supply of blood.
3. **Hypertension/High Blood Pressure:** A specific force is required to push the blood against the wall of the

arteries. The hindrance caused due to the obstructions will increase the pressure and a higher risk of damage is inevitable.

4. **Type 2 Diabetes:** The most common disease in which the blood sugar rises to an abnormal limit because of the body's inability to make enough insulin is an epidemic now. Obesity is one major cause and the term "Diabesity" (Diabetes + Obesity) has been coined in this context.
5. **Abnormal Blood Fat:** An obese body has a greater risk of developing high amounts of fat in the blood. The levels of good fat (HDL) may lower down and the bad fat (LDL) and triglyceride levels may shoot up to a devastating point.
6. **Osteoarthritis:** If the knees and joints get overburdened due to the increasing number on the weighing scale, pain and discomfort follows leading to poor ability to carry out simple physical activity like walking, or even sitting or standing due to aches all over the joints.
7. **Sleep Apnea:** The very severe state in which there is shallow breathing at anytime of the day (more at night) or incomplete or short breath is termed as Sleep Apnea. Obesity is one major factor for this state.
8. **Others:** Cancer, Gall stones and reproductive problems are common causes of obesity.

Bariatric Surgery is an effective painless way for attaining the weight loss. About 80% of excess body weight is lost in about a year. It is a popular way which is performed laparoscopically hence reducing the recovery time. Remission of Diabetes, Hypertension and Sleep Apnea are the added bonus of this surgery. According to the Asian Judgments, an individual with a BMI greater than 32.5kg/sq.meter is at a high risk of Metabolic Disorders and hence becomes a candidate for Bariatric Surgery. A thorough assessment and analysis of the composition of body is the first step to the surgery. It is followed by clinical examinations and thorough counseling.

FAQs

1. **What are the main procedures of Bariatric Surgery?**
Mini Gastric Bypass: The stomach is converted into a long tubular pouch and is connected with a loop

of small intestine which channels the food directly into the small intestine and brings about control of Obesity and Diabetes

Sleeve Gastrectomy: the Stomach is stapled to reduce the capacity and this causes hormonal changes too so that the weight loss and control of Diabetes is achieved.

Roux-en-Y Gastric Bypass: The principle of this procedure is same as Mini Gastric Bypass with some variation in surgical procedure.

2. It is performed on patients who weigh above 100kgs?

BMI (Body Mass Index) is a ratio between an individual's body weight and height. If the BMI of a patient is more than 30kg/sq meter with at least two co morbidities or 32.5kg/sq meter with or without co morbidities, the patient is eligible for bariatric surgery.

3. Is Bariatric Surgery is highly risky in nature?

Fact: the surgery is as safe as any other surgical procedure like removal of gall bladder or uterus

4. Does Bariatric Surgery involve removal of fat from the body?

Fact: Bariatric Surgery brings about a change in the digestive system in the body and its action is on the hormonal levels resulting in weight loss. The intake of food along with the absorption of food reduces and hence weight is lost.

5. Is Bariatric Surgery is a cosmetic surgery and is only for those who want to look beautiful?

Bariatric Surgery is a metabolic surgery and will not only enhance one's beauty but will also help in resolving co morbidities that follow obesity. These

include High Blood Pressure, Type 2 Diabetes, High Cholesterol Levels, Sleep Apnea, Joint pain, PCOD,, Fatty liver disease etc. Hence it is not a cosmetic surgery but a life saving surgery.

6. After Bariatric Surgery will we be only on liquids for lifetime?

Patients who undergo bariatric surgery follow a dietary protocol for about two weeks. After that they are taught about their newly constructed stomach and the techniques to feed it. The patient can eat small portions of solid food at regular intervals. High sweet containing sugary food is restricted as it may cause discomfort. However small portion of favorite food can be consumed without hassle.

7. Can a woman plan pregnancy after bariatric Surgery?

Bariatric surgery helps obese woman to lose weight and obesity is one major cause of infertility. Patients can easily give birth to health children after bariatric surgery.

8. How long do we need to stay in the hospital?

A short stay of 72 hours is advised after the surgery ideally.

Countless problems follow Obesity. Simple life style modifications in the early stage or correct treatment during the progressive stage may help in combating and treating the deep penetrating Disease- OBESITY. A bariatric team will be the best solution to the questions that may be arising in an individual's mind. Proper guidance and assessment of a patient's health condition is a necessity before taking the next step ahead.

Editorial

...continued from page 06

adopting the new behavior. Envision how you will look and feel once you have made the changes. Then go for it!

Take control.

There is nothing more important than your health. You have control over most of the aspects in your life that affect your health and well-being. Take charge, and empower yourself. You must be your greatest advocate. Western medicine is designed to keep you alive, not to help you thrive. Taking a passive role in your health is not a wise choice in the current health care environment. Only you are responsible for your health. Decisions now will determine how successful you age in the future.

Make the decision.

Research on willpower has shown that it is a finite resource. We actually use up our willpower during the day and have to replenish it daily. This is why you are more likely to "fall off the wagon" later in the day rather than earlier. Decide on the change and commit to the decision. Then implement structure to your day that causes the behavior to be more automatic. Therefore, eliminating the need to rely solely on willpower.

Get started!

Make 2023 your year to renew your commitment to make the necessary changes that will empower you to age well. Most importantly, just get started!



Dr. Jitendra Mohan Hans, MBBS, MS, ENT Surgeon
Chairman & Director, Dr Hans Centre for ENT & Cochlear Implant, New Delhi-110049

Tobacco heating systems for harm reduction

Abstract

Cigarette smoking is a major preventable cause of morbidity and mortality. The addictive nature of tobacco has led to an epidemic of smoking addiction. The benefits of smoking cessation have been demonstrated. A number of modalities have been developed to help smokers quit, including pharmacological and nonpharmacological. The concept of tobacco harm reduction has gained momentum in recent years, and a number of products have been developed towards this purpose. Nicotine replacement products deliver controlled amounts of nicotine, and thus control the urge to smoke. This review takes a look at a new group of heated tobacco products that do not burn, but rather heat tobacco to controlled temperatures. Heated tobacco products are considered a useful option to lower the harm associated with smoking. It may be beneficial to provide these alternatives to individuals who are unable to quit smoking using other means.

Introduction

Tobacco addiction is a cause for concern across the globe. Tobacco use is rampant across urban and rural areas of developing countries, and has healthcare, social, and economic consequences¹. In fact, developing countries are estimated to have a disproportionately higher health burden attributed to tobacco consumption². It is alarming that there has been an increase in the number of smokers across the world. Interventions to encourage cessation of smoking are required to reduce tobacco abuse, and reduce the burden on society and healthcare systems¹. However, the ideal of achieving complete smoking cessation remains elusive, as smokers are often unable to quit smoking completely, or do not want to quit smoking. In such situations, the strategy of harm reduction can be adopted to reduce the effects of tobacco consumption on health³.

Review of smoking in India

In India, it is reported that 14% of the population smokes cigarettes, with an average of 6.2 cigarettes per day. In fact, even though the prevalence of smoking among women is lower, the mean number of

cigarettes smoked was 7 per day, compared to 6.1 per day for men⁴. Data from the fourth round of National Family Health Survey (NFHS-4) indicates that the prevalence of smoking among men is 24.6%, with a higher prevalence of tobacco use among elderly, separated/divorced/widowed individuals, those with lower education and wealth status, alcohol consumers, manual workers, and residents of the northeast region⁵. In the Global Adult Tobacco Survey-India (GATS-India) 2009–10 and GATS-India 2016–17, the prevalence of smoking was higher among males, illiterate individuals, those from poor households, and rural areas⁶.

In a study of over 70,000 individuals across India, alarming findings emerged, with 28.5% of adult males in India reported as ever smokers. Furthermore, 14% of these ever smokers showed some form of respiratory symptoms. Among this population surveyed, the mean age at which smoking started was 20.5 years. Cigarette smoking was more common among urban Indians, while *bidi* smoking was more common among rural Indians⁷.

Second-hand smoke is a significant problem, with 70% to 80% of the male smokers regularly smoking in the home. Alarming, 30% of adults working indoors are exposed to second-hand smoke, and a quarter of women report exposure to second-hand smoke in the home. While it is possible to reduce second-hand smoke through policy decisions, exposure within a home is not regulated, and this also exposes children to smoke⁴.

Health consequences of smoking

Tobacco and smoking are the cause of significant morbidity and mortality. As per estimates by the World Health Organization (WHO) in 2016, there are 7.1 million premature deaths per year which are attributable to the use of tobacco, primarily smoking. The number is expected to rise to 8 million by the year 2030². As early as 1992, cigarette smoke was declared as one of the foremost carcinogenic agents⁸. There are over 7,000 chemicals in cigarette smoke, of which 72 are carcinogens⁹. Tobacco smoke contains carbon monoxide, hydrogen cyanide, benzene, formaldehyde,

nicotine, phenol, polycyclic aromatic hydrocarbons (PAHs), and nitrosamines. Alarming, the concentration of various constituents is higher in sidestream smoke than in mainstream smoke, indicating the risk to non-smokers who inhale sidestream smoke⁸. It is estimated that half of all smokers will die as a consequence of tobacco smoking, and smokers die 14 years earlier than non-smokers. India reports 900,000 deaths annually, which are attributed to cigarette smoking¹⁰.

Cigarette smoking has been linked to cancer, infertility, coronary heart disease, stroke, chronic obstructive pulmonary disease, peptic ulcer disease, and peripheral vascular disease. It is reported that 87% of lung cancer cases occur as a result of cigarette smoking, and 85% of smokers with lung cancer die within 5.5 years. One of the primary carcinogens in cigarette smoke is tar. Cigarette smoking also causes cancer of the oral cavity, oropharynx, esophagus, hypopharynx, pancreas, stomach, cervix, breast, and prostate¹⁰.

Smoking induces heart disease through endothelial damage, prothrombotic effect, inflammation, abnormal lipid metabolism, along with increased myocardial oxygen and blood demand and concomitant decrease in myocardial blood and oxygen supply. Active smoking increases the risk of atherosclerotic cardiovascular disease (ASCVD) by 80%, while passive smoking increases the risk by 30%. Smoking is the cause of 20% of deaths due to cardiovascular disease (CVD). Additionally, smoking is linked to early-onset atherosclerosis in adolescents and young adults. A dose-response relationship has been demonstrated between passive smoking and the risk of stroke, with a 20-30% increased risk reported by a meta-analysis⁹.

Smoking also affects insulin sensitivity and pancreatic β -cell function, and nicotine is known to affect nerve function. Smoking may be related to Alzheimer's disease through increased amyloid beta production, which reduces blood flow. Furthermore, smokers demonstrate higher levels of proinflammatory cytokines and C-reactive protein. The effect of smoking on the immune system leads to increased respiratory infections and immune-mediated diseases, including rheumatoid arthritis⁹.

Economic burden of smoking in India

The first report on the economic burden of tobacco use in India was published in 2004, and stated that the total cost of tobacco use was US\$1.7 billion, which was nearly 4 times the expenditure on tobacco control. At

the time, tobacco-attributable direct costs were US\$1.2 billion, which formed 4.7% of India's healthcare expenditure. Smoked tobacco accounted for 77% of costs¹¹. A study by John, *et al.*, reported that the economic burden from tobacco accounted for 1% of India's gross domestic product (GDP) in 2017-2018. According to the report, the total economic costs attributable to tobacco use from all diseases for persons aged over 35 years was INR 1,773.4 billion (US\$ 27.5 billion) or INR 3,772.5 per adult per year, of which 74% was attributed to smoking and 26% to smokeless tobacco. Overall, men bore 91% of the total cost. Seventy-six percent of the cost of premature mortality is attributed to the use of tobacco. Direct medical costs accounted for 5.3% of total health expenditure¹². Notable findings of the economic burden of second-hand smoke have also emerged. Direct economic costs attributable to second-hand smoke account for 8.1% of the total healthcare expenditure. Considering that nearly 40% of Indian adults are exposed to second-hand smoke, the findings of economic burden are a cause for concern¹³.

Nicotine replacement therapies (NRTs): Current status and limitations

A number of nicotine replacement therapies (NRTs) have been developed with the aim of reducing the motivation to consume tobacco. These include nicotine gum, transdermal patch, nasal spray, oral inhalers, and tablets. These products provide general relief from cravings as well as breakthrough cravings, as they provide immediate release of nicotine¹⁴. NRTs are to be used as part of a comprehensive behavioral smoking cessation program¹⁵.

Over-the-counter (OTC) NRT products are reportedly effective and produce quit rates that are similar to those of prescription NRT products. In the long term, OTC NRT products lead to quit rates of 1-6% and up to 11%. Compared with placebo, the use of OTC NRT products nearly doubles the rate of quitting, making it an effective choice for cessation programs¹⁵.

While the numbers do indicate the effectiveness of NRT, there are some limitations. Premature discontinuation of treatment, often due to misinformation, is known to occur. Other factors that affect compliance include safety concerns, addictiveness, side effects, and costs, as well as the notion of the individual "I should be able to quit on my own"¹⁴. Premature discontinuation (before 8 weeks) has been reported by up to 76% of participants, and the most common reason for NRT users was relapse or medication not effective (46.3%), followed by "no longer needed" by 16.3%¹⁶.

It is important to remember that smoking is a conditioned habit, and it is not just nicotine dependence, but rather the social construct and ritual of smoking that makes a smoker continue the habit despite the harms. While NRTs do deliver nicotine, albeit in controlled amounts, they are unable to compensate for the unique sensory ritual of smoking¹⁷. Habitual smokers may thus find the NRT not effective, as has been reported. Smokers do not necessarily want nicotine, but rather, they may crave the cigarette and the act of smoking itself^{16,17}.

Tobacco harm reduction

Tobacco harm reduction is defined as “minimizing harms and decreasing total mortality and morbidity, without completely eliminating tobacco and nicotine use”¹⁸. It is common for smokers to cut down on the number of cigarettes or use “low tar” products in order to reduce the harm from smoking³. It is unfortunate that individuals in lower income brackets and of lower educational qualifications smoke more, and although they are more likely to attempt quitting, they are less likely to be successful. In such a situation, the use of harm reduction products may be an alternative¹⁸.

Snus is a moist oral snuff that is commonly used in Sweden, with finely ground tobacco that had been air dried or sun cured. The use of snus leads to nicotine exposure levels similar to that of smoking cigarettes. While snus is often considered to have lower health risks¹⁹, use of snus is associated with increased all-cause mortality (adjusted hazard ratio 1.28) compared to never-users of tobacco. This was attributed to death due to cardiovascular disease, and death due to causes other than cardiovascular disease and cancer²⁰. In middle-aged and older individuals, the use of snus increases the risk of total and ischemic stroke (hazard ratio 1.52 and 1.63, respectively)²¹. Furthermore, an increased risk of rectal cancer (odds ratio [OR] 1.40), as well as pancreatic cancer (OR 2.10) has been demonstrated²².

E-cigarettes or electronic nicotine dispensing systems (ENDS), consist of nicotine in the form of an e-liquid, which also contains other chemicals and flavorings. The e-liquid is heated by an atomizer producing a vapor which is inhaled. The process of heating leads to the formation of certain compounds in the generated aerosol. The aerosol generated has demonstrated harmful effects such as respiratory injury, cytotoxicity, oxidative stress, inflammation, arterial stiffness, and carcinogenic activity²³. E-cigarettes are independently associated with respiratory disease. This applies to both former e-cigarette use (adjusted OR [aOR] 1.34) and current e-cigarette use (aOR 1.32)²⁴. The use of e-

cigarettes increases the risk of cardiovascular disease among users of conventional cigarettes (OR 1.36), compared to the use of conventional cigarettes alone²⁵.

Tobacco heating system: A novel approach to harm reduction

The novel 'heat-not-burn' tobacco products (also called heated tobacco products) are electronic devices that heat processed tobacco instead, rather than conventional combustion of tobacco. This has been designed such that the resultant aerosol has fewer toxic chemicals compared to cigarette smoke. The Tobacco Heating System (THS) is composed of a holder, a charger, and tobacco sticks (~320 mg). The tobacco is heated to a temperature of less than 350°C by a heating blade which is controlled electronically. One tobacco stick can be used for six minutes or for 14 puffs. Two independent evaluations have revealed the nicotine levels in regular THS tobacco sticks is 15.2±1.1 mg/g and 15.7±0.2 mg/g. The average nicotine yield per tobacco stick is 0.3 mg. Nicotine in THS aerosol is in the range of 57-83%, as compared to smoke of reference cigarettes²⁶. The aerosol generated using an electronically-heated system is formed as a result of the evaporation of water, nicotine and glycerin from the tobacco substrate²⁷.

By heating tobacco to lower temperatures, the generation of harmful and potentially harmful constituents (HPHC) is reduced in comparison to conventional cigarettes. The mean reduction of HPHC across various brands is 92%²⁸. The impact of THS on indoor air quality was compared with that of a lit-end cigarette, in an environmentally controlled room using ventilation that simulated “residential”, “hospitality” and “office” conditions. The lit-end cigarette led to significantly greater increases in concentrations of acetaldehyde, nicotine, and other measured parameters over the background concentrations and compared with THS. It was noted that THS did not increase the levels of most analytes, though the levels of acetaldehyde and nicotine were above the background concentrations in all three simulated conditions, it was lower than the levels achieved with lit-end cigarettes²⁹.

Besides examining the pharmacokinetics of nicotine in THS systems and the impact on air quality, the effect on human health is of interest. Towards this, a controlled, randomized, three-arm, parallel, single-centre study recruited adult smokers who smoked 10 or more commercially available non-menthol cigarettes per day, to switch to THS products, or continue the cigarettes or abstain from smoking for 5

days in a confined setting. Switching to THS led to a reduction in exposure to carboxyhemoglobin (COHb), S-phenylmercapturic acid (S-PMA) monohydroxybutenylmercapturic acid (MHBMA) and 3-hydroxypropyl mercapturic acid (3-HPMA). The reduction was in the range of 56% to 96%. This was despite an increase in the number of tobacco sticks used compared to the number of cigarettes smoked at baseline, thus indicating that THS may be an alternative to conventional cigarettes³⁰.

A similar study carried out in Japan presented findings after 5 days, and also reported on the findings after continuing the study under ambulatory conditions for 85 days. At 5 days, there was a 55% decrease in the concentration of COHb, 49% reduction in 3-HPMA, 87% reduction in MHBMA, and 89% reduction in S-PMA, all of which were significantly lower than baseline levels, and were maintained until day 90. The smoking satisfaction with THS was similar to that of cigarettes. Based on the long-term findings in the ambulatory setting, THS may be a suitable choice to reduce exposure to HPHCs among smokers³¹. Studies have revealed that switching from conventional cigarettes to THS from conventional cigarettes leads to significant favourable changes in high-density lipoprotein cholesterol, white blood cell count COHb, forced expiratory volume in 1 second (FEV₁), and total 4-[methylnitrosamino]-1-[3-pyridyl]-1-butanol (NNAL). These findings add strength to the concept of tobacco harm reduction using THS³².

When comparing the effect of switching to THS from conventional cigarettes among adult patients with chronic obstructive pulmonary disease (COPD), it was noted that there were favorable changes in biomarkers after 12 months of predominant THS use (70% or more). The findings indicate the potential for harm reduction among adults with mild or moderate COPD who continue to smoke³³. Animal studies have noted a reduced impact on cardiac gene expression as well as downregulation of genes that are involved in inflammatory responses³⁴. Cardiovascular toxicants are reduced by 92% compared with cigarettes³⁵.

Further evidence to demonstrate tobacco harm reduction with THS comes from the SUR-VAPES 2 (The Sapienza University of Rome-Vascular Assessment of Proatherosclerotic Effects of Smoking) trial, which compared conventional cigarettes with THS products and electronic vaping cigarettes (EVC). The study demonstrated that THS products had a lower impact on Nox2-derived peptide (22.8±7.6 vs. 29.9±5.0 pg/mL), 8-isoprostaglandin F2α-III (158±23 vs. 207±36 pmol/L), and vitamin E (4.11±1.09 vs. 3.81±1.37

μmol/mmol) compared to EVC (19.9±9.9 vs. 36.5±6.8 pg/mL for soluble Nox2-derived peptide; 151±18 vs. 231±31 pmol/L for 8-isoprostaglandin F2α-III; and 4.27±1.30 vs. 2.71±1.07 μmol/mmol for vitamin E). Furthermore, THS products have a lower impact on systolic and diastolic blood pressure compared to conventional cigarettes. Subjects reported that THS products were more satisfying than EVC³⁶.

What can we learn from heated tobacco product usage in other countries?

THS: Authorised by the United States Food and Drug Administration

In 2020, the U.S. Food and Drug Administration (FDA) authorized Philip Morris International (PMI) to market its Tobacco Heating System as a modified risk tobacco product (MRTP)^{37,38}, which is defined as products “sold or distributed for use to reduce harm or the risk of tobacco-related disease associated with commercially marketed tobacco products”. Furthermore, in July 2020, FDA authorized an exposure modification claim for THS. It stated that “switching completely from cigarettes to THS could significantly reduce the body's exposure to HPHC”³⁸.

THS: Third Party Agency Evaluations from other countries

By 2019, there were 9 countries worldwide that permitted the sale of heated tobacco products.³⁹ Several countries have conducted independent evaluations of heated tobacco products. In a study funded by the German Federal Institute for Risk Assessment (BfR), levels of analytes in the smoke generated by the THS were evaluated. The study reported that the levels of nicotine were lower compared to the data provided by the manufacturer, while the total particulate matter was on par with the manufacturer's findings. Levels of carbonyl compounds were 80-96% lower than those noted with conventional cigarettes. The study concluded that “levels of major carcinogens are markedly reduced in the emissions of the analyzed heat not burn (HNB) product in relation to the conventional tobacco cigarettes”⁴⁰.

According to a report by the National Institute for Public Health and the Environment, Ministry of Health, Welfare, and Sport, The Netherlands, “It may be concluded that the health risks associated with smoking conventional cigarettes are considerably higher than those associated with using e-cigarettes. The level of risk and the seriousness of the potential effects depend considerably on the e-cigarette usage pattern”⁴¹.

A report by health authorities in the United Kingdom states that “The available evidence suggests that heated tobacco products may be considerably less harmful than tobacco cigarettes and more harmful than e-cigarettes”⁴².

Conclusion

The epidemic of cigarette smoking and addiction to nicotine and tobacco products has led to an increase in preventable morbidity and mortality. Despite the knowledge that cigarette smoking has adverse health effects, the number of smokers has not diminished. The causes of smoking are several, ranging from social to psychological. Smoking cessation has been recognized as means to lower the risk of cancer and cardiovascular disease. While smokers do make attempts to quit, there is a high rate of failure. Several nicotine replacement products have been developed over the years, with the aim of delivering nicotine in controlled amounts, in order to aid the process of quitting. However, these have limited efficacy. One possible cause could be that such products (gums, sprays, transdermal patches) do not provide a compensatory sensation attached to smoking. To counteract this, the development of heated tobacco products that do not burn, but rather heat tobacco to controlled temperatures has provided an avenue for smokers to switch to a potentially less harmful alternative. Studies have demonstrated that aerosols generated through controlled heating of tobacco contain lower levels of nicotine and HPHC, with a potentially lower risk of chronic disease. Extensive evaluations by several authorities across the world have recognized the lower health risk of heated tobacco products as compared to conventional cigarettes. Such products could be beneficial for long-term smokers who are unable to quit or switch to NRT. Heated tobacco products, thus, present an option to lower the harm associated with smoking, particularly in individuals who have been unable to quit smoking and are at an increased risk of disease.

References

1. Omare MO, Kibet JK, Cherutoi JK, Kengara FO. A review of tobacco abuse and its epidemiological consequences. *J Public Health* 2022; 30 : 1485-500.
2. Shaikh R, Janssen F, Vogt T. The progression of the tobacco epidemic in India on the national and regional level, 1998-2016. *BMC Public Health* 2022; 22 : 317.
3. McNeill A. ABC of smoking cessation. Harm reduction. *Br Med J* 2004; 528 : 885-7.
4. Mohan P, Lando HA, Panneer S. Assessment of tobacco consumption and control in India. *Indian J Clin Med*. 2018; 9 : 1-8.
5. Islam MS, Saif-Ur-Rahman KM, Bulbul MMI, Singh D. Prevalence and factors associated with tobacco use among men in India: Findings from a nationally representative data. *Environ Health Prev Med* 2020; 25 : 62.
6. Lahoti S, Dixit P. Declining trend of smoking and smokeless tobacco in India: A decomposition analysis. *PLoS ONE* 2021; 16(2) : e0247226.
7. Jindal SK, Aggarwal AN, Chaudhry K, Chhabra SK, D'Souza GA, Gupta D, et al. Tobacco smoking in India: Prevalence, quit-rates and respiratory morbidity. *Indian J Chest Dis Allied Sci* 2006; 48 : 37-42.
8. Engstrom PF, Clapper ML, Schnoll RA. Physiochemical composition of tobacco smoke. In: Kufe DW, Pollock RE, Weichselbaum RR, et al., editors. *Holland-Frei Cancer Medicine*. 6th edition. Hamilton (ON): BC Decker; 2003. Available from : <https://www.ncbi.nlm.nih.gov/books/NBK13173/>.
9. Gallucci G, Tartarone A, Lerosse R, Lalinga AV, Capobianco AM. Cardiovascular risk of smoking and benefits of smoking cessation. *J Thorac Dis* 2020; 12(7) : 3866-76.
10. Singh CR, Kathiresan K. Effect of cigarette smoking on human health and promising remedy by mangroves. *Asian Pac J Trop Biomed* 2015; 5(2):162-7.
11. John RM, Sung HY, Max W. Economic cost of tobacco use in India, 2004. *Tob Control* 2009; 18 : 138-43.
12. John RM, Sinha P, Munish VG, Tullu FT. Economic costs of diseases and deaths attributable to tobacco use in India, 2017-18. *Nicot Tob Res* 2021; 23(2) : 294-301.
13. John RM, Dauchy EP. Healthcare costs attributable to secondhand smoke exposure among Indian adults. *Nicot Tob Res* 2022; ntac048.
14. Wadgave U, Nagesh L. Nicotine replacement therapy: An overview. *Int J Health Sci* 2016; 10(3) : 426-35.
15. Hughes JR, Shiffman S, Callas P, Zhang J. A meta-analysis of the efficacy of over-the-counter nicotine replacement. *Tob Control* 2003; 12 : 21-7.
16. Balmford J, Borland R, Hammond D, Cummings KM. Adherence to and reasons for premature discontinuation from stop-smoking medications: Data from the ITC four-country survey. *Nicot Tob Res* 2011; 13(2) : 94-102.
17. Fagerstrom KO, Bridgman K. Tobacco harm reduction: The need for new products that can compete with cigarettes. *Addictive Behav* 2014; 39: 507-11.
18. Hatsukami DK, Carroll DM. Tobacco harm reduction: Past history, current controversies and a proposed approach for the future. *Prev Med* 2020; 140 : 106099.
19. Lee PN. The effect on health of switching from cigarettes to snus – A review. *Regul Toxicol Pharmacol* 2013; 66 : 1-5.
20. Byhamre ML, Araghi M, Alfredsson L, Bellocco R, Engstrom G, Eriksson M, et al. Swedish snus use is associated with mortality: A pooled analysis of eight prospective studies. *Int J Epidemiol* 2020; 49(6) : 2041-50.
21. Titova OE, Baron JA, Michaelsson K, Larsson SC. Swedish snuff (snus) and risk of cardiovascular disease and mortality: Prospective cohort study of middle-aged

- and older individuals. *BMC Med* 2021; 19 : 111.
22. Gupta S, Gupta R, Sinha DN, Mehrotra R. Relationship between type of smokeless tobacco & risk of cancer: A systematic review. *Indian J Med Res* 2018; 148 : 56-76.
 23. Marques P, Piqueras L, Sanz MJ. An updated overview of e-cigarette impact on human health. *Respir Res* 2021; 22 : 151.
 24. Bhatta DN, Glantz SA. Association of e-cigarette use with respiratory disease among adults: a longitudinal analysis. *Am J Prev Med* 2020; 58(2) : 182-90.
 25. Osei AD, Mirbolouk M, Orimoloye OA, Dzaye O, Uddin I, Benjamin EJ, *et al.* The association between e-cigarette use and cardiovascular disease among never and current combustible cigarette smokers: BRFSS 2016 & 2017. *Am J Med* 2019; 132(8) : 949-54.
 26. Simonavicius E, McNeill A, Shahab L, Brose LS. Heat-not-burn tobacco products: A systematic literature review. *Tob Control* 2019; 28 : 582-94.
 27. Cozzani V, McGrath T, Smith M, Schaller JP, Zuber G. Absence of combustion in an electrically heated tobacco system - An experimental investigation. Presented at the 21st International Symposium on Analytical and Applied Pyrolysis.
 28. Jaccard G, Djoko DT, Moennikes O, Jeannet C, Kondylis A, Belushkin M. Comparative assessment of HPHC yields in the Tobacco Heating System THS2.2 and commercial cigarettes. *Regul Toxicol Pharmacol* 2017; 90 : 1-8.
 29. Mitova MI, Campelos PB, Goujon-Ginglinger CG, Maeder S, Mottier N, Rouget EGR. Comparison of the impact of the Tobacco Heating System 2.2 and a cigarette on indoor air quality. *Regul Toxicol Pharmacol* 2016; 80 : 91-101.
 30. Haziza C, de La Bourdonnaye G, Skiada D, Ancerewicz J, Baker G, Picavet P, *et al.* Evaluation of the Tobacco Heating System 2.2. Part 8: 5-Day randomized reduced exposure clinical study in Poland. *Regul Toxicol Pharmacol* 2016; 81 : S139-50.
 31. Ludicke F, Picavet P, Baker G, Haziza C, Poux V, Lama N, *et al.* Effects of switching to the Tobacco Heating System 2.2 menthol, smoking abstinence, or continued cigarette smoking on biomarkers of exposure: A randomized, controlled, open-label, multicenter study in sequential confinement and ambulatory settings (Part 1). *Nicot Tob Res* 2018; 20(2) : 161-72.
 32. Haziza C, Ansari SM, Lama N, Bosilkovska M, Blanc N, Skiada D, *et al.* Changes in clinical risk endpoints linked to cardiovascular and other smoking-related diseases after switching from cigarettes to the Tobacco Heating System (THS) 2.2 for six months. Presented at XVIII International Symposium on Atherosclerosis, Toronto, Canada.
 33. Ansari SM, Sergio F, Medlin LF, Lama N, Elamin A, Haziza C. Tobacco heating system 2.2 in mild to moderate COPD subjects: An exploratory analysis. *Chest* 2019; 156(4S): 465A.
 34. Szostak J, Boue S, Talikka M, Guedj E, Martin F, Phillips B, *et al.* Aerosol from Tobacco Heating System 2.2 has reduced impact on mouse heart gene expression compared with cigarette smoke. *Food Chem Toxicol* 2017; 101 : 157-67.
 35. Pater C, Haziza C, Elamin A, Pouly S, de La Bourdonnaye G, Tran CT, *et al.* Cardiovascular effects observed when using the Tobacco Heating System (THS) 2.2 compared with continued smoking. Presented at Eurothrombosis, 2018.
 36. Biondi-Zoccai G, Sciarretta S, Bullen C, Nocella C, Violi F, Loffredi L, *et al.* Acute effects of heat-not-burn, electronic vaping, and traditional tobacco combustion cigarettes: The Sapienza University of Rome-Vascular Assessment of Proatherosclerotic Effects of Smoking (SURVAPES) 2 Randomized Trial. *J Am Heart Assoc* 2019; 8 : e010455.
 37. United States Food and Drug Administration. PMTA Technical Lead. IQOS Tobacco Heating System (THS). 2020.
 38. Morgan JC, Cappella JN. Harm perceptions and beliefs about potential modified risk tobacco products. *Int J Env Res Public Health* 2021; 18 : 576.
 39. Kim SCJ, Friedman TC. A new ingenious enemy: Heat-not-burn products. *Tob Use Insights* 2022; 15 : 1179173X221076419.
 40. Mallock N, Pieper E, Hutzler C, Henkler-Stephani F, Luch A. Heated tobacco products: A review of current knowledge and initial assessments. *Front Public Health* 2019; 7 : 287.
 41. National Institute for Public Health and the Environment. Ministry of Health Welfare and Sport. The Netherlands. The health risks of using e-cigarettes. 2015.
 42. Public Health England. Evidence review of e-cigarettes and heated tobacco products 2018: Executive Summary.



www.scrl.org.in

Scientific Clinical Laboratory Pvt. Ltd.

Late Prof. Dr. Subir Kumar Dutta

Serving For Decades



NABL ACCREDITED LAB
since 2002

MC - 2741



ALL PATHOLOGICAL SERVICES ARE AVAILABLE

- ▶ Histo/Cytopathology
- ▶ Clinical Pathology
- ▶ Biochemistry
- ▶ Immunoassay
- ▶ Microbiology & Serology
- ▶ Haematology

FOR HOME COLLECTION CALL

033 22651098 / 033 22658309 / 7605803833

📍 2, Ram Chandra Das Row, Kolkata - 700013

📧 scientificlab86@gmail.com

YOUR HEALTH

Estd.1952
only publication of
The Indian Medical Association
for the people in English



JANUARY 2023

Date of Publication
2nd January 2023

R.N. I. No.2756/1964

Your Health

Sir Nilratan Sircar IMA House

53, Sir Nil Ratan Sircar Sarani,

(Creek Row), Kolkata -700 014

Tel: (033)2236-4200,

Email: yourhealthofima@gmail.com,

yourhealthoffice@gmail.com

Installation Ceremony of IMA National Office Bearers at Natcon 2022 (Prayagraj, UP)



If undelivered please return to:
Your Health
Sir Nilratan Sircar IMA House
52, Sir Nilratan Sircar Sarani,
(Creek Row), Kolkata-700014, INDIA

Printed and Published by **Dr.Samarendra Kumar Basu**
on behalf of Indian Medical Association
and Printed at Prabaha, 45, Raja Rammohan Sarani, Kolkata-700009.
Published from Sir Nilratan Sircar IMA House, 53 Sir Nilratan Sarkar Sarani,
(Creek Row), Kolkata-700014, INDIA. Hony. Editor **Dr. Kakali Sen**