

NHI Dialogue



Quarterly Health Magazine of Cardio Diabetes Research Society

Vol. 2 No. 45 October-December 2017



IS COMMON
COLD A
POTENTIAL
CULPRIT IN
CORONARY
ARTERY DISEASE?



The Science
behind the
health
benefits of
vegetables



Those we love don't go away,
They walk beside us every day,
Unseen, unheard, but always near,
Still loved, still missed and very dear.



Dr. Vinod Kumar Gujral
19-07-1956–18-12-2016



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Publisher : CDRS
Creativity : Sanjay Anthony Dass
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New Delhi-110049.
40503499, 40503599

For advertisements contact :

Executive Editor / Desk Editor
drvs1994@rediffmail.com
contact@nationalheartinstitute.com
contact@nhi.in

*Readers are advised to first
consult their doctor before
starting any therapy.*

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Editorial Voice

Dear friends !

Wish you a very **Happy New Year 2018** from the NHI Dialogue Team.

Hope the winter festivities and vacations have been good for you!

It's the support and continued patronage from our keen readers, contributors and sponsors that your magazine enters the 13th year of publication, both print and electronic. The last data of January 2017 revealed a circulation of 21,000 print & over 2,00,000 e-magazine quarterly.

Please continue to send your valuable comments and suggestions ...

Once again hoping to raise the hope!

Yours truly

Executive Editor/Desk Editor

drvs1994@rediffmail.com
contact@nationalheartinstitute.com
contact@nhi.in



IS COMMON COLD A POTENTIAL CULPRIT IN CORONARY ARTERY DISEASE?

***O. P. Yadava, **A. Kundu**

*C.E.O. & Chief Cardiac Surgeon **Cardiac Surgeon
National Heart Institute, New Delhi

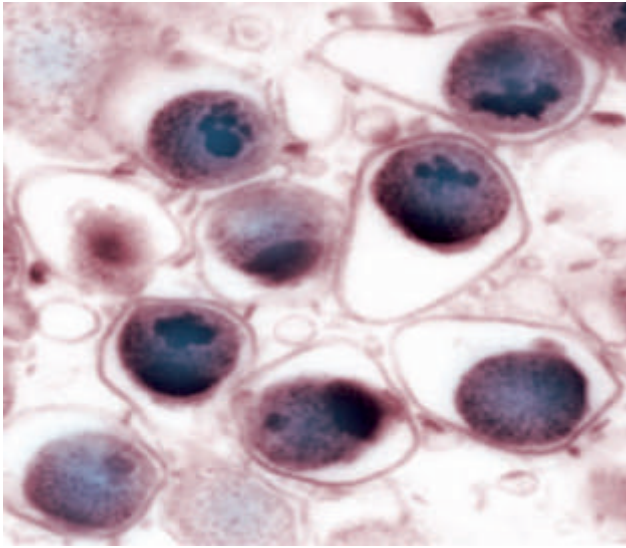
This sounds like a rather unusual and scary question. However the intention is not to create a panic situation like the recent ruckus about swine flu. Rather, the focus is on a very interesting aspect of the cause of Coronary Artery Disease (CAD). CAD continues to be the commonest cause of death in the industrialized world and is ever-increasing in the developing countries. The huge burden of disease in terms of mortality, morbidity and socioeconomic hardship, remains a challenge. The conventional risk factors for CAD are smoking, diabetes mellitus, hypertension and dyslipidemia. However, these factors fail to account for the difference in prevalence and severity of the disease in different populations. Therefore, a number of 'novel' markers for the disease have been recently proposed, one of them being infection by certain microorganisms. Yes, indeed, a bacterium might just be the culprit behind those cholesterol plaques that narrow our coronary arteries and cause angina, heart attacks, etc.

The Suspect



Atherosclerosis, the process of formation of cholesterol deposits ('plaques') in the blood vessel walls is the initiating event in CAD. Research has established that this is an inflammatory process. That is, a process the body initiates when faced with any kind of infection (bacterial, viral or fungal). Of course, that is not to oversimplify things by saying that CAD could be caused by infection! But evidence suggests that the presence of infective antigens in the blood may act as a 'signal' for this inflammatory process to commence and lead to plaque formation and CAD. Interestingly, as far back as in 1908, Osler the legendary physician proposed that infection could be an etiological factor in atherosclerosis. But it is only in recent decades that a number of potential culprit pathogens have been implicated, foremost among them being *Chlamydia pneumoniae*. This is a Gram-negative obligate intracellular pathogen, causing 5-20% of adult pneumonias. The infection itself runs a rather benign course, with cough, sneezing, fever and bodyache being the prominent symptoms. The trouble is that this bacteria tends to linger in the body cells as a dormant organism for an extended period, unrecognized by the immune system. But do we have cold, hard evidence of this? Perhaps yes, in the following forms:

Chlamydia pneumoniae in white blood cells



The Evidence

Sero-epidemiological data Saikku et al (1988) were the first to demonstrate that elevated serological markers of *C pneumoniae* infection were positively associated with CAD. Since then there have been various studies linking levels of antibodies against *C pneumoniae* to severity and distribution of atherosclerotic lesions, with differing conclusions.

Plaque studies *C pneumoniae* has actually been isolated from atherosclerotic plaques from autopsy specimens. It has also been isolated from other human tissues, demonstrating its ubiquitous presence. This does not mean that its presence in atherosclerotic plaques indicates a causative role. But on the flip side, it has been found that *C pneumoniae* detection rate was 29-50% in cardiovascular tissue, versus 5-13% in noncardiovascular tissue. The recent development of culture of live organisms from plaque tissue may add more evidence in favor of an infectious etiology.

Animal experiments Rabbits experimentally infected with *C pneumoniae* developed not only pneumonia, but also atherosclerotic changes in the aortic wall. Further, cholesterol supplementation in these rabbits caused thickening of the inner walls of their blood vessels. Azithromycin, an antibiotic

active against *C pneumoniae*, reduced these arterial lesions in infected rabbits.

Cellular studies Laboratory studies have shown that *C pneumoniae* infects and proliferates in vascular cells (macrophages, endothelial and smooth muscle cells), the main constituents of the atherosclerotic plaque apart from the well-known cholesterol deposits. This may lead to expression of inflammatory mediators by these cells that set the ball rolling for the inflammatory process leading to atherosclerosis.

Antibiotic studies in humans Two pilot clinical studies were published in the UK in 1997. Briefly, they involved screening of survivors of major heart attacks for antibodies to *C pneumoniae*; increasing antibodies were found to be associated with increasing incidence of adverse cardiovascular events like recurrent heart attacks and angina. Indeed, patients with increased antibody levels received azithromycin and were found to have a 5-fold reduction of events compared to the others not getting the antibiotic. Understandably, these studies led to a rash of prescriptions of azithromycin and roxithromycin, both antibiotics active against the organism! Unfortunately, subsequent structured studies addressing this issue failed to demonstrate any significant clinical or survival benefit with administration of these antibiotics.

Where do we stand?

So can we look forward to popping a course of antibiotics to actually cure CAD, while we continue to enjoy our burgers, French fries, TV, stress and diabetes? Unfortunately the jury is still out on that one. No study has *conclusively* proved the link between *C pneumoniae* infection and CAD and the beneficial effect (if any) of antibiotic therapy in these patients. All said and done, there is a group of pessimists who maintain that the link could be merely coincidental. On the other hand, there are some practitioners, who are already treating CAD patients with antibiotics!! One encouraging aspect is the search for a vaccine against *C pneumoniae* the administration of which could determine if there is really a link between the bacterium and the disease.

Until then, we would do well to be content with fighting the traditional demons of obesity, diabetes, smoking, hypertension and dyslipidemia.

MANAGING TYPE II DIABETES WITH DIET & LIFESTYLE CHANGES

Ms. Shikha Sharma, Nutritionist, National Heart Institute

Diabetes or Madhumeh as it is referred in India has been known for centuries. This is a disorder in which there is an excess of sugar in the blood and the urine. Insulin utilises the sugar from the blood for energy production. This prevents the high sugar in the blood. When diabetes strikes, it could be due to two problems:

1. Pancreas cannot produce sufficient amount of insulin to remove the sugar from the blood.
2. Insulin produced is not effective and results in an inadequate utilisation of the blood sugar.

Hence, there is a rise in blood sugar levels. If the blood sugar rises above the level of 180mg/100ml in the blood, then the sugar is excreted in the urine also.

Diabetes cannot be cured but changes in the lifestyle, diet and drugs can make an individual lead a normal life.

In Diabetes the blood and urine sugar levels are high due to inadequate production or lack of effective insulin. Diabetics can lead a normal life, if lifestyle, dietary changes are made.

Type II Diabetes:

Overweight and obese are generally afflicted by this type of diabetes. The insulin produced is normal or even high. The symptoms of the disease are gradual. The problem is caused by Insulin resistance. Obesity is the main cause of insulin resistance. Weight reduction, diet and exercise can be helpful to decrease the insulin resistance. Anti Diabetic drugs can be useful.

Excess food, lack of exercise and aging are environmental factors for diabetes besides the generic factors.

Common Symptoms of diabetes mellitus:

1. Excessive urinary output especially at night.
2. Excessive thirst due to loss of water from the body.
3. Increase appetite, urge for sweet items of food due to heavy loss of sugar in urine.
4. In spite of eating more there is loss in weight.
5. Untreated diabetes can cause easy tiredness, drowsiness and even coma at later stages.
6. A tingling sensation felt in the hands and feet
7. Excess sugar deposits on the eye lens causing refraction changes resulting in the blurring of vision.
8. Lack of nutrients to the wound delays healing. Minor recurrent infections occur (boils, foot, skin and urinary infections).

Diabetes Tests & Diagnosis:

Your health care professional can diagnose diabetes, prediabetes through blood tests. The blood tests show if your blood glucose, also called blood sugar, is too high.

Who should be tested for diabetes?

Anyone who has symptoms of diabetes should be tested for the disease. Some people will not have any symptoms but may have risk factors for diabetes and need to be tested. Testing allows health care professionals to find diabetes sooner and work with their patients to manage diabetes and prevent complications.

Testing also allows health care professionals to find prediabetes. Making lifestyle changes to lose a modest amount of weight if you are overweight may help you delay or prevent type 2 diabetes.

Diagnostic Criteria for IGT (impaired glucose tolerance test) and Diabetes

Parameter	Blood Sugar Levels mg/dl	
	IGT	Diabetes
Fasting	<110	>110
Glucose load 2 hours after (post prandial)	110 - 140	>140

Management of Diabetes:

Diabetes cannot be cured but can be treated so that an individual can lead a normal life. Patients who maintain their blood glucose level suffer from lesser complications as compared to those who frequently experience fluctuations in the blood glucose levels.

A good synchronization between diet, lifestyle and drugs can help in preventing or delaying the onset of complications.

Management of Diet:

Diet plays a very important role in management of diabetes as it exerts a direct influence on the blood glucose level. Diabetes diet should be individualised, based on the nutritional status of the patient.

Patients with type 2 diabetes generally are put on a 1500-1800 Calorie diet per day to promote weight loss and then maintenance of ideal body weight.

Generally, Carbohydrate should make up about 50% of daily calorie (with the accepted range of 40% to 60%). Lower carbohydrate intake is associated with lower sugar levels in the blood. Carbohydrate makes blood glucose level go up. The more carbohydrate a person eats, the higher their blood sugar will go.

Complex carbohydrates with more fibre are recommended to simple carbohydrate like sugar. Diabetics need not restrict their carbohydrate intake but they can alter the type of carbohydrate in their diet. Eating complex carbohydrate (whole cereal, pulses, vegetables) and avoid foods rich in simple carbohydrates (honey, jaggery, sugars and jams).

Dietary fibre:

It is that part which is not digested by the intestines. High fibre meals have shown to give the best Glycemic Index control in diabetes. It reduces blood sugar, lower blood Cholesterol and hence is good for C.V.D, Constipation and some form of Cancer.

Whole cereals, pulses, fruits, green leafy vegetables are high in fibre. Intake of 25gm of dietary fibre /1000 cal/day is optimum.

Proteins:

Ideally, 1 gm protein / kg ideal body weight is recommended for adult diabetic without any complications. For CKD patients 0.8 gm / kg of ideal body weight/day is recommended.

- High protein diet is good for diabetic patients eg. Plant based protein such as beans, pulses, nuts, seeds and Tofu.
- Animal based protein such as chicken and other poultry, fish and sea food, egg and low-fat dairy is recommended.
- Red meat, pork, egg yolk, liver, kidney meats to be avoided.

Fats:

Eating too much fat can lead you taking in more calories than your body requires. 15% to 20% of total energy from dietary fat can be taken in 2000 calorie meal plan.

Vegetable oil rich in mono / polyunsaturated fatty acids should be preferred over animal fats which are generally rich in saturated fatty acids.

Oils such as mustard, olives, soya bean, and sunflower are preferred over ghee, butter, Vanaspati. Different kind of oils can be incorporated in the diet rather than using one type of oil.

Glycemic Index

It is the system that ranks foods by they affect your blood sugar levels. Low GI foods less than 55 produce a gradual rise in blood sugar levels that is easy on the body. Foods between 55 – 70 are intermediate GI foods. Foods with high GI numbers more than 70 make blood sugar levels as well as insulin levels spike fast.

- Cereals like wheat, rice, vegetables (potato and carrot) have a high GI (65% – 75%)
- Fruits have 45% - 55% GI
- Lentils like (peas, beans, green gram, bengal gram) have a low GI 30% - 40%.
- Glucose has a GI of 100%

So, diets with lower Glycemic Index are more beneficial for diabetics.

Some important points to keep in mind for managing diet:

- Atta can be substituted with soya flour, whole bengal flour or stalks of green leafy vegetables in the ratio of 3:1 for preparing dough for chapattis etc. as it increases the fibre content of meals and hence preventing peak rise post prandial sugar.
- Wheat bran, Bengal gram husk can be given doses around 15gm/day. It can be incorporated in biscuits and cookies.
- Deep fried items, high fat foods and refined flour are to be avoided.

- Eat every 4 to 6 hours to keep blood sugar stable. Try to have 3 regular meals a day along with 2 snacks a day.
- People with diabetes are at higher risk for heart disease so choosing better fat is important. Healthy fats are found in oils, nuts, seeds, avocado, oily fish such as salmon.
- Sweets such as laddoo, jalebi, adhirasam, gulabjamun etc, coconut, samosa, pakora, bhaji, meduvada, chips such as banana, potato, pappadums are to be avoided.
- Dosas can be made with whole wheat.
- Brown rice can be used instead of white rice.
- Instead of coconut chatni, coriander mint chatni or onion tomato chatni can be consumed.
- Low fat yoghurt, skim or toned milk may be consumed
- Poriyal can be made using non starch vegetables such as green bean cabbage, snake guard, okra, egg plant or bitter guard.

By making small changes to traditional recipes, a diabetic patient can still enjoy their favourite foods. To help manage diabetes certain life style changes to be made such as walk regularly, eat at regular meal time, incorporate high fibre nutrient dense food.

Foods to be used freely	Foods to be used in moderate amount	Foods to be avoided
<ul style="list-style-type: none"> ○ Vegetables (low starch) ○ Green leafy vegetables ○ Spices and condiments ○ High fibre foods ○ Coffee/tea (without sugar) ○ Fats 	<ul style="list-style-type: none"> ○ Nuts ○ Cereals/Roots/Tubers ○ Pulses ○ Milk products ○ Eggs ○ Sugar 	<ul style="list-style-type: none"> ○ Sweets ○ Honey ○ Jams ○ Jellies ○ Cakes and Pastries ○ Pizza ○ Aerated drinks and sweetened juices ○ Sweetened yoghurt

Myths & Misconceptions about Diabetes



Dr R K Marya, MBBS; MD (Medicine); FIAMS

Consultant Physician & Diabetologist

National Heart Institute

“MARYA CLINIC”

Ex Chairman Research Society for Study of Diabetes India (Delhi Chapter)

India is known as the diabetes capital of the world. India is projected to be home to 109 million individuals with diabetes by 2035. Nearly 1 million Indians die due to diabetes every year. The high prevalence is due to our genetic susceptibility, unhealthy eating habits, sedentary life style and lack of awareness about the disease.

Some common myths and misconceptions which patients express in day to day clinical practice.

1. **Myth: Diabetes is Contagious:**

Fact: NO, diabetes is not a contagious disease like flue, tuberculosis etc. you cannot catch diabetes from a patient suffering from diabetes. It depends more on your genetic inheritance, the kind of food you eat, the type of life style you lead. Sedentary life style is a high risk for developing diabetes.

2. **Myth: My mother father have diabetes so I am doomed to have Diabetes:**

Fact: Though you are at a greater risk of developing diabetes if one or both of your parents have diabetes but it is not a must that you will develop diabetes. Remember “the genes load the gun but it is the life style which pulls the trigger”. How so ever strong may be you family history of diabetes if you maintain a healthy, active life style, avoid gaining weight, eat the right kind of food you can avoid or significantly delay the onset of diabetes.

3. **Myth: If no one in my family has Diabetes then I cannot develop diabetes.**

Fact: If you don't have a family history of diabetes your chances of developing diabetes are low but not nil. If you don't maintain a

healthy life style, have sedentary habits and tend to gain weight, eat wrong kind of food you can still develop diabetes. Remember we Indians are a high risk race for developing diabetes

4. **Myth: If I eat too much sugars I will develop Diabetes:**

Fact: The answer to this question is not straight forward. If you are genetically susceptible then you definitely are at a greater risk of developing diabetes if you eat too much of sweets. Research has shown that drinking sugary drinks is linked to type 2 diabetes. The American Diabetes Association recommends that people should avoid intake of sugar-sweetened beverages to help prevent diabetes. Sugar-sweetened beverages include beverages like: Regular soda, Fruit punch, Fruit drinks, Energy drinks, Sports drinks, Sweet tea, other sugary drinks. Just one 12-ounce Can of regular soda has about 150 calories and 40 grams of carbohydrate. This is the same amount of carbohydrate in 10 teaspoons of sugar!

5. **Myth: Diabetes can be cured.**

Fact: Diabetes is not a curable disease but a controllable disease. Do not stop your medication once you have achieved a normal sugar level because if you do that your sugar levels will go up again. Sometimes remission can be achieved by leading a healthy, active life style and losing weight.

6. **Myth: I have been advised Insulin, I am failing to take care of my diabetes**

Fact: Diabetes is a progressive disease. Initially you can take care of blood sugar levels by maintaining a good life style and some oral medication but as the disease progresses body produces less and less insulin, you may need to increase your oral medication and eventually you may have to inject insulin to overcome the declining insulin levels in your body. There is nothing wrong in using insulin to control your sugar levels if such a need arises.

7. Myth: I have no symptoms, I don't need any medicine

Fact: Many a times your sugar levels are high but you are comfortable and are able to carry out your routine activities this gives you a false sense of security. Remember high blood sugar is silent killer as long as it is out of range it keeps damaging your eyes, kidneys, nerves, heart and brain

8. Myth: Insulin once started cannot be stopped, it is habit forming

Fact: Insulin is not habit forming. Whether or not it can be stopped once started depends on the circumstances in which it is initiated.*In early stages most of the time

Insulin is started to control blood sugar when it is very high and not getting controlled with oral medication. This gives rest to the insulin producing beta cells and after 2 to 3 months insulin can be stopped in most of the cases.

*In acute stressful situations like undergoing surgery or severe infection etc. you may have to take insulin for a while to tide over the stressful situation and then can start oral medicines. *When started late in a long standing diabetic Insulin may have to be continued for long

9. Myth: My blood sugars are normal, I can stop my medicine

Fact: no you cannot stop your medicines. The moment you stop your medicines your sugar levels will go up again

10. Myth: Insulin should be injected after meal

Fact: No insulin need to be injected at least half an hour before meals because insulin once injected in the subcutaneous tissue takes at least half an hour to enter the blood circulation and start acting. If you take your insulin after meal your blood sugar levels immediately after meal will go high but may go low in post absorptive stage 4 to 5 hours after meal.

स्वास्थ्य सम्बन्धी दोहे

- १) अपनाइये अच्छी जीवन शैली,
दिल की सेहत कभी न होगी मैली।
- (२) पथ्य दवाई औ दुआ होवे शीघ्र निरोग,
जो तीनो पालन करै होइ न शोक न रोग।
- (३) रोजाना की सैर तम्बाकू से वैर,
शाकाहार व बैर दिल की सेहत खैर।
- (४) तोंद तम्बाकू तथा तनाव,
तीनों करते दिल में घाव।

टिप्पणी: (दिल में घाव का मतलब दिल का दौरा / हार्ट अटैक से है।)

- (५) जे नर करहिं न कठिन श्रम योग सैर कछु नाहिं,
पियहिं तमाखू मदिर रस हृदयघात तेहिं पाहिं।
- (६) धूम्रपान सुर्ती सकल पुंगी गुटक बहार,
ई-सिगरेट हुक्का सबै करै हृदय को खार।

टिप्पणी—पुंगी मतलब सुपाड़ी, गुटक का अर्थ गुटके से है और बहार का मतलब विभिन्न प्रकार के पान मसालों से है।

- (७) जितना लम्बा पेट उतनी लंबी लपेट,
जिगर शक्कर प्रेसर सब इसकी चपेट।
- (८) कद – काठी गोल मटोल पेट, सर्वस्व पेट
मधुमेह भेंट,
दिल जल्दी मटियामेट हुआ, हो गयी काल से
जल्द भेंट।
- (९) व्यायाम न करना खराब खान-पान,
तोंद-डॉयबिटीज का शर्तिया सामान।
- (१०) धूम्रपान अग्निपान, धूम्रपान विषपान,
अनेक रोगों की खान, मृत्युदंड धूम्रपान।
- (११) निर्धनता अशिक्षा और बीड़ी की तिकड़ी,
मत पूछों साधो इससे सेहत कितनी बिगड़ी।

- (१२) धूम्रपान गुटका सबहि युवा किशोर गुलाम,
खाई चबाई कैसर भयो तबहुँ न छाड़ि नमामि।
- (१३) धूम्रपान मोटापे और काली पट्टी की तिकड़ी,
शक्कर प्रेशर हृदयाघात पक्षाघात की चौकड़ी।
- (१४) तोंद-तम्बाकू हमसफर हो जब,
मौत को किसी और दर जाना क्यों?
- (१५) मोटा पेट साथ में सिगरेट,
होता दिल का मटियामेट।
- (१६) बेल्ट धँस गयी नीचे भारी तोंद को सम्हालने में,
मत पियो सिगरेट नही तो आग लग जायेगी
तोंदखाने में।
- (१७) तम्बाकू खाना मौत बुलाना,
गुटका चबाना कैसर पाना।
- (१८) 'आपन कहि भीतर गई जूता खात कपार'
स्वाद लेहि भीतर गई भोगत हृदय अपार।
- (१९) जिह्वा वाणी स्त्रोत है भोजन को आगार,
दोऊ खूब सम्हालिए बिगड़े बिपद अपार।
- (२०) चिंता ऐसी घातिनी जल्दि बूढि करि देहि,
नींद केश द्वौ लै उड़ी हृदयघात पुनि देहि।
- (२१) हवा विषैली धुंधमय इंद्रप्रस्थ भयो भोर,
काम धाम सब तजि गह्यो सिगरेट-चाय
किशोर।
- (२२) चढ़त औ उतरत ठंड बड़े बूढन की बात सो
ऐसी,
साधो इनसे बच कर रहियो करत हैं ऐसी तैसी।
- (२३) मोबाइल गुण बहुत है निर्गुण सगुण अपार,
पथ महि बतकचरा करहिं प्राण तजहिं तैयार।

Professor Shridhar Dwivedi

MD, PhD (Cardiology), FRCP (London, U.K)
FAMS, FIACS (Canada) PG Dip HPA (Leeds)
Senior Consultant Cardiologist, National Heart Institute
Founder/Prof. Dean / Principal, HIMSR, Jamia Hamdard (Retd.)
& HOD Medicine, Delhi Univ. Coll. Med. Sci. & GTB Hospital (Retd.)

The Science behind the health benefits of vegetables

From the desk of Late Dr. Vinod K. Gujral



Today the science behind the health benefits of vegetables is growing rapidly. Researchers have discovered that in addition to nutrients, vitamins and minerals, vegetables contain a various group of natural biologically active plant substances, so-called phytonutrients or phytochemicals, which plants produce to protect themselves against stress. Health experts believe these natural substances are also beneficial for human health.

Phytochemicals are natural bioactive compounds produced by plants that work with nutrients and dietary fiber to protect against disease. Currently, the term is being used only for those plant chemicals that may have health-related effects but are not considered essential nutrients (proteins, carbohydrates, fats, minerals, and vitamins).

Research suggests that phytochemicals, found in fruits, vegetables and nuts, may help slow the aging process and reduce the risk of many diseases, including cancer, heart disease, stroke, high blood pressure, cataracts, osteoporosis, and urinary tract infections.

The natural pigments that give vegetables and fruits their characteristic colors is just one important group of phytochemicals. Some of the pigments in vegetables, for example beta carotene in

carrots and sweet potatoes, lycopene in tomatoes and lutein in spinach, have antioxidant properties. Antioxidants have the ability to block or reduce damage of cell's DNA from harmful free radicals produced in the body. Each colour group has a unique combination of nutrients and phytochemicals that has been associated with specific health benefits, such as heart health, vision health, bone health, a healthy immune system, and risk reduction for different kinds of cancers.

Some phytochemicals, like Indoles, which are found in cabbages, stimulate enzymes that make the estrogen less effective and could reduce the risk for breast cancer. Allylsulfides, another group of phytochemicals found in onion and garlic, stimulate enzymes that help the body get rid of harmful toxins and strengthen the immune system.

Phytochemicals :

- * **Modulate hormone metabolism.**
- * **Stimulate the immune system.**
- * **Have antioxidant, antibacterial, anti-carcinogen, antiviral and anti-inflammatory properties.**

The 1970's saw a revolution happen within the food science community, when researchers began to see links between what people ate and their general health and longevity. Around this time, doctors began to become concerned about the supposed link between *dietary cholesterol* and heart disease and cancers. While this link turned out not as important as scientists once figured (eating cholesterol does not necessarily lead to dangerously high cholesterol levels in the blood) it did mark the beginning of a trend. Doctors, researchers and people themselves began to shift their focus from merely

treating an ailment, to actually trying to prevent it.

Studies surrounding folic acid and its role in the health of pregnant women and their children also helped spur on the phytochemical revolution. Studies done on pregnant women showed that a diet lacking in sufficient amounts of folic acid led to higher rates of neural tube defects such as spina bifida. Other studies found that a diet deficient in Folic Acid (B-9) along with B6 and B12, led to higher level of *homocysteine* (an amino acid linked to fat build up in the arteries) in the blood stream and greater incidences of heart attack and stroke.

Since then, population studies were conducted which examined the link between people's diets and their general health and well being. In one epidemiological study the health of Japanese Americans who ate a typical American diet was compared to Japanese people who ate a more traditional diet. Another such study focused on the diet of the French population as compared to the standard American diet. Hundreds of these population studies were done and researchers soon started seeing a link between diets high in plant based foods and lower rates of cancer, diabetes and heart disease.

Another study involved senior citizens who ate a diet rich in *fish, grains and vegetable* compared to those who were more particular in what they ate. In this study, those that ate more veggies had the tendency to lead more active lives thus showing a link between health and diet. Other studies showed a link between whole grains and vegetables and a 40 percent drop in colon cancer. A study on women found that those who ate a diet rich in fruits and vegetable had a 25 percent lower risk of getting breast cancer.

Why Fruits and Vegetables are Better Than Supplements ?

When you eat **fruits and vegetables**, hundreds of phytochemicals, well balanced and working as the whole composition, are easily absorbed to provide the maximum health benefits.

In contrast, supplements or pills contain large doses of only one or two phytochemicals. These isolated supplements have not proven to be effective or even safe.

You can prevent many disorders and delay aging by just following the simple guide line : every time you eat, fruits and vegetables should be half of what you eat.

Scientists are learning more about the role that diet plays in disease prevention, the interactions among foods and their elements, such *as fiber*, nutrients, and phytonutrients that strengthen their health-promoting abilities and continue to discover other benefits as well, which makes vegetable and fruit research a very active and exciting field.

Based on scientific evidence, it is clear that the safest and most effective treatment for various diseases are right in our households. A mixture of natural fruits, vegetables and herbs are some of things needed to prevent or cure disease.

Folk Medicine has collected home remedies using vegetables for many centuries. Every vegetable has a unique well-balanced chemical composition. The newest research just acknowledges the folk wisdom in the ability to prevent and cure diseases and improve overall health by combining the right natural ingredients in right proportions.

With the right combination of ingredients, a cure can be created in the privacy of your own home !

The other ingredients used in these home remedies besides vegetables are natural honey, alcohol and some herbs. That's it.

No chemicals, no side effects.

Ethnic Foods and The Diabetic Patient – What is Recommended ? – CDRS Nutrition Services



Case History : Mr. Ajay is a 45-year-old with type 2 diabetes who leads a busy lifestyle as a contractor. His A1c is moderately well controlled on metformin, with the last level at 6.9%. His blood pressure is 135/75 mm Hg at rest. His LDL cholesterol level is 170 mg/dL, and his HDL cholesterol level is 40 mg/dL.

He typically eats lunch on the job (usually Fried food purchased from a food Stall) and dines in the evening with his family, including his wife, 2 preadolescent children, and his parents. His wife or mother prepares the home meals, which are usually Mughlai, consisting of fried Lamb Meat, Chapati Vegetables, and, or Lamb Biryani. Vegetable oils are used in the cooking. His physical activity level is high because of his manual work, and his BMI is 28. He has not been receptive to the dietary recommendations that are offered because he does not wish to interfere with the family cooking.

Use of Herbals and Other Supplements Reviewed.

A review of dietary approaches and supplements used for glycemic control in diabetes examined 108 trials of 36 herbs and 9 vitamins in over 4000 patients with diabetes or impaired glucose tolerance. Although studies were heterogenous in quality, the best evidence from randomized controlled trials was found

for the herbal supplements Ginseng and *Coccinia indica* (ivy gourd). Promising preliminary results were seen for the botanicals *Gymnema sylvestre*, aloe vera, vanadium, *Momordica charantia* (bitter melon),

Aloe vera is a cactus plant that is commonly used as a food product. It can be cooked directly from fresh plants or consumed as a juice or from canned products. An early systematic review found 10 studies demonstrating that oral administration of aloe vera might be a useful adjunct for lowering blood glucose in diabetic patients as well as for reducing blood cholesterol levels in patients. A more recent systematic review of dietary botanicals and herbal approaches in diabetes reported no additional new evidence from large clinical trials to further support the use of aloe vera in diabetes control.

A dietary alternative for type 2 diabetes used by patients is apple cider vinegar taken with meals. There is preliminary evidence to suggest that 2 to 3 tablespoons of this product given at mealtimes may reduce hemoglobin A1C (HbA1c) and postprandial glucose. In patients with well controlled type 2 diabetes with mean diabetes duration of 4.9 years, body mass index (BMI) of 29.0, and baseline HbA1c of 6.7%, apple cider vinegar ingestion at a dose of 2 tablespoons at bedtime was shown in a

small pilot study (n = 10) to reduce next-morning fasting glucose by 4% to 6%. Another study found a modest benefit of 0.22% and 0.38% reduction in HbA1c level with liquid vinegar at 2800 milligrams (mg) daily for 12 weeks.

Other dietary products reviewed in studies that have been associated with potential benefit are fenugreek (Methi) and cinnamon (DaalChini) spices used in cooking ; and *Gymnemasylvestre* (Herbal Tea, garlic (Lehsun), and *Momordicacharantia* (bitter melon) (Karela). The evidence for efficacy of these dietary products in type 2 diabetes is insufficient to warrant their recommendation for glycemic control. However, since these food products are unlikely to cause harm when consumed in ordinary meals, clinicians may wish to support patients who use them, as part of the collaborative relationship to manage the disease long-term. Indeed, inquiring about use of these food products should be a routine part of questioning patients' lifestyle practices for diabetes management and an integral part of culturally effective communication that also addresses patient health literacy.

Resveratrol is a polyphenol identified in many plant species including grapes, nuts, mulberries, pine trees, and red wine. Animal and laboratory studies have identified antioxidant, anticancer, antiproliferative, and antibacterial effects. Recently attention has been directed toward resveratrol for its chemopreventive activities against several cancers and for its potential health benefits against coronary artery disease.

A Glass (50ml) of red wine provides approximately 320 micrograms (mcg) of resveratrol. When consumed in its natural sources, resveratrol has no evidence of toxicity. Resveratrol is not believed to have specific benefits for glycemic control in type 2 diabetes.

Patients Continue to Use Supplements Despite Lack of Evidence.

Maintaining current knowledge of the efficacy and harm posed by the most commonly used products remains an important goal for clinicians managing diverse patients with varied cultural and dietary practices.

Information about alternative dietary and supplementary approaches to diabetes care is available at a number of evidence-based resources. The *Natural Medicine Comprehensive Database* is a comprehensive database that provides evidence-based clinical information on natural products.

Case Resolution :

Mr. Ajay has moderately good control of his glycemia and is open to a dietary approach that takes into account his cultural identity and his family's dietary patterns. Involving his family in the best approach to controlling diabetes and would enhance his adherence. He may be advised to lower the fat (Red Meat) and carbohydrate (Refined Flour or MAIDA) content of prepared foods and to increase fiber (Veggies) and reduce high glycemic index foods (Rice). Among the dietary approaches, adding Aloe Vera and cinnamon, if attractive to him and his family, have the potential to further improve glycemia. In addition, the use of 2 tablespoons of apple cider vinegar at bedtime, if palatable to him, and which is considered a food supplement rather than a medication, may further improve his glycemia.



फिर गले लग गयी

—डॉ० श्रीधर द्विवेदी

मदर डेयरी से बाहर निकलते ही नजर सामने आ रहे 'क' पर पड़ी। क मझोले कद के बड़े खुशनुमा अत्यंत सज्जन व्यक्ति थे। कई वर्षों से उन्हें ब्लड प्रेसर था। सैर और योगाभ्यास का नियमित पालन करने वाले 'क' धूम्रपान के पुराने शौकीन थे। सिगरेट के शौक ने उन्हें बहुत जल्दी खल्वाट (गंजा) बना दिया था। बहुत दिनों से उनसे आमने – सामने भेंट—नमस्कार नहीं हुई थी। सैर पथ में बहुत दूर से ही हाथ हिला कर हैलो—हाय हो जाती थी। इधर मैंने उन्हें सिगरेट पीते अपनी आँखों से नहीं देखा था। यह उनके निजी चिकित्सक के परामर्श, उनकी धर्मपत्नी का दबाव और कुछ मेरे बारम्बार टोकाटाकी का प्रतिफल था।

आज सपाट सर पर टंडक से बचने के लिए उन्होंने टोपी पहन रखी थी। उनके बायें हाथ में थैला था। वे अपने में कुछ खोये से दिखे फिर भी मैंने उन्हें बलात नमस्कार किया। गर्मजोशी से हाथ मिले। कुशल क्षेम का आदान –प्रदान हुआ। इशारों—इशारों में मैंने पूछा धूम्रपान बंद है या नहीं? बड़े संकोच भाव से अपनी मृदुल हँसी के साथ बोले दिन भर बस दो –चार। दो साल छोड़ दिया था। फिर गले लग गयी। उनके इस वाक्य में कितना दम था। धूम्रपान से उत्पन्न धूँ के यात्रा पथ का सम्पूर्ण निरूपण। धूम्रपान का धुआं मुख से गले में फिर वहां से उतर कर स्वांस नली में उसके बाद फेफड़ों के सूक्ष्मातिसूक्ष्म वायु कोशों में जहाँ उसके अंदर उपस्थित निकोटिन, कार्बन मोनो आक्साइड तथा अन्य कैंसर कारक विषैले तत्व खून में घुलमिल कर हृदय मार्ग से पूरे शरीर में निर्बाध रूप से संचरित होते हैं। जिसकी अंतिम परिणिति होती है मुख के कैंसर से, गले और फेफड़े के कैंसर से, कम उम्र में हृदयघात (दिल के दौररे) से, ब्लड प्रेसर, डायबिटीज की उग्रता से, पैरों में गैंग्रीन से, पक्षाघात—लकवे से, नाना प्रकार की बीमारियों से। ऐसी होती है धूम्रपान के धुँ की मारक यात्रा जिसे हमारे मित्र अपनी अबोधता—विवशता के चलते कह रहे थे 'फिर गले लग गयी'। यह सिर्फ गले नहीं लगती बल्कि निर्ममता पूर्वक गला काट देती है आपका वध कर देती है। ऐसी क्रूर है यह प्रवृत्ति धूम्रपान की लत।

तम्बाकू

—डॉ० श्रीधर द्विवेदी

तम्बाकू में तम ही तम है,
कू है क्रूर कालकूट है,
देति है हृदयघात पक्षाघात,
कैंसर नासूर महाविनाशिन है।

टिप्पणी —तम — अंधकार, कू — पिशाची, कालकूट — तीव्र विष—तम्बाकू में ७३५७ विषैल रसायन हैं,
हृदयघात — दिल का दौरा, पक्षाघात — लकवा, नासूर — गैंग्रीन, महाविनाशिन — अनेक रोगों को देने वाली

चिंता ऐसी घातिनी जल्दि बूढि करि देहि, नींद केश द्वौ लै उड़ी हृदयघात पुनि देहि।

—डॉ० श्रीधर द्विवेदी

टिप्पणी: अत्यधिक चिंता एक खतरनाक प्रवृत्ति है। कहावत है 'चिंता चिंता से बढ़ कर है'। ऐसा कहा जाता है जब औरंगजेब ने अपने पिता बादशाह शाहजहां को आगरे के लालकिले में कैद कर लिया तो बादशाह के सारे बाल एक रात में सफेद हो गये। सबेरे जब दासी उनकी सेवा में उपस्थित हुई तो उसकी आँखों को सहसा विश्वास नहीं हुआ की हुजूर आलम के बालों को अचानक हो क्या गया? उनके बाल एकदम से सफेद कैसे हो गये? उसे क्या मालूम की बादशाह के दिमाग में कितना तूफान होगा? आखिर अपनी ही संतान ने उन्हें कैद कर लिया था और तख्ते ताउस पर कब्जा कर लिया था। बाल सफेद होने के पीछे बादशाह की अपार चिन्तातुरता थी। आज की जिंदगी में हर व्यक्ति कम से कम समय में किसी प्रकार अधिक से अधिक आर्थिक और भौतिक समृद्धि चाहता है। इस अभीष्ट की प्राप्ति के लिए जी तोड़ संघर्ष करता है। जरा सी असफलता उसे चिंतित, हताश, निराश कर देती है। त भयातुर बना देती है। अनेक प्रकार की चिंतायें उसे घेर लेती हैं। यह भी देखा गया है अर्थ हानि के अतिरिक्त जब किसी के अत्यंत आत्मीय या निकट सम्बन्धी की अचानक मृत्यु हो जाये, परिवार में कोई गंभीर रूप से घायल या रोगग्रस्त हो जाये अथवा निजी संबंधों में दरार पड़ जाये जैसे तलाक या डाइवोर्स की परिस्थिति उत्पन्न हो जाये उस समय प्रभावित पुरुष या महिला विषम तनाव में हो सकते हैं। ऐसे व्यक्ति की नींद गायब हो जाती है। ऐसे तनावग्रस्त लोग बहुत जल्दी बूढ़े दिखने लगते हैं। उनके बाल कम उम्र में सफेद पड़ने लगते हैं। केश झड़ने लगते हैं। चांद खाली हो जाती है। हमेशा चिंता में डूबा रहने वाले ऐसे प्राणियों का दिल भी तनावग्रस्त रहता है। उसकी धमनियों के अंदर खराब चिकनाई का ढेर लग जाता है और वह बहुत जल्दी हृदय रोग का शिकार हो जाता है। कुसंयोग से हमेशा चिंतित रहने वाला ऐसा व्यक्ति यदि धूम्रपान या मदिरापान का शौकीन हो तो निश्चित समझिये उसे हृदयाघात का मुंह भरी जवानी में ३०-४० वर्ष की उम्र में देखना पड़ सकता है। चिंता और हृदयाघात विषय पर हृदय रोग के प्रख्यात विद्वान सलीम युसूफ महोदय की अगुवाई में अंतर्राष्ट्रीय स्तर का बहुचर्चित एक विशद अध्ययन हुआ है जो लैंसेट नामक जर्नल में २००४ में प्रकाशित हुआ है। इस अध्ययन को कोई भी जिज्ञासु पाठक पढ़ सकता है और अपनी ज्ञान-पिपासा शांत कर सकता है। कहना न होगा आज से हजारों वर्ष पूर्व गीताकार ने हमारे चिंतातुर स्वभाव को समझते हुए कहा था क्यों चिंता करते हो? अपना कर्म करो और सब चिंता मेरे ऊपर छोड़ दो। मेरी शरण में आ जाओ। यहाँ पर मेरे शरण में आने का अर्थ अपने अपने इष्ट की शरण में जाने से लगाना चाहिए। चिंता से मुक्ति का एक और सरल उपाय है रोजाना ध्यान (मेडीटेशन) की आदत। कितना सरल और सहज उपाय बशर्ते हम इसे सही रूप में अपनायें। इस तरह व्यर्थ की चिंता से मुक्ति पायें।

TIPS FOR HEALTHY HEART

Prof. S Dwivedi

MD, PhD, FRCP (London), FAMS

Senior Consultant Cardiologist, National Heart Institute, New Delhi - 110065

**Quit tobacco immediate,
Exercise yoga meditate,
Eat fruits veg adequate,
Sleep eight hours regulate
Tips for healthy heart,
So says National Heart.**

Note : Tobacco means all smoking as well as smokeless gutkha, paan masala, surti, khaini, hookah bar smoking, e-cigarettes etc.

TRAVEL AND THE DIABETES PATIENT

Dr. Surjadeep Sengupta, Consultant Diabetes & Metabolism-National Heart Institute.

New Year brings new hope and new plans to see the world. Plan & enjoy a vacation with family & friends during holidays.

Diabetics have to lead a normal life, which includes celebrating festivals, traveling and vacationing.

Travel planning is an Activity, which a Diabetic patient has to plan seriously in advance, for happy vacationing and otherwise.

Considerations:

1. For Diabetic patients it is preferable to stock up on drug, tablets and/or Insulin, for days more than the period of travel for reasons of unavailability (remote areas in the country) and non-availability (abroad, without prescriptions, unlike India).

Also, emergency situations may mandate extra days out of the residential space, so extra medicines would always be beneficial.

2. Food items abroad [or even nationally] may not be similar or expectedly, to a patient's choice.
Medical facilities and hygiene standards may vary.
3. Patients of Diabetes on Insulin need to be aware of the temperature conditions of the destination.

Recommendations:

1. The overall metabolic and Diabetic status should be as close to targets as possible, with stable control, prior to travel.
2. Have an adequate extra stock of drugs, insulin pens, needles, even spirit swabs, prior to travel.
3. For patients with associated major cardio metabolic complications like Bypass surgery etc. it is advisable not to travel to very remote areas where Medical facilities are inaccessible or unavailable.
4. Obtain proper medical insurance cover prior to travel and to have complete declaration of illnesses, to avoid confusion during necessary hospitalization.
5. A Diabetic patient should pre inform about his meal preferences and he/she should be knowledgeable about the alternatives available.
6. The Diabetic should carry an Identification card, glucose sachets, glucometers with adequate stock of strips, along with medicines.
7. Exercise schedule on vacation should be tried to be followed, and most modern hotels have gyms.

Otherwise, even side jumps or spot jogging and PT exercises in the room may suffice.

8. Indulge in outstation food but be vigilant enough not to overdo things. Alcohol should be in moderation and the informed patient can balance the calories.

Also, frequent walks in destination places would be helpful. So one should pack in good sports shoes.

One should avoid feasting and fasting.

9. **International travel :**

Travel between time zones needs to be prudent and well planned.

During prolonged travel, it is much better to have blood sugar levels on a slightly higher level than low, as meals can be missed or compromised on time zones.

Hypoglycemia has to be summarily avoided. So keep a packet of Biscuits handy, in dire cases of unavailability of food.

All the more important for flight delays, rescheduling and cancellations.

10. Travelling West to the USA gains about 8 hours and likewise a loss of 8 hours if one is travelling east, to India from the USA. Europe falls in between and likewise the Oceania group of countries on the Eastern sector.

So Basal insulin therapy can be initiated on the day of travel and followed up after a day's gap either way.

If one is on basal bolus therapy, an extra/less unit of bolus insulin can be given by the informed patient depending on the quantum of meal. If in doubt, skip it.

Pre mixed insulin – One can skip a dose if a schedule of meal is staggered or omitted.

Once the time schedule is stabilized, get back to the original insulin / drug schedule with Blood Glucose monitoring.

The above information would be a reasonable guideline for a travelling patient of Diabetes.

It is recommended that the patient should consult his physician and do a comprehensive pre travel check up to avoid glitch free travel.

Wishing everyone, especially my Diabetic patients, safe Travels & a very Happy 2018.

“Diabetes among Women - An unaddressed burgeoning peril”

Dr Raj Kumar Lalwani

*MBBS, MD (Med), GDDC Dip. Diabetes (Australia), FIMSA, Fellow Diabetes India
Senior Consultant Diabetologist, National Heart Institute, New Delhi*

With around 35 million diabetic women and around 7% incidence of Gestational Diabetes in India, the seriousness and gravity of the problem cannot be overstated. With the conventional roles of caretakers and homemakers, prevalent in close to 60% of urban and over 80% of rural or small town households, women have often ignored their own well being while ensuring that of their family members. Interestingly, Type 2 Diabetes has many risk components, which not only can be attributed to, but also are equally modifiable with the role of women in the family. Choice of foods, cooking methods, meal composition, its caloric density, use of trans-fats and white sugar are few examples, wherein a woman in her kitchen has a direct and decisive control. However, unfortunately, she has no formal training or knowledge about their relationship to Diabetes and this is where, a golden opportunity for prevention is lost!

A woman, as a mother, wife or a sister is uniquely placed in an Indian family. She has direct influence on three generations each of two extended families, to which she gets related through her marriage, and exposure to formal training and knowledge here, can only be a huge contribution towards the control of lifestyle disorders, a big triumph. I personally feel that if women in our society get actively and seriously involved in any socio-cultural reform directed to solve a disease like Diabetes, half of the battle will be won even before strategies are defined.

The other important component of the burgeoning health problem of diabetes is, its impact on **psychosocial issues**, which directly affect women and others who interact with them. These issues, do generate anxiety, depression, irritation, paranoia, volatile behavior and impair performance; tend to take a toll in terms of healthcare costs and financial losses to families and to the organizations they work for. In addition, workplace dynamics (and often politics), discriminatory behavior in health care delivery and non-availability of specialized support

services are issues which compound the impact of and complicate Diabetes care, often putting their lives and jobs in jeopardy. When undiagnosed or unattended, these psychosocial issues can create a chaos in their lives and visibly or invisibly for everyone else coming in contact with them, in their social sphere. Given the developing nature of our country and families, where we are grappling with choices in terms of lifestyle, food and health, situation is indeed, grave and frightening! Intentional misinformation and disinformation being spread by vested interest groups further complicate the issues.

The third area of concern is that problems in diabetic women keep changing with age. While PCOD, acne, excessive hair and obesity may be the pivotal concerns, till she gets married, menstrual irregularity and inability to conceive soon come to the forefront after marriage. Post marriage, these worries along with family responsibilities become a full time affair for many young diabetic women, already struggling with bodyweight, often causing blood glucose levels to go haywire and also affecting the unborn or newborns. Women working in shifts are even more disadvantaged when it comes to coping up with the career, family and diabetes all together and at once.

Offering Solutions: The following components of Diabetes Care are standard in my practice; I will urge everyone to inculcate them in their lives as religiously as they can:

- 1. Attention to Lifestyles:** Foremost is the need to highlight inadequacies and equally important is to counsel and train women on good diabetes control, its relation to quality of life, longevity and preservation of family resources, including financial. Remember, prevention saves money!
- 2. Art of Counseling:** Women often don the role of a caretaker or homemaker with utmost pride but that should not mean ignoring one's own health and living at the margins. Simple counseling on how ignoring diabetes, can disastrously affect

career growth of their children at a crucial juncture, later in life, say after ten to fifteen years, may work wonders. Women generally tend to be more receptive and consider the consequences more seriously, when the well being of entire family, especially of her children is linked with theirs.

- 3. Training Workshops:** Sessions and workshops geared towards coping up with jobs. Improving work conditions, avoiding changing shifts, promoting a conducive work culture, addressing workplace discrimination and driving sensitivity towards healthcare issues among the corporates are crucial. While few corporates have started attending to these concerns, there still needs to

be a more scientific and organized approach, involving all stakeholders towards a comprehensive healthcare solution, particularly towards special programs for diabetes among women.

While diabetes is a disease making inroads across households and becoming increasingly common, every diabetic individual needs personalized and specialized care. Working women Diabetics are most vulnerable to undertreatment. Regular communication with an expert, working out a treatment plan best suited for your individual concerns, can go a long way to help you feel in control and respond to changing needs of your body. Expert counseling and education, hold the key to success.

पान और सुपाड़ी की सांस्कृतिक मान्यता का सच

—डॉ० श्रीधर द्विवेदी

ईसा पूर्व ५००० वर्ष के आस पास यजुर्वेद के इस मन्त्र में देवताओं को पूजा स्वरूप ताम्बूल अर्थात् पान और पूगीफल यानी सुपाड़ी अर्पित करने की बात कही गयी है:

ॐ यत्पुरुषेण हविषादेवा यज्ञ मतन्वत ।

वसन्तोस्या सीदाजयम् ग्रीष्म इध्मः शरद्धविः ॥ यजुर्वेद ३१/१४)

पूगीफलम् महादिव्यं नागवल्ली दलैर्युतम् ।

एलादिचूर्णं संयुक्तं ताम्बूलं प्रतिगृह्यताम् ॥

ॐ भूर्भुवः स्वः गणेशाम्बिकाभ्यां नमः , मुखवासार्थं एलाल पूगीफल सहितम् ताम्बूलम् समर्पयामि ॥

इस मान्यता के अनुरूप लोग पान और सुपाड़ी को हर पूजा – संस्कार में देवताओं को अर्पित करने लगे। कालांतर में लोग इन दोनों चीजों को प्रसाद रूप में स्वयं सेवन करने लगे। उस समय किसी को यह नहीं मालूम था की सुपाड़ी अत्यंत नशीली वास्तु है। इसके निरंतर सेवन से मुख का कैंसर या अन्य भयानक बीमारियां जैसे डायबिटीज, उच्च ब्लड प्रेशर या हृदयाघात जैसी व्याधियां हो सकती हैं। एक और दुर्भाग्यपूर्ण बात यह भी हुई की सत्तरहवीं शताब्दी में जब तम्बाकू का प्रचलन भारत में हुआ उस समय कुछ अत्यंत सयाने और चालाक लोगों ने पान और तम्बाकू के साथ सुपाड़ी को भी मिलाना शुरू कर दिया जिससे उनके उत्पाद की स्वाद और सुगन्धि के नाम पर अधिक से अधिक बिक्री हो सके। आज हम इसी कुप्रवृत्ति का एक वीभत्स और घृणिततम उदाहरण गली गली सड़क-दर सड़क देश के हर कोने कोने बिक रहे गुटखा, पान मसाला, अकेले सुपाड़ी के विभिन्न प्रकार के पाउच और पैकेट बिकते देख रहे हैं। जिसका सेवन करके हमारे किशोर और युवा तथा युवतियां असमय में मुख के कैंसर और अन्य रोगों के शिकार हो रहे हैं। विचारणीय बात यह है कि संस्कृति कि स्वीकार्यता के नाम पर हम सुपाड़ी और पान के दुर्गुण को कैसे निरापद या पूज्य मान सकते हैं। एक ज्वलंत उदाहरण है नीलकंठ भगवन शंकर को प्रसाद रूप में हम धतूरा और भांग चढ़ाते हैं किन्तु उसे विषतुल्य समझ कर हम स्वयं नहीं खाते-पीते हैं। भोले बाबा तो नीलकंठ हैं। वे विषपान करके भी अजर अमर हैं। वह पूरे संसार का जहर अपने गले के नीचे एकत्र कर सुरक्षित रह सकते हैं परन्तु हम साधारण प्राणी ऐसा नहीं कर सकते हैं। चिकित्सा विज्ञान ने अब यह सिद्ध कर दिया है कि सुपाड़ी नशीली वस्तु है, विषमय है, कैंसर कारक है। सत्य यह है सुपाड़ी और पान हमारी संस्कृति का अंग होते हुए भी हमारे खान-पान का अंग नहीं हो सकती। ये दोनों वस्तुयें मानव स्वास्थ्य के लिए हानिकर हैं। सर्वथा त्याज्य हैं। तम्बाकू के साथ इसका मिश्रण करना हमारी संस्कृति, स्वास्थ्य और मानव जाति के प्रति जघन्य अपराध है।



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AIR POLLUTION

– Dr. Adarsh Kumar, Sr. Consultant Internal Medicine, NHI

An air pollutant is a substance in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced from a process, such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhaust, or the sulfur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of a secondary pollutant. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants.

Sources:

The anguish and outrage over Delhi's rising air pollution has a sense of déjà vu all over



Man-Made sources:

These are mostly related to the burning of multiple types of fuel.

- **Fumes** from paint, hair spray, varnish, aerosol sprays and other solvents
 - **Waste deposition** in landfills, which generate methane. Methane is highly flammable and may form explosive mixtures with air.
 - **Military resources**, such as nuclear weapons, toxic gases, germ warfare and rocketry
- Natural sources:**
- Dust from natural sources, usually large areas of land with little or no vegetation
 - Methane, emitted by the digestion of food by animals, for example cattle
 - Radon gas from radioactive decay within the Earth's crust.
 - Smoke and carbon monoxide from wildfires
 - Vegetation, in some regions, emits environmentally significant amounts of Volatile organic compounds (VOCs) on warmer days.
 - Volcanic activity, which produces sulfur, chlorine, and ash particulates.

Health effects:

Air pollution is a significant risk factor for a number of pollution-related diseases and health conditions including respiratory infections, heart disease, COPD, stroke and lung cancer. The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and premature death. The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, and the individual's health status and genetics. The

most common sources of air pollution include particulates, ozone, nitrogen dioxide, and sulphur dioxide. Children aged less than five years that live in developing countries are the most vulnerable population in terms of total deaths attributable to indoor and outdoor air pollution.



Cardiovascular disease:

Ambient air pollution exposure is a risk factor correlating with increased total mortality from cardiovascular events.

Associations are believed to be causal and effects may be mediated by vasoconstriction, low-grade inflammation and atherosclerosis. Other mechanisms such as autonomic nervous system imbalance have also been suggested.

Lung disease:

Research has demonstrated increased risk of developing asthma and COPD from increased exposure to traffic-related air pollution. Additionally, air pollution has been associated with increased hospitalization and mortality from asthma and COPD. Chronic obstructive pulmonary disease (COPD) includes diseases such as chronic bronchitis and emphysema.

Cancer:

It is noted the review further noted that living close to busy traffic appears to be associated with elevated risks of these three outcomes --- increase in lung cancer deaths, cardiovascular deaths, and overall non-accidental deaths. The reviewers also found suggestive evidence that exposure to PM2.5 is positively associated with mortality from coronary heart diseases and exposure to SO2 increases mortality from lung cancer, but the data was insufficient to provide solid conclusions. Another investigation showed that higher activity

level increases deposition fraction of aerosol particles in human lung and recommended avoiding heavy activities like running in outdoor space at polluted areas.

Children

Ambient levels of air pollution have been associated with preterm birth and low birth weight. A 2014 WHO worldwide survey on maternal and perinatal health found a statistically significant association between low birth weights (LBW) and increased levels of exposure to PM2.5. Women in regions with greater than average PM2.5 levels had statistically significant higher odds of pregnancy resulting in a low-birth weight infant even when adjusted for country-related variables. The effect is thought to be from stimulating inflammation and increasing oxidative stress.

Central nervous system:

In a June 2014 study conducted by researchers at the University of Rochester Medical Center, published in the journal *Environmental Health Perspectives*, it was discovered that early exposure to air pollution causes the same damaging changes in the brain as autism and schizophrenia. The study also shows that air pollution also affected short-term memory, learning ability, and impulsivity. Lead researcher Professor Deborah Cory-Slechta said that "When we looked closely at the ventricles, we could see that the white matter that normally surrounds them hadn't fully developed. It appears that inflammation had damaged those brain cells and prevented that region of the brain from developing, and the ventricles simply expanded to fill the space. Our findings add to the growing body of evidence that air pollution may play a role in autism, as well as in other neurodevelopmental disorders." Air pollution has a more significant negative effect on males than on females.

Historical disasters:

The world's worst short-term civilian pollution crisis was the 1984 Bhopal Disaster in India. Leaked industrial vapours from the Union Carbide factory, belonging to Union Carbide, Inc., U.S.A. (later bought by Dow Chemical Company), killed

at least 3787 people and injured from 150,000 to 600,000.

Alternatives to pollution:

There are now practical alternatives to the principal causes of air pollution:

- Areas downwind (over 20 miles) of major airports more than double total particulate emissions in air, even when factoring in areas with frequent ship calls, and heavy freeway and city traffic like Los Angeles. Aviation biofuel mixed in with jetfuel at a 50/50 ratio can reduce jet derived cruise altitude particulate emissions by 50-70%, according to a NASA led 2017 study (however, this should imply ground level benefits to urban air pollution as well).
- Ship propulsion and idling can be switched to much cleaner fuels like natural gas. (Ideally a renewable source but not practical yet)
- Combustion of fossil fuels for space heating can be replaced by using ground source heat pumps and seasonal thermal energy storage.
- Electric power generation from burning fossil fuels can be replaced by power generation from nuclear and renewables. For poor nations, heating and home stoves that contribute much to regional air pollution can be replaced by a much cleaner fossil fuel like natural gas, or ideally, renewables.
- Motor vehicles driven by fossil fuels, a key factor in urban air pollution, can be replaced by electric vehicles.
- Induced humidity and ventilation both can greatly dampen air pollution in enclosed spaces, which was found to be relatively high inside subway lines due to braking and friction and relatively less ironically inside transit buses than lower sitting passenger automobiles or subways.

Reduction efforts:

Because a large share of air pollution is caused by combustion of fossil fuels such as coal and oil, the reduction of these fuels can reduce air pollution



drastically. Most effective is the switch to clean power sources such as wind power, solar power, hydro power which don't cause air pollution. Efforts to reduce pollution from mobile sources includes primary regulation (many developing countries have permissive regulations), expanding regulation to new sources (such as cruise and transport ships, farm equipment, and small gas-powered equipment such as string trimmers, chainsaws, and snowmobiles), increased fuel efficiency (such as through the use of hybrid vehicles), conversion to cleaner fuels or conversion to electric vehicles.

Titanium dioxide has been researched for its ability to reduce air pollution. Ultraviolet light will release free electrons from material, thereby creating free radicals, which break up VOCs and NOx gases. One form is superhydrophilic.

In 2014, Prof. Tony Ryan and Prof. Simon Armitage of University of Sheffield prepared a 10 meter by 20 meter-sized poster coated with microscopic, pollution-eating nanoparticles of titanium dioxide. Placed on a building, this giant poster can absorb the toxic emission from around 20 cars each day.



Which Nut is the Best and Healthiest?

A new study positions walnuts in the No. 1 slot among a family of foods that lay claim to being among the most nearly perfect, packaged foods and it only takes 7 walnuts a day to get the benefits....

In a report at the 241st National Meeting & Exposition of the American Chemical Society, scientists presented an analysis showing that walnuts have a combination of more healthful antioxidants and higher quality antioxidants than any other nut.

Joe Vinson, Ph.D., who did the analysis stated that, "Walnuts rank above peanuts, almonds, pecans, pistachios and other nuts." "A handful of walnuts contains almost twice as much antioxidants as an equivalent amount of any other commonly consumed nut. But unfortunately, people don't eat a lot of them. This study suggests that consumers should eat more walnuts as part of a healthy diet."

Vinson noted that nuts in general have an unusual combination of nutritional benefits - in addition to those antioxidants - wrapped into a convenient and inexpensive package. Nuts, for instance, contain plenty of high-quality protein that can substitute for meat; vitamins and minerals; dietary fiber; and are dairy- and gluten-free. Years of research by scientists around the world link regular consumption of small amounts of nuts or peanut butter with decreased risk of heart disease, certain kinds of cancer, gallstones, Type 2 diabetes, and other health problems.

Despite all the previous research, scientists until now had not compared both the amount and quality of antioxidants found in different nuts, Vinson said. He filled that knowledge gap by analyzing antioxidants in nine different types of nuts: walnuts, almonds, peanuts, pistachios, hazelnuts, Brazil nuts, cashews, macadamias, and pecans. Walnuts had the highest levels of antioxidants.



Vinson also found that the quality, or potency, of antioxidants present in walnuts was highest among the nuts. Antioxidants in walnuts were 2-15 times as potent as vitamin E, renowned for its powerful antioxidant effects that protect the body against damaging natural chemicals involved in causing disease.

"There's another advantage in choosing walnuts as a source of antioxidants," said Vinson, who is with the University of Scranton in Pennsylvania. "The heat from roasting nuts generally reduces the quality of the antioxidants. People usually eat walnuts raw or unroasted, and get the full effectiveness of those antioxidants."

If nuts are so healthful and nutritious, why don't people eat more ?

Vinson's research shows, for instance, that nuts account for barely 8 percent of the daily antioxidants in the average person's diet. Many people, he said, may not be aware that nuts are such a healthful food. Others may be concerned about gaining weight from a food so high in fat and calories. But he points out that nuts contain healthful polyunsaturated and monosaturated fats rather than artery-clogging saturated fat. As for the calories, eating nuts does not appear to cause weight gain and even makes people feel full and less likely to overeat. In a study, nut consumption was associated with a significantly lower risk of weight gain and obesity. Still, consumers should keep the portion size small. Vinson said it takes only about 7 walnuts a day, for instance, to get the potential health benefits uncovered in previous studies.

Presented at a meeting of the American Chemical Society, March 2011



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