NHI Dialogue

Quarterly Health Magazine of Cardio Diabetes Research Society

Vol. 1 No. 28 July - Sept. 2013

CDRS

6 WAYS TO STOP DIABETES FROM MAKING YOU TIRED

The Secret (and Surprising) Power of Naps

NATIONAL HEART INSTITUTE

Editor in Chief : V. K. Gujral
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START early
STAY safe with

NovoMix™ 30 FlexPen®

(biphasic insulin aspart)

The 'Start Insulin' for type 2 diabetes[1]

Indian & International Guidelines support Premix, prefer Analogues[2,3]

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- Effectively controls PPG & FPG with one insulin, one device[6]
- Superior and safer therapy compared to Human Premix[7,8]
- Once daily NovoMix™ 30 - Simple,[4,5] superior[9] and economical[10]

Abbreviated Prescribing Information

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1. Shah S *et al. In Agarwal AK, editor.* Medicine Update (part 1)-The Association of Physicians India, 1st ed. India: A Publication of Association of Physicians of India, 2009. p. 383-8. **2.** Indian National Consensus Group. *J Assoc Physicians India* 2009;57(S1):42-6. **3.** Rodard H *et al. Endocr Pract* 2009;15 (6):540-59. **4.** Kabadi U *et al. Diabetes Res Clin Med* 2006;72(3):265-70. **5.** Garber A *et al. Diabetes Obes Metab* 2006;8(1):58-66. **6.** Global Product Monograph for NovoMix™ 30. **7.** Boehm B *et al. Eur J Int Med* 2004;15(8):496-502. **8.** Shah S *et al. Int J Clin Pract* 2009;63(4):574-82. **9.** Kalra S *et al. Diab Res Clin Pract* 2010;88:282-8. **10.** Based on comparision of MRP of NovoMix™30 FlexPen® vs Lantus SoloStar® as of Dec, 2010.

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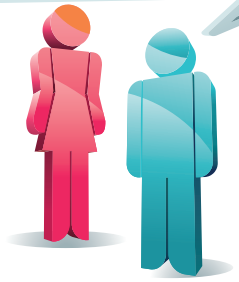

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Executive Editor / Desk Editor
drgujral19@gmail.com
contact@nationalheartinstitute.com
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EDITORIAL VOICE

Dear friends !

We, at CDRS & NHI are committed to provide carefully filtered information about diabetes and Heart disease prevention. Obesity being the point of origin of both these serious diseases, has to be prevented at childhood stage. The recent announcement from American Medical Association declaring obesity.

A DISEASE , is the most significant step in this direction. The disease of obesity can be better graded & managed if this information is percolated everywhere .

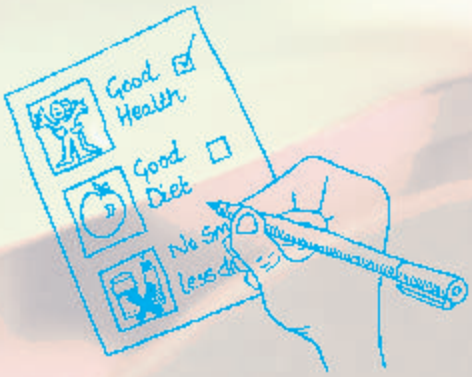
This issue presents you the original AMA report.

Hope the wider variety of articles will be of use.

Wishing a great Independence Day, Ramzan, Idul Fitr, NHI annual day & Raksha bandhan !

Your's

Vinod Gujral
drgujral19@gmail.com
www.diabetesheartcare.com



AMA DECLARES OBESITY A DISEASE

Marcia FrellickJun 19, 2013

CHICAGO — Physicians voted overwhelmingly to label obesity as a disease that requires a range of interventions to advance treatment and prevention.

However, there was impassioned debate in the hours before the vote here at the American Medical Association (AMA) 2013 Annual Meeting.

Although policies adopted by the House of Delegates have no legal standing, decisions are often referenced in influencing governmental bodies. This decision could have implications for provider reimbursement, public policy, patient stigma, and International Classification of Diseases coding.

"Obesity is a pathophysiologic disease. There is a treatment for this disease; it involves behavioral modifications, medications, and surgeons. Obesity affects minorities disproportionately," said Jonathan Leffert, MD, alternate delegate for Endocrinology, Diabetes, and Metabolism. "The scientific evidence is overwhelming."

Melvyn Sterling, MD, said this brings to mind to the debate over whether hypertension is a disease.

"I'm a general internist, among other things, and I treat the complications of this disease. It's interesting to look back in history at a time when hypertension was not thought to be a disease," said Dr. Sterling, who is from the AMA Organized Medical Staff Section, but was speaking for himself. "Obesity is a disease. It's very, very, very clear that even though not every hypertensive gets a stroke and not every obese person suffers the complications, that does not change the fact that this is a disease."

Some Not Convinced

Others testified that the measure for determining obesity is imperfect and although it is an epidemic, obesity does not meet the criteria for disease.

Russell Kridel, MD, incoming chair of the AMA Council on Science and Public Health (CSPH), told Medscape Medical News that there is no debate about the importance and urgency of addressing the problem, but he doesn't believe it qualifies as a disease.

"It's more like smoking. Smoking isn't a disease. Smoking can cause disease such as lung cancer and emphysema in the same way that obesity can lead to diabetes and hypertension," he explained. "We're really talking nomenclature here, not philosophy."

He noted that behavior and dietary choices play a part in obesity. "Thirty years ago, we did not have the obesity problem we have now. If you look scientifically at what has changed, our diet has changed. There's been no change in our genetic structure in the past 30 years."

Dr. Kridel said he would like to see more attention focused on prevention and personal responsibility. The CSPH issued a 14-page report opposing the classification of obesity as a disease.

"We did not think the evidence rose to the level where obesity could be recognized as its own distinct medical disease state. Obesity is a very serious condition. It's a scourge on our nation. It's an epidemic. It's a significant risk factor for many other diseases," said Robert Gilchick, MD, speaking on behalf of the CSPH. "But that does not alone make it a distinct medical disease state."

He explained that because body mass index, an imperfect measure, is used to determine obesity, people who are otherwise healthy are being diagnosed as obese.

"Why should one third of Americans be diagnosed as having a disease if they aren't necessarily sick?" he asked.

One Third of Americans

According to the Centers for Disease Control and Prevention, 35.7% of Americans are obese. Obesity-related conditions, including heart disease, stroke, type 2 diabetes, and certain cancers, are some of the leading causes of preventable death.

In other AMA actions, a policy that supports banning the marketing and sale of high-energy drinks to anyone younger than 18 years was adopted.

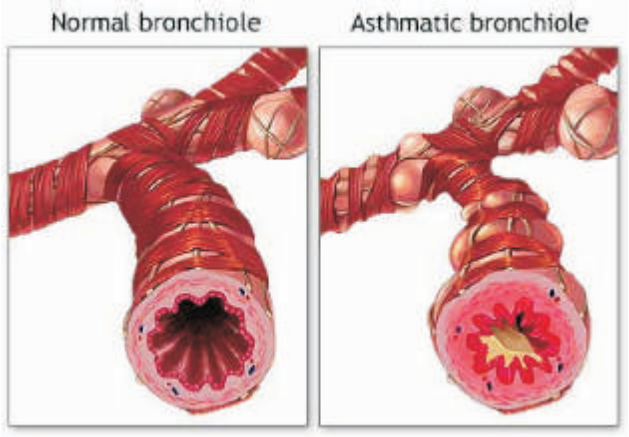
Also accepted was a policy that supports letting students have sunscreen at school without restrictions. Currently, most states don't allow students to possess over-the-counter medications in school without a note from a physician. Sunscreen is considered an over-the-counter medication because it is regulated by the US Food and Drug Administration.

Bronchial Asthma

Dr. Deepak Choudhary M.D. F.C.C.P.

Asthma is one of the most common chronic diseases in the world. Conservative estimates state that it affects nearly 300 million people worldwide, affecting both adults as well as children. In India, the World Health Organisation estimates there to be 15-20 million asthmatics. Rough estimates indicate a prevalence of 10-15% in children between 5 and 11 years of age.

Asthma is described as a syndrome characterized by hyper-responsiveness of the airways leading to varying levels of airflow obstruction. Asthmatics harbor a specific kind of inflammation to substances – 'triggers' – which causes their airways to become narrow. This leads to symptoms of cough, chest tightness, breathlessness and wheezing. Although a specific definition of Asthma is difficult to agree on, the clinical syndrome and disease pathology is well described.



Asthma can essentially be simplified as a severe protective response. The body in its infinite wisdom and myriad complex pathways attempts to fight off foreign elements. One of the mechanisms adopted by our body to fight off these foreign elements results in a state commonly referred to as 'Allergies'. Many asthmatics are unaware of a trigger substance or a risk factor that may be responsible for setting off a current bout of symptoms. Some common risk factors are - genetics, occupational exposures, active/passive smoking and various indoor and outdoor allergens. People with a family history are more sensitive to allergens and tend to have more severe responses. A wide host of triggers of Asthma exist – ranging from dust, pollen, fungi, cold air, drugs, perfume sprays and even exercise.

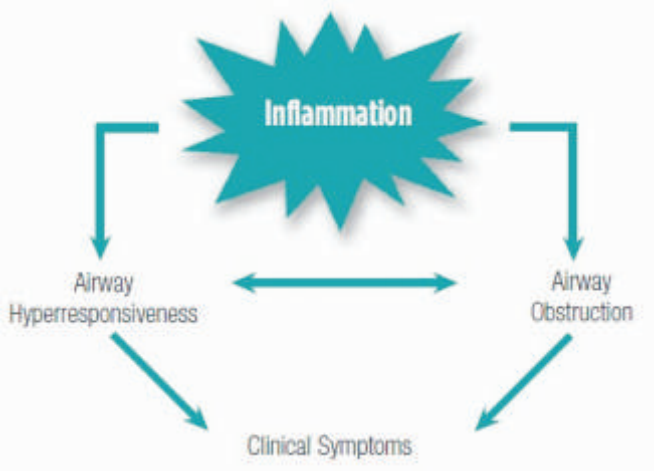
While understanding the pathology of Asthma, patients are encouraged to grasp everyday terms used by physicians to diagnose and monitor the progress of the disease. Once a person is exposed to a specific allergen or trigger, the body starts a mechanism trying to prevent further entry of the foreign substance. This involves increasing secretions, closing the airways, releasing fighter cells into the skin as well as the entire body. When these mechanisms go into over-drive or are in a misdirected state, out of the many disorders that arise – one is Asthma. Mast cells, often introduced to patients as Mean cells, are the major cells responsible for the airway response to Asthma. They release chemicals – cytokines and leukotrines - that cause symptoms of cough, breathlessness, wheezing, runny nose, sneezing, nasal congestion. These mean cells are given the specific triggers by a molecule known as IgE which is an antibody that carries a substance to a cell.

The mechanism is usually explained as “I gEeve trigger to the Mean cells to fire at will.”

The measurement of IgE levels also serves as a good screen for the presence of any allergic etiology.

Although, this suffices as a rudimentary explanation to the functioning of triggers, recent research has shown that a person's innate immunity (passed on from parents and family) determine how we respond to these stimuli. Hence, individuals with family history of asthma tend to have episodes in childhood as well as adult life.

Identifying asthma by way of clinical symptoms is essential. Typically, a persona suffers from severe bouts of coughing, which is worse late at night or early in the morning. The cough may or may not have any sputum/phlegm. When an Asthma is triggered by a specific allergy, patients may complain of watering of eyes, sneezing, runny nose, skin rash along with other symptoms. A very common complaint of patients is the sound of wheezing. This sounds like a musical expiration which occurs in moments of bronchospasm.



In severe attacks of asthma, the person's airways may close up so much that they are sometimes breathless and gasping for breath. This is a possibly life threatening condition known as Status Asthmaticus. In these situations, immediate medical help and admission to a hospital facility is necessary. As in any disease scenario, there can be a wide range of presentations to disease and any level of suspicion should be dealt with appropriate caution and thorough investigations.

A silent chest in an Asthmatic patient who is breathless and gasping for breath is a very serious sign. This is seen in individuals during Status Asthmaticus and can signify a severe spasm with restricted air entry.

Danger Signs !!!

- Breathlessness or a respiratory rate of beyond 24 breaths per minute
- Hypoxia or fall of oxygen saturation levels - person may feel cold, turn blue/purple. Oxygen saturation below 88 % on pulse oximetry can be dangerous
- Altered consciousness or orientation - person may not be able to stay awake or may not be oriented to time, place or person
- Decrease in peak expiratory flow rate
- Unable to perform daily activities due to laboured breathing, fatigue or loss of consciousness

A detailed medical history and physical examination are essential to diagnose asthma. Patients presenting with Asthma like symptoms should be dealt with a high degree of suspicion and specialists must be consulted early so as to correctly and quickly arrive at a diagnosis. A brief snapshot of the typical history is outlined here. Occupation history is an often forgotten aspect which is necessary to identify forgotten triggers at the work place.

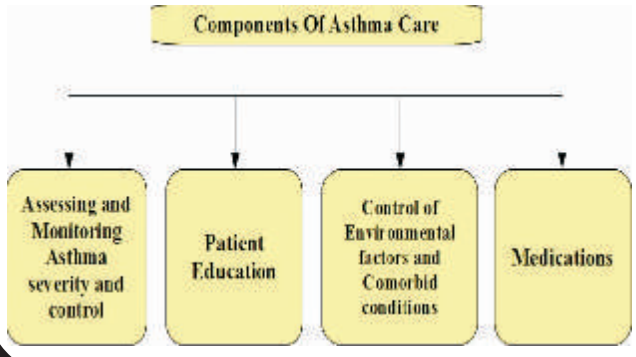
- Wheezing—high-pitched whistling sounds when breathing out—especially in children. A lack of wheezing and a normal chest examination do not exclude asthma.
- History of any of the following:
  - — Cough (worse particularly at night)
  - — Recurrent wheeze
  - — Recurrent difficulty in breathing
  - — Recurrent chest tightness
- Symptoms occur or worsen in the presence of:
  - — Exercise
  - — Viral infection
  - — Inhalant allergens (e.g., animals with fur or hair, house-dust mites, mold, pollen)
  - — Irritants (tobacco or wood smoke, airborne chemicals)
  - — Changes in weather
  - — Strong emotional expression (laughing or crying hard)
  - — Stress
  - — Menstrual cycles
- Symptoms occur or worsen at night, awakening the patient.

There exist a whole gamut of diagnostic modalities available for respiratory conditions. One of the most widely accepted and informative tests available today is a Pulmonary function test, or simply a lung function test. This allows the chest physicians to grasp the extent of the disease affecting the lungs as well as response to medicines and permanent damage, if any. For the diagnosis of Asthma, all tests should

be conducted with a pre and post bronchodilator administration. This assesses the responsiveness of the airways to medicine in Asthma and its specific response. Pulmonary function tests are useful in diagnosing a wide range of lung conditions – from Asthma, Chronic Obstructive Pulmonary disease to Interstitial lung disease.

Patients who may not report any significant symptoms and have no immediate distress may yet still have an increased hyper-responsiveness of the airways. A test which helps diagnose this is known as the Bronchoprovocation test – Direct with Methacoline, histamine or Indirect with exercise, cold air/eucapnic voluntary hyperventilation, hypertonic saline or mannitol. This essentially mimics a trigger reaction to the airway hyper-responsiveness and needs to be conducted under supervision of a trained medical professional. Although its use is decreasing with the advent of PFT technology and awareness, it is still used to assess individuals with a normal PFT and strong clinical suspicion of Asthma. Since this test simulates an asthma attack, it is contraindicated in certain patients with uncontrolled hypertension, moderate to severe obstructive airway disease, recent heart attack (3 months), pregnancy.

The most essential concept in Asthma Care is that there is no cure, only control. A key component to ensuring good Asthma control is patient education. This may seem a daunting task, but a strong disciplined approach helps a patient prolong symptom free episodes and lead a normal life. An understanding of the major medication groups helps involve and educate patient's in their care.



In an acute exacerbation, medication classes which are beneficial for the quick relief from symptoms are -

1. Short acting adrenergic bronchodilators such as albuterol, levalbuterol are the commonest drugs used in the acute setting. They are used across the spectrum of asthma management and are relatively safe.
2. Anticholinergics such as Ipratropium bromide are used in patients who are unable to tolerate traditional short acting bronchodilators.
3. Corticosteroids. Although these are not short acting, many a times they are added in an acute setting of moderate or severe exacerbation. Corticosteroids have potent anti-inflammatory action and help in reducing airway inflammation. Most pulmonologists strive to reduce patient dependance on these drugs, however in the case of severe persistent asthma sometimes it is necessary to keep the patient on these medicines.

Medicines which are used in long term management, along with the above mentioned are -

1. Methyl Xanthines such as Theophylline also cause bronchodilation using a mechanism different from the adrenergic and anticholinergic drugs mentioned earlier. These drugs have also been found to have a mild anti-inflammatory effect.
2. Long Acting adrenergic bronchodilators such as Salmetrol and Formeterol have a duration of at least 12 hours and are essential in aiding longer duration bronchodilation.
3. Inhaled Corticosteroids are the most consistent long term control medication in all steps of persistent asthma. These have anti-inflammatory properties which reduce airway hyper responsiveness. These are also relatively safer than oral steroids.
4. Leukotrine antagonists such as Monteleukast, Zafirleukast interfere with degranulation of Mast cells ('mean cells') as well as other cells that release chemicals that cause many of the

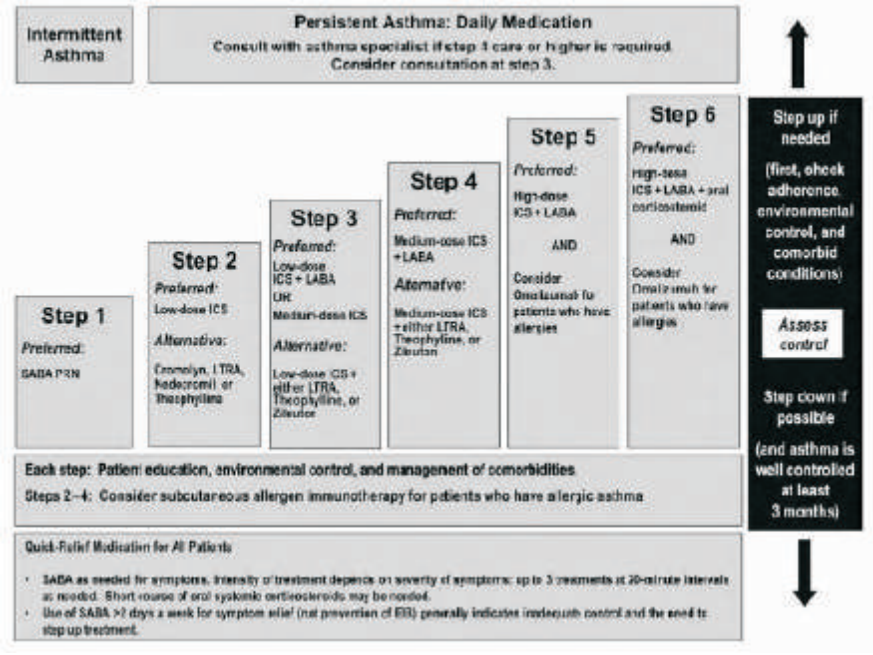
symptoms. These are used as protective tablets for prevention.

5. Chromolyn sodium and Nedocromil are similar drugs used to stabilize mast cells and prevent airway inflammation. These are no longer in widespread use as some studies have suggested that they may not be as efficacious as thought to be.
6. Immunomodulators such as Omalizumab which is an anti-IgE monoclonal antibody can be used in in adolescents with persistent severe asthma. A recent development, this has shown to significantly reduce asthma exacerbation in persistent asthmatics, especially atopic individuals. Most evidence based trials have been conducted in persistent asthmatics who are adolescents or young age group and have found this to be very useful. Ongoing evidence has been positive so far, with many trials in older age groups and a wide range of parameters still being carried on.

Inhalation delivery of drugs depends on the patient's clinical status and understanding of the usage of various modalities such as nebulizer, metered dose inhaler, easy haler, auto haler, rota haler. It is the prerogative of the physician to teach patients the proper use of these devices. By providing a demonstration, following up with the proper device use and adding adjuncts like spacers as needed, it is possible to ensure that adequate drug delivery is achieved.

Pulmonologists also equip patients with the knowledge of other tools of assessment such as monitoring a regular peak expiratory flow rate, oxygen saturation using a pulse oximeter and avoidance/control of known triggers. Every asthmatic is encouraged to understand his baseline peak expiratory flow, calculated using weight and height measurements from population studies. Frequent monitoring, especially during times when allergen/trigger levels are increased can lead to pre-emptive action and good prophylactic control of symptoms. Similarly, pulse oximetry monitoring ensures that the patient is able to identify and seek immediate medical attention during a severe breathless spell. This education is imparted to children as well as adults and family members. The earlier the grasp of these tools, the greater the benefit and control over one's Asthma is possible.

Asthma medications are modulated in a unique 'Stepwise Approach' in relation to the classification of patient's symptoms. Chest physicians may 'step up' or 'step down' in this approach depending on the patient's condition and may even 'half step' or change the drug regimen from patient to patient. These guidelines are a simple guiding light to help standardize and streamline Asthma treatment to eventually control this disease.



6 WAYS TO STOP DIABETES FROM MAKING YOU TIRED

The first step toward feeling better is to talk to your doctor. Your doctor will check your overall health, including how well your diabetes is controlled and whether you have any other medical conditions that need attention. It will help if you keep a diary for a week or two for your doctor. In it, write down: Your blood sugar levels. How stressed you feel. Some people feel burned out from the effort it takes to manage diabetes every day .How often and how much you exercise. What you eat and when you eat it and how much you eat .How much and how well you slept. If you wake up at night because you're snoring, need to use the bathroom, or if anything else .interrupts a full night's sleep. How you feel when you wake up in the morning. Do you feel rested or tired? Together, you and your doctor can make a plan to boost your energy level. Your plan may include :

6 Tips to Get Your Energy Back

1. **Exercise.** Move more, and you get more energy. People who take a brisk, daily 30-minute walk are less tired than idle people, says Cynthia Fritschi, PhD, RN, CDE, assistant professor in the biobehavioral health science department at the University of Illinois at Chicago College of Nursing.

   Choose an activity you like, whether it's Zumba, tennis, walking, gardening, or swimming. Do it for at least 30 to 60 minutes a day. If you can't spare that much time at once, sneak in shorter (10-minute) periods of exercise whenever you can. As long as it adds up to 30-60 minutes per day, that's what counts.

   Wear a pedometer so you know how many steps you're taking each day. Try to add 500 steps a day until you reach at least 10,000 daily steps, says Geralyn Spollett, MSN, ANP, CDE, of the American Diabetes Association and Yale Diabetes Center.

2. **Watch your diet.** To keep your blood sugar level steady, eat three healthy meals and a snack during the day. Include healthy carbohydrates from fruits and vegetables and whole grains, as well as lean protein from sources such as beans, tofu, fish, or skinless chicken breasts.

3. **Avoid caffeine, especially late in the day.** Caffeine can keep you awake and disrupt sleep. It can also make it harder to control your blood sugar, if you overdo it.

4. **Get enough B vitamins.** B vitamins help nerve health. If you have nerve problems from diabetes, make sure you're getting these nutrients from your diet (good sources are foods such as fish, poultry, fortified cereals, and eggs) or a supplement. It's a good idea to tell your doctor about any supplements you take, including vitamins, so they can check that you're getting the right amount.

5. **Check on your snoring.** Many people with diabetes briefly stop breathing several times at night. That's called sleep apnea. Symptoms include snoring, feeling sleepy during the day, having trouble concentrating, and often waking up with a headache or sore throat. Tell your doctor if you, or your bed partner, notice those things. Sleep apnea can be treated, and that could help you get better at night, which gives you more daytime energy.

6. **Stay hydrated.** You can become fatigued if you're dehydrated. Drink at least 8-9 glasses of fluids a day.

10 Tips to Heal Cracked and Dry Lips!

The summer is here, and so are many cracked and dry lips. If this happens to you, know that there are a number of home remedies you can use for immediate relief, and even for quicker healing.

Here are 10 tips to take care of those hurting lips :

1. Cucumber slices - This may usually be considered as a treatment for puffy eyes, but the high moisture in the cucumber as well as its vitalizing substances, will help ease chopped lips and make for a reasonable substitution for lipstick or vaseline.

2. Aloe vera- In addition to the plant treating burns, wounds and skin defects, the Aloe vera plant is useful for treating and nourishing cracked and dry lips. The only downside is the strong odor that comes off it.

3. Castor Oil- If you suffer from constipation you probably have some castor oil or paraffin around the house. Smear a bit on your lips with your finger, it will nourish the dry lips and immediately relieve the feeling of burning.

4. Cream- The high concentration of oil in the cream make it an effective treatment of chopped lips. So next time you're out of aloe vera, try some cream.

5. Honey- Yes, honey is a great source of moisture and nourishes the skin. Smear honey on the hurting lips to nourish them and enjoy the sweet taste. The stickiness is a bit unpleasant at first, but it passes quite quickly.

6. Sugar peel- In order to quicken the rate of healing, it is best to remove the dead skin from the lips. Mix a few drops of water with a tea spoon of sugar and massage your lips, then immediately rinse with water to remove the dead skin.

7. Avocado - Other than being yummy, the avocado also contains oils that will nourish those dry lips and even give them a shiny, glossy look.

8. Olive oil - Like castor and paraffin oils, olive oil can also heal burning and chopped lips, due to its high concentration of oil and vitamins that quicken the healing rate.

9. Vitamins- Taking multi-vitamins can also help shorten the time healing time of cracked lips, as well as eating vitamin A rich foods, such as carrots, apricots and spinach.

10. Drink a lot- To help the healing process as well as not getting therein the first place, drink more water than you usually drink. Nourishing the cells 'from the inside' is no less important than any of the others on this list.

Men With ED : 25% Are Aged 40 Years or Younger

Traditionally considered the bane of aging men, erectile dysfunction (ED) is surprisingly common in younger men as well, the authors of a new study report.

Of 439 men visiting a sexual medicine outpatient clinic complaining of new-onset ED, 114 (26%) were 40 years old or younger, lead author Paolo Capogrosso, MD, from the Department of Urology, University Vita-Salute San Raffaele, Milan, Italy, and colleagues write in an article published online May 7 in the Journal of Sexual Medicine.

Moreover, the rate of severe ED was similar in younger and older men, and scores on the International Index of Erectile Function (IIEF) also were similar between the age groups. "Therefore, the observation as a whole appeared to us as a worrisome picture from the everyday clinical practice," the authors write.

For this retrospective analysis, which included men visiting the clinic between January 2010 and June 2012, the authors defined ED as "the persistent inability to achieve or maintain an erection sufficient for satisfactory sexual performance." In addition to undergoing a comprehensive medical evaluation, including a detailed medical and sexual history and measurement of circulating testosterone levels, the men completed the IIEF, a 5-item questionnaire covering various aspects of sexual performance and satisfaction. Each item is scored from 1 to 5, with overall scores from 22 to 25, indicating no ED, and from 5 to 7, indicating severe ED.

Compared with men older than 40 years, younger men had fewer comorbidities, a lower mean body mass index, lower rates of hypertension and hypercholesterolemia, and higher mean levels of circulating testosterone ($P \leq .02$ for all comparisons). Premature ejaculation was more common in younger men, whereas older men had higher rates of Peyronie disease ($P = .03$ for both comparisons). Low libido was reported by 10 younger patients (8.8%) and 23 (7.1%) older patients ($P = .55$). Older patients were more likely to be taking medications such as antihypertensive or antidiabetic agents, drugs for uricosuria and lower urinary tract symptoms, and proton pump inhibitors ($P \leq .03$ for all comparisons). Younger men, however, were more likely to smoke cigarettes and to use marijuana or cocaine ($P \leq .02$ for both comparisons). There was no difference in the rates of alcohol use between the groups.

On the IIEF, 56 (48.8%) of the younger men and 132 (40.6%) of the older men had scores indicating severe ED ($P = .73$).

Potential limitations of this research include the relatively small cohort of men studied and their presence at a sexual medicine clinic, suggesting a possible selection bias for patients with more serious cases of ED. "However, we consider that this methodological flaw would be equally present in both age groups, thus not undermining the value of these findings," the researchers write. In addition, they did not assess the patients for depression or anxiety, they did not delve into the men's adolescent sexual history, and they did not account for socioeconomic differences among the patients.

These findings underscore the importance of taking a comprehensive medical and sexual history and performing a thorough physical examination in all men with ED, regardless of age, the authors conclude. "Likewise, given the low rate of seeking medical help for disorders related to sexual health, these results express even more the need that healthcare providers may proactively ask about potential sexual complaints, once more even in men younger than 40 years of age."

J Sex Med. Published online May 7, 2013. Abstract

The Secret (and Surprising) Power of Naps

Naps help, us especially if we takes them right after lunch.

So to combat fatigue and stay on top of things at work and at home, we can make power naps a regular part of our routine, setting an alarm for a short snooze.

Naps and Sleep Deprivation

Daytime naps can be one way to treat sleep deprivation, says Sara C. Mednick, PhD, sleep expert and author of Take a Nap! Change Your Life. "You can get incredible benefits from 15 to 20 minutes of napping," she says. "You reset the system and get a burst of alertness and increased motor performance. That's what most people really need to stave off sleepiness and get an energy boost."

The length of your nap and the type of sleep you get help determine the brain-boosting benefits. The 20-minute power nap -- sometimes called the stage 2 nap -- is good for alertness and motor learning skills like typing and playing the piano.

What happens if you nap for more than 20 minutes? Research shows longer naps help boost memory and enhance creativity. Slow-wave sleep -- napping for approximately 30 to 60 minutes -- is good for decision-making skills, such as memorizing vocabulary or recalling directions. Getting rapid eye movement or REM sleep, usually 60 to 90 minutes of napping, plays a key role in making new connections in the brain and solving creative problems

Naps Versus Coffee

Is taking a catnap better than reaching for a cup of coffee ? Yes, Mednick says, because caffeine can decrease memory performance. So you may feel more wired, but you are also prone to making more mistakes.

NappingTips

Research has found that napping regularly may reduce stress and even decrease your risk of heart disease. To get the most out of a power snooze, follow these quick tips from Mednick:

Be consistent. Keep a regular nap schedule. Prime napping time falls in the middle of the day, between 1 p.m. and 3 p.m.

Make it quick. Set your cell phone alarm for 30 minutes or less if you don't want to wake up groggy.

Go dark. Nap in a dark room or wear an eye mask. Blocking out light helps you fall asleep faster.

Stay warm. Stash a blanket nearby to put over you because your body temperature drops while you snooze.

POISON IN THE AIR!

The Effects of Air Pollution on the Cardiovascular System

Dr. A. Kundu, Consultant Cardiac Surgeon
Dr. O.P. Yadava, Chief Consultant Cardiac Surgeon & CEO,
National Heart Institute, New Delhi

We all know that the urban environments that we live in have turned into a cesspool of poisonous gases that are detrimental to our health. Of major concern in the past decade is the potential deleterious effects of these pollutants on our cardiovascular system i.e., the heart and blood vessels. In focus are environmental air pollutants that include carbon monoxide, oxides of nitrogen, sulphur dioxide, ozone, lead, and particulate matter. These pollutants are associated with increased hospitalisation and death due to cardiovascular disease, especially in persons with heart failure, frequent rhythm disturbances, or both. The well-established causal associations between active and passive smoking with heart disease and stroke support the possibility of an adverse effect of these pollutants on the cardiovascular system. Before going into greater detail, a brief outline of major air pollutants is in order :

Particulate matter (PM) - PM consists of a mixture of solid and liquid particles suspended in air, continually varying in size and chemical composition. Primary particles are emitted directly into the atmosphere, such as diesel soot, whereas secondary particles are created through physicochemical transformation of gases, such as nitrate and sulphate formation from gaseous nitric acid and sulphur dioxide (SO2), respectively. The numerous sources of PM include motor vehicle emissions, tyre fragmentation and road dust, power generation and other industrial combustion, smelting and other metal processing, agriculture, construction and demolition activities, residential wood burning, windblown soil, pollens and moulds, forest fires and combustion of agricultural debris, volcanic emissions, and sea spray. Some of the more common constituents of PM include nitrates, sulphates, elemental and organic carbon, organic compounds (e.g., polycyclic aromatic hydrocarbons), biological compounds (e.g., endotoxin, cell fragments), and a variety of metals (e.g., iron, copper, nickel, zinc, and vanadium). The importance of these substances is that they can easily lodge themselves in our respiratory passages.

Nitrogen oxides- Most research has focused on Nitrogen dioxide (NO2), because (1) NO2 is one of the regulated air pollutants for which standards are available worldwide; (2) Nitric oxide (NO) from vehicular exhaust and power plants is largely converted to NO2; and (3) NO2 plays a primary role in the formation of atmospheric ozone. The major source of these group of pollutants is automobile emission and power generation processes.

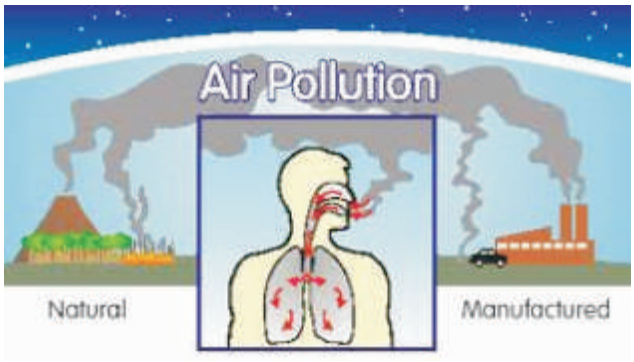
Carbon monoxide - Probably the most well-known of air pollutants, it is produced by incomplete combustion of fossil fuels. Its danger lies in the fact that it is colourless, odourless and binds with far greater affinity to haemoglobin in the blood than oxygen, thereby interfering with oxygen delivery to tissues.

Sulphur dioxide - Sulphur dioxide (SO2) is a highly irritating, colourless, soluble gas with a pungent odour and taste. In contact with water, it forms sulphurous acid, which accounts for its strong irritant effects on eyes, mucous membranes, and skin. Major sources are diesel engines and power plants.

Ozone (O3)-is a highly reactive, colourless-to-bluish gas with a characteristic odour associated with electrical discharges. We are constantly exposed to it at low levels, because O3 is formed by natural processes as well as by human activities. Ozone is formed in the stratosphere by the action of solar radiation on molecular oxygen (O2). Because stratospheric O3 prevents high-energy UV radiation from penetrating the atmosphere, we are dependent on it for protection from harmful UV rays. Hence it is a double-edged sword, being a major

component of smog formed by interaction with other pollutants, notably nitrogen oxides.

Second Hand smoke (SHS) - Another well-known pollutant, its association with lung diseases including cancer and atherosclerotic heart disease is well established. The impact of SHS on heart disease and stroke is also supported by the remarkable "natural experiment" observed when Helena, Mont, a US town banned public smoking beginning June 5, 2002. During the 6-month period of the ban, admissions to the local hospital for acute myocardial infarction dropped by a staggering 40%, a decline that was not observed in any of the other hospitals from surrounding communities who had not enforced the ban!



The impetus to assess the effect of air pollution on cardiovascular health was spurred by the observation of increased deaths during major pollution events like the London fog incident of 1952. One of the first major studies on long-term effects of pollution on deaths due to cardiovascular disease was by Dockery in 1993, covering 6 US cities. The investigators found an increased mortality from heart and lung disease in populations exposed to a greater concentration of mainly PMs and sulphur dioxides. An ominous finding with regard to short term exposure to ambient pollutants was a steep rise in exposure to PMs just a day prior to death from cardiovascular disease! Another study found a significant rise in hospital admissions for heart failure and heart attack with each unit rise in ambient Pms. It is now reasonably well established that both short-term and chronic air pollution exposures are related to cardiovascular diseases. Whether there are specific individuals or subsets of patients at increased risk is less clear. A few observations have suggested that the elderly and those with low socioeconomic status may be particularly susceptible populations. Whether increased age itself or the high prevalence of underlying cardiovascular disease and other risk factors explains the enhanced risk observed in elderly populations is unclear. The presence of preexisting chronic lung disease, coronary heart disease, and heart failure may also elevate short-term risk of death from cardiovascular disease. Most recently, research provides evidence that the acute risk for cardiovascular events in patients with diabetes mellitus may be twice that for non-diabetics.

All this begs the question : just how does air pollution wreak such havoc?

The potential biological mechanisms linking air pollution to heart disease involve

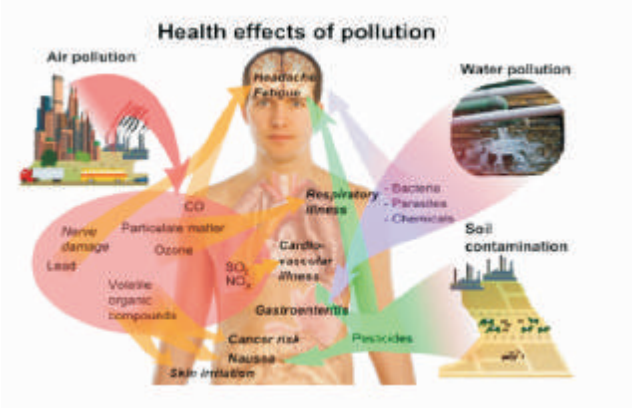
- Direct effects of pollutants on the cardiovascular system, blood, and lung receptors,
- Indirect effects mediated through inflammatory responses to the pollutants.

Direct effects may occur via agents that readily cross the airway lining in our respiratory passages into the circulation, such as gases, or ultrafine Pms. These responses excite further instability in pre-existing cholesterol deposits in the blood vessels and also initiate de novo deposits and narrowing of blood vessels, leading to devastating cardiovascular events like heart attacks.

As ordinary citizens, what can we do to stave off at least this aspect of risk of cardiovascular disease? As has often been said, the simplest of measures makes the greatest of impact; and some simple steps we all can implement are:

1. Stop burning of garden waste in the open, as it is a major source of PM and sulphur oxides. Burying them achieves the twin-fold ends of reducing pollution, as well as composting...besides the spin-off of greater physical exercise involved in digging ditches to bury the waste!

2. Avoid going for jogs or brisk walks in areas with heavy traffic, as it would expose us to a greater concentration of PM, Carbon monoxide and Sulphur oxides
3. Avoid early morning exercise in the open, especially in winter months due to greater smog density at those hours. It would be prudent for the smog to clear before venturing out for our daily fix of physical exercise.
4. Reduce dependence on fossil fuels as much as possible, something that has been drummed into our heads since our school days!



This leads to the foregone conclusion that stricter control on air pollution is the need of the hour to stave off the potential burden of healthcare costs on the national economy, apart from the avowed benefits on our fragile ecosystem. This can only be effectively implemented by nations working together towards a common goal as these are issues affecting health and humankind as a whole.

maggi noodles

Ingredients :

- High in Saturated Fat (Palm oil)
- High In Sodium (1/4th Package 950mg of Sodium) American Heart Association limited to less than 2000milligrams of sodium per day)
- Caramel Color "Caramel coloring, when produced with ammonia, contains contaminants, 2-methylimidazole and 4-methylimidazole.
- In 2007, studies by the U.S. National Toxicology Program found that those two contaminants cause cancer in male and female mice and possibly in female rats.
- In 2011, the International Agency for Research on Cancer, a division of the World Health Organization, concluded that 2- and 4-methylimidazole are "possibly carcinogenic to humans." Then, the State of California's Environmental Protection Agency listed ammonia-caramel coloring as a carcinogen under the state's Proposition 65. The state lists chemicals when they pose a lifetime risk of at least 1 cancer per 100,000 people"
- Sodium-bicarbonate may cause side effects that usually do not require medical care, These include increased thirst, stomach cramps and bloating. Guar Gum- It is unclear if prolonged ingestion promotes cancer or suppresses Cancer.

Ramadaan (Ramzaan)

Fasting Can Be Accomplished, but Care Must Be Taken :

Fasting is especially risky for those with type 1 diabetes, for pregnant women, and for children. However, patients with well-controlled type 1 diabetes who use insulin pumps can often accomplish fasting by adjusting their basal infusion rates and monitoring their blood glucose levels frequently, the ADA guidance states.

For patients with type 2 diabetes taking medications other than insulin or sulfonylureas, the risk for hypoglycemia is low. However, because of the prohibition against taking oral medication during daylight hours, patients who usually take metformin 3 times daily should take two-thirds of the dose at the sunset meal and one-third at the predawn meal.

Long-acting sulfonylureas should be avoided. Once-daily sulfonylureas should be taken at the sunset meal. The ADA guidelines state that for patients taking twice-daily sulfonylureas, the usual dose should be taken at the evening meal and half the usual dose before the predawn meal. But Dr. Aldasouqi believes it is preferable to skip the predawn dose altogether. "You never know, they could become hypoglycemic," he told Medscape Medical News.

However, the very short-acting insulin secretagogues repaglinide or nateglinide (Starlix, Novartis) can be taken before each of the meals, he said.

No adjustments are needed for thiazolidinediones, alpha-glucosidase inhibitors, incretin-based therapies, or bromocriptine (Cycloset, VeroScience/ Santarus).

Basal insulin doses should be reduced by about 30% to 40%. The ADA recommends switching patients who are on either mixed or intermediate-acting insulins to basal insulin.

The usual dose of rapid-acting insulin should be taken before the sunset meal. Again, while the ADA guideline advises cutting the predawn dose of rapid-acting insulin in half, Dr. Aldasouqi advises his patients to cut it out completely.

"I'm very concerned about people taking their insulin in the morning because they're not going to be eating anything. If their insulin peaks, you don't know what will happen."

Frequent Monitoring Key ; Break the Fast if Necessary.

Frequent monitoring is key. Patients should be advised to break their fast if their blood sugar drops below 70 mg/dL. If it rises above 250 mg/dL — particularly for patients with type 1 diabetes — they should also break the fast and take insulin, Dr. Aldasouqi recommends.

As for the meals during the darkness hours, patients should be cautioned against overeating. "Moderation is the trick. Don't overfill an empty stomach," he advises.

And particularly during summertime Ramadan, patients should be counseled about avoiding dehydration as much as possible. Heatstroke is a major risk in particularly hot and humid areas, as is low blood pressure. It may be a good idea to adjust patients' blood-pressure medication doses as well and have patients with hypertension monitor their own blood pressure at home, he recommends.

Dr. Aldasouqi said he has personally had difficulty with dehydration during Ramadan, to the point where he will typically cut short his clinic hours. "For 4 or 5 hours I really get so dehydrated, and I want to be 100% focused on my patients." Last year, he saw patients until 3:00 pm each day and focused only on paperwork after that.

And, "If I see that at any point that I may compromise patient care, I would break my fast and make it up later." Islamic law, he said, allows adherents to make up the fasting time as long as they do it before the next Ramadan.

मधुमेह जनित थकान से बचने के 6 उपाय

पहला उपाय है कि आप अपने डॉक्टर से इस बारे में बात करें। डॉक्टर आपकी पूरी जांच करेगा और यह पता लगाएगा कि आपकी मधुमेह कितनी नियंत्रित है, क्या आपको अतिरिक्त अथवा फौरी देखभाल की आवश्यकता है। बेहतर होगा आप एक डायरी बनायें जिसमें अपने डॉक्टर के लिए एक या दो सप्ताह की जानकारियां एकत्र करें। इन जानकारियों के तहत आप अपने ब्लड शुगर के स्तर, इस दौरान आप कितने दबाव में रहे हैं को दर्ज करें। अधिकांश लोगों में धैर्य की कमी होती है। इसके चलते वे प्रतिदिन की इन जानकारियों को जैसे आपने कब–कब व्यायाम किया, कब क्या और कितना खाया, कब और कितना सोये, क्या आप खर्राटे भरने के कारण रात में जग जाते हैं, आप कितनी बार पेशाब करने गये, कोई अन्य ऐसी चीज जो आपकी नींद में खलल डालती है, सुबह उठने पर आप कैसा अनुभव करते हैं, क्या आप तरोताजा उठते हैं या स्वयं को थका हुआ पाते हैं आदि दर्ज करने में कोताही बरतते हैं। सच यह है कि आप और आपका डॉक्टर दोनों मिलकर ऊर्जा स्तर को बढ़ाने की योजनायें बना सकते हैं। आपकी योजनायें निम्नलिखित हो सकती हैं :

ऊर्जा फिर प्राप्त करने के 6 परामर्श

1. **व्यायाम** : जितना हो सके चलें फिरें। इससे ऊर्जा मिलती है। यूनीवर्सिटी ऑफ इलनॉयस के शिकागो कॉलेज ऑफ नर्सिंग के बायोबिहेवियरल हैल्थ सांइस डिपार्टमेंट के असिस्टेंट प्रोफेसर सिंथिया फ्रिटस्ची, पीएचडी, आरएन, सीडीई का कहना है कि जो लोग प्रतिदिन 30 मिनट तेज चाल से सैर करते हैं वे उन लोगों की तुलना में जो निठल्ले बैठे रहने से कम थकान का अनुभव करते हैं।

आप अपने पसंद की कोई गतिविधि चुने, भले ही वह जुम्बा, टेनिस, सैर, बागवानी अथवा तैरना हो। अपनी गतिविधि/व्यायाम को प्रतिदिन 30 से 60 मिनट करें। यदि आप एक साथ इतना समय नहीं दे सकते तो दिन भर में जब कभी आप चाहें कई अंतरालों में 10–10 मिनट के लिए व्यायाम करें। पर ध्यान रहे आपके व्यायाम का कुल समय कम से कम 30 से 60 मिनट अवश्य होना चाहिए। इससे कम से कोई लाभ नहीं होगा।

पडामीटर पहने ताकि आप जान सकें कि प्रतिदिन आप कितने कदम चले हैं। प्रतिदिन अपने कदमों में 500 कदम बढ़ाते जायें और तब तक बढ़ाते रहें जब तक कि कदमों की संख्या 10,000 न पहुंच जाये, ऐसा कहना है अमेरिकन डायबेटिस असोसिएशन एण्ड याले डायबेटिस सेंटर गैरालिनस्पॉलेट, एमएसएन, एएनपी, सीडीई का।

2. **अपने आहार पर नजर रखें**: ब्लडशुगर स्तर को संतुलित रखने के लिए प्रतिदिन तीन बार स्वास्थ्यवर्द्धक भोजन और एक बार नाश्ता लें। इसमें फलो और सब्जियों से मिलने वाले स्वास्थ्यबर्द्धक कार्बोहाइड्रेट हों, छिलके सहित अनाज हो, फलियों, टोफू, मछली और त्वचा मुक्त चिकन ब्रैस्ट से प्राप्त होने वाले प्रोटीन हों।

3. **कैफीन से बचे** : खासकर दिन के आखिरी पहरो में। कैफीन के कारण आपकी नींद कम हो सकती है। यदि आप इसका अत्यधिक प्रयोग करते हैं तो यह आपके ब्लडशुगर को नियंत्रित करने में भी बाधक हो सकती है।

4. **विटामिन बी अधिक लें**: बिटामिन बी आपकी नाड़ियों को स्वस्थ रखता है। यदि मधुमेह के कारण आपको नाड़ियों की समस्या हो तो आप सुनिश्चित करें कि आप अपने आहार में मछली, चिकन, चोकर चुक्त अनाज और अंडों से पोशण प्राप्त करें या इनके स्थान पर इनसे युक्त कोई संपूरक लें। आप जो भी संपूरक लें उसकी जानकारी अपने डॉक्टर को दें ताकि वह सुनिश्चित कर सके कि आपको सही मात्रा में पोषण प्राप्त हो रहा है।

5. **अपने खर्राटों को नियंत्रित करें** : मधुमेह से पीड़ित व्यक्ति अक्सर सोते हुए बहुत कम समय के लिए सांस लेना बंद कर देते हैं। इसे नींद का अश्वसन कहा जाता है। खर्राटें भरना, दिन में नींद आना, किसी चीज पर ध्यान न लगा पाना और अक्सर सुबह उठने पर सिरदर्द और गले में खरास महसूस करना इसके लक्षण हैं। नींद अश्वसन का इलाज हो सकता है और ऐसा करने से रात की नींद ठीक होने लगती है और आप सुबह तरोताजा जागते हैं।

6. **पानी पीते रहें** : यदि आप निर्जलित रहते हैं तो आप थकान महसूस करेंगे। प्रतिदिन कम से कम 8 से 9 गिलास पानी पियें।

इरेक्टिाइल डिसफंक्शन/यौनांग में उत्तेजना की कमी (ईडी) ग्रस्त पुरुष : 25 प्रतिशत 40 या उससे कम आयु के

सामान्यतः इरेक्टिाइल डिसफंक्शन/यौनांग में उत्तेजना की कमी (ईडी) की शिकायत बुढ़ापे में होती थी। एक अध्ययन की रिपोर्ट के अनुसार अब यह रोग छोटी उमर के पुरुषों को भी होने लगा है।

यूनीवर्सिटी वीटो–सैल्यूटे सान रैफाइले, मिलान, इटली के यूरोलॉजी विभाग प्रमुख पाओला कैपेग्रोसो, एमडी और उनके सहयोगियों ने 7 मई के ऑनलाइन जर्नल औफ सैक्सुअल मेडिसिन में प्रकाशित एक लेख में कहा है कि सैक्सुअल मेडिसिन आउटपेशेंट क्लीनिक में आये 439 रोगियों में से इरेक्टिाइल डिसफंक्शन/यौनांग में उत्तेजना की कमी (ईडी) के शिकार 114 (26 प्रतिशत) 40 वर्ष आयु के या इससे कम आयु के पुरुष पाये गये।

कम और बढ़ी उम्र के दो लोगों में इंटरनेशनल इंडैक्स आफ इरक्टाइल फंक्शन (आईआई ई ए) के मानकों के अनुसार इरेक्टिाइल डिसफंक्शन/यौनांग में उत्तेजना की कमी (ईडी) की तीव्र लक्षण पाये गये। रिपोर्ट की लेखक का कहना है कि चिक्तिस्कीय दृष्टि से ये निष्कर्ष इस रोग की एक डरावनी तस्वीर प्रस्तुत करते हैं।

ठस पूर्वव्यापी समीक्षा में जिसमें जनवरी 2010 से जून 2012 तक क्लीनिक में आने वाले रोगियों की समीक्षा में पाया कि ये ईडी से ग्रस्त थे और उनमें यौनक्रिया के लिए यौनांग में अपेक्षित तनाव पैदा होने और उसके बने रहने की कमी पाई गई। इसके अतिरिक्त उनकी गहन चिकित्सकी जांच और यौन इतिहास और उनमें विद्यमान टैस्टास्टारोन के स्तर की गणना से ऐसे पुरुष यौन प्रदर्शन और तृप्तता पर आधारित 5 विषयी प्रश्नावली आई आई ईफ एफ के आधार पर गंभीर रोगी पाये गये। प्रत्येक विशय को 1 से 5 अंक दिये गये। इस आधार पर जिन्हें 22 से 25 अंक मिले वे ईडी से ग्रस्त नहीं थे और जिन्हें 5 से 7 अंक मिले वे ईडी से गंभीर रूप से ग्रस्त पाये गये।

40 वर्ष आयु से बड़े पुरुषों की तुलना में कम उम्र के पुरुषों में सहरुगण्ता, औसत शारिरिक अनुपात सूचक, तनाव का स्तर और संचारी टैस्टास्टारोन का स्तर (सभी तुलनाओं के लिए पी 02) आदि कम पाए गए। कम उम्र के पुरुषों में समय पूर्व स्खलन अधिक पाया गया जब कि बड़ी उम्र के लोगों में पेरोनी रोग (दोनों तुलनाओं के लिए पी त्र 03) अधिक पाया गया। कम उम्र के 10 पुरुष रोगियों में कामेच्छा (8.8 प्रतिशत) कम पाई गई और बडी उम्र के 23 रोगियों में (7.1) (पी त्र 55) पाई गई। बड़ी उम्र के लोग यूरीकोसुरिया और लोअर यूरीनेटरी ट्रैक सिम्पटम तथा प्रोटान पंप इनहिबटर्स (सभी तुलनाओं के लिए पी 03) के लिए एन्फीहाइपरटैंसिव या एंटीडायबेटिक दवाएं ले रहे थे। बड़ों की तुलना में कम उम्र के पुरुष सिगरेट, मार्जियुआना और कोकीन (सभी तुलनाओं के लिए पी 02) पीते पाये गये। इन समूहों में शराब के सेवन को लेकर कोई अंतर नहीं पाया गया।

आईआई ई एफ में 56 (48.8 प्रतिशत) कम आयु के पुरुषों और 132 (40.6 प्रतिशत) बड़ी आयु के पुरुषों ने जो अंक प्राप्त किये उन्हें ईडी से (पी त्र 73) गंभीर रूप से प्रभावित पाया गया।

इस शोध की सामर्थ्य की सीमा ये थी। इसका अध्ययन पुरुषों के छोटे से समूह पर किया गया। यौन रोग क्लीनिक में आये इन पुरुषों का चुनाव का अर्थ है कि इस अध्ययन में ऐसे लोगों का चुनाव किया गया जिनमें रोग ग्रस्त होने की पूरी संभावनाएं थी। शोधार्थियों के अनुसार यह तो दोनों ही आयु वर्गों के साथ हुआ इसलिए इस तर्क से इस शोध के निष्कर्षो को कम करके नहीं आंका जा सकता। शोध करते हुए उन्होंने रोगियों के अवसाद और उत्सुकताओं का आकलन नहीं किया, उन्होंने उन लोगों के किशोर यौन इतिहास पर भी विचार नहीं किया और रोगियों के सामाजिक और आर्थिक अवस्थिति पर को भी नहीं देखा।

इन निष्कर्षो में ईडी से ग्रस्त लोगों का आयु निरपेक्ष होकर विस्तृत जोच द्वारा चित्सिकीय तथा यौन इतिहास का मूल्यांकन नहीं किया गया। लेखक ने अपने निष्कर्ष में कहा है ''बड़ी तथा छोटी दोनों उम्र के लोगों को जो यौन स्वास्थ्य संबंधी समस्याओं से जूझ रहे थे, अपनी समस्याओं के निराकरण के लिए स्वास्थ्य सेवाओं की सहायता नहीं मिली।''

जे. सैक्स मेड, 7 मई 2013 को ऑनलाइन में प्रकाशित

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विषैली वायु

हृदयवाहिनी प्रणाली पर वायु प्रदूशण का प्रतिकूल प्रभाव

डॉ. ए कुंडु, कंसलटैंट कार्डिएक सर्जन
डॉ. ओ.पी. यादव, चीफ कंसलटैंट काडिएक सर्जन एण्ड सीईओ
ने□ानल हार्ट इंस्टीट्यूट, नई दिल्ली

हम सभी जानते हैं कि जिस शहरी वातावरण में हम रहते हैं वहां के वातावरण की वायु में स्वास्थ्य के लिए हानिकारक अनेक प्रकार की गैसों का प्रवेश हो गया है। सबसे चिंता की बात यह है कि पिछले दशक में इस प्रदूषण का हमारी हृदयवाहिनी प्रणाली अर्थात हमारे हृदय और रक्त वाहिनियों पर प्रतिकूल प्रभाव पड़ रहा है। वायु में अनेक प्रकार के प्रदूषक जैसे कार्बन मोनोक्साइड, ऑक्साइड आफ नाइट्रोजन, सल्फर डायक्साइड, ओज़ान, सीसा और ऐसे ही अन्य तत्व मिल गये हैं। इन प्रदूशकों के कारण बीमारियों बढ़ रही हैं, अस्पतालों में मरीजों की वृद्धि हो रही है, मृत्यु दर बढ़ रही है। हृदय रोगों से ग्रस्त लोगों में दिल के दौरों और हृदयगति में उतार चढ़ाव के मामले बढ़ रहे हैं। सक्रिय और निष्क्रिय धूम्रपान का हृदय रोगों और दिल के दौरों से पक्का रिश्ता है ही उनके प्रदूषकों की वायु में उपस्थिति हृदयवाहिनी प्रणाली को भी कुप्रभावित कर रही है। इससे पहले कि हम इस विषय की गहराई में जायें आइए कुछ प्रमुख प्रदूषकों की सिलसिलेवार पहचान कर ली जाये :

पदार्थ तत्व (पीएम) : ये तत्व वायु में ठोस और तरल दोनों के कणों के रूप में उपस्थित रहते हैं। इनके आकार और रासायनिक संघटना में लगातार घटत बढ़त होती रहती है। प्राथमिक करण सीधे वातावरण में मिल जाते है, जैसे डीजल की कालिख। गैसों के रासायनिक रूपातंरण से गौण कणों का जन्म होता है जैसे नाइट्रिक एसिड और सल्फर डाइऑक्साइड से नाइट्रेट और सल्फेट का निर्माण होता है। इन प्रदूषकों के पमुख स्रोतों में हैं – मोटर गाड़ियों से निकलने वाला धुआ, टायरों का विखंडन, सड़कों की धूल, बिजली उत्पादन क्रियाएं, औद्योगिक दहन, धातुओं का पिघलाना तथा उनका प्रसंस्करण, कृषि, निर्माण व तोड़ने के गतिविधियों, घरों में लकड़ी जलाना, आंधी से उड़ने वाली धूल, पराग और फंफूद, जंगल की आग और कृषि कूड़े का दहन, ज्वालामुखियों से निकलने वाला लावा और समुद्र की बौछारें। इसके अतिरिक्त कुछ ऐसे अन्य सामान्य पदार्थ हैं नाइट्रेट, सल्फेट, एलीमेंटल और ऑरगैनिक कार्बन, ऑरगैनिक कंपाउंड (जैसे पोलिसाइक्लिक एरोमैटिक हाइड्रोकार्बान), बायलॉजिकल कंपाउंड (जैसे एंडोटॉक्सिन, सैल फ्रैगमैंट) और कई प्रकार की धातुएं (जैसे लौह, तांबा, निकल, जिंक और वनाडियम)। इन सभी तत्वों में एक बात समान है कि ये हमारी सांस की नली में अपना स्थान बना लेते हैं।

नाइट्रोज ऑक्साइड : अधिकांश शोधों ने नाइट्रोजन डाइऑक्साइड (एनओ 2) पर केन्द्रित किया है क्योंकि (1) एनओ 2 एक ऐसा नियंत्रित वायु प्रदूषक है जिसके मानक सारी दुनिया में पाये जाते हैं; (2) बिजलीघरों और मोटर गाड़ियों से निकलने वाले धुंए में मिलने वाला नाइट्रिक एसिड (एनओ) मुख्यतः एनओ 2 में परिवर्तित हो जाता है; और (3) यही एन ओ 2 वायुमंडलीय ओजोन को बनाने में प्रमुख भूमिका निभाता है। इस समूह के प्रदूषकों के प्रमुख स्रोत्र मोटर गाड़ियों से निकलने वाला धुंओ और बिजली घर हैं।

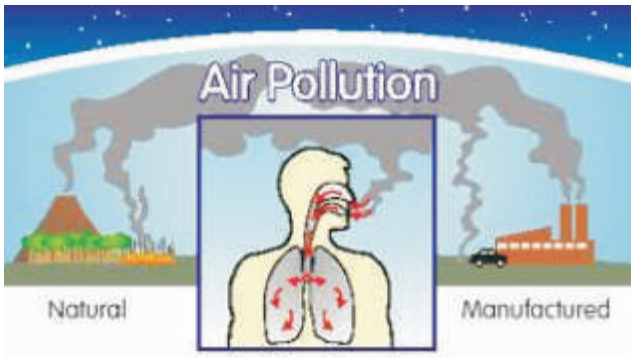
कार्बन मोनोऑक्साइड : यह शायद सबसे अधिक ज्ञात वायु प्रदूषक है। यह जीवाश्म जलवान के अधूरे दहन से उत्पन्न होता है। इसका सबसे खतरनाक रूप यह है कि यह रंगहीन व गंधहीन होता है और हमारे रक्त के हैमोग्लोबिन में ऑक्सीजन से भी अधिक तेजी से मिल जाता है और ऐसा करके ऊतकों को ऑक्सीजन पहुंचने की राह में बाधा बनता है।

सल्फर डाइऑक्साइड : सल्फर डाइऑक्साइड (एसओ 2) अत्यंत तकलीफदेह, रंगहीन, घुलनशील तीखी गंध और स्वाद वाली गैस होती है। पानी के संपर्क में आने पर यह सल्फयूजिक एसिड में बदल जाती है जिसका आंखों, चिकने झिल्लियों और त्वचार पर तीखा ज्वलनशील प्रभाव पड़ता है। इसके प्रमुख स्रोत है डीजल इंजिन और बिजलीघर।

ओजोन (ओ3) : यह एक रंगविहीन या नीलिमा लिए हुए बहुत प्रतिक्रियाशील गैस है। इसकी गंध बिजली के निस्सरण जैसी होती है। हम कुछ हद तक लगातार इससे अनावृत रहते हैं क्योंकि ओ3 का निर्माण प्राकृतिक प्रक्रिया तथा मानवीय गतिविधियों द्वारा होता है। ओजोन आणविक ऑक्सीजन (ओ2) पर सूर्य के विकीरण द्वारा समतापमंडल में बनती है। चूंकि समतामंडलीय ओ 3 उच्च ऊजो यूवी विकीरण को वातावरण में प्रवेश करने से रोकती है इसलिए इन नुकसानदेह यूवी किरणों से बचने के लिए हम इस पर

निर्भर हैं। इस तरह से ये एक दोधारी तलवार जैसी है। वातावरण में नाइट्रोजन ऑक्साइड के प्रदूषकों को धुंध के रूप में जमाने इसकी प्रमुख भूमिका होती है।

निष्क्रिय धूम्रपान (एच एच एस) : यह एक जाना पहचाना प्रदूषक है। फैंफड़ों की बीमारियों, कैंसर और एथेरोसेलेरोटिक हृदय रोगों के लिए निष्क्रिय धूम्रपान भूमिका अब सिद्ध हो चुकी है। यह हृदय रोगों और दिल की दौरों के लिए कुख्यात है। इसका पता इस बात ये चलता है कि जब 5 जून 2002 को अमरीका के शहर हेलेना, मॉट में सार्वजनिक जगहों पर धूम्रपान निषेध लागू कर दिया गया तो इस निषेध के 6 महीनों में वहां के अस्पतालों में गंभीर मायोकार्डियल इंफ्रैक्शन के मामलों में 40 प्रतिशत की कमी दर्ज की गई। इस तरह की कमी अन्य जगहों पर इसलिए नहीं पाई गई क्योंकि वहां के समुदाय ने अपने यहां धूम्रपान निषेध लागू नहीं किया।



वायु प्रदूषण के हृदयवाहिनी स्वास्थ्य पर पड़ने वाले प्रतिकूल प्रभावों के आकलन को तब गति मिली जब लंदन में 1952 मे धुंध द्वारा हुए वायु प्रदूशण से मृत्यु दर में वृद्धि दर्ज हुई। वायु प्रदूषण की एक अन्य बड़ी घटना 1993 में घटी जब अमरीका के 6 शहरों में हृदयवाहिनी रोगों से मौते हुईं।

जांच से पता चला की मृत्यु दर में वृद्धि हृदय और फेंफड़ों के वायु में उपस्थित पी एम और सल्फयूरिक ऐसिड जैसे प्रदूषकों के कारण हुई। शोध से यह अशुभ निष्कर्ष निकला कि ऐसी मौतों के पहले दिनों में वायु मंडल में प्रदूषकों का स्तर काफी बढ़ गया था यानि हुदयवाहिनी रोगों से हुई मौते इसी के संपर्क का नतीजा थीं। एक अन्य शोध अध्ययन में पाया गया कि इन दिनों अस्पतालों में हृदय रोगों और दिल के दौरों के मरीजों की आमद बढ़ी। इनके मूल में भी वायुमंडल में प्रदूशकों की वृद्धि मुख्य कारण थी। अब यह निर्विवाद रूप से सिद्ध हो गया है कि वायुमंडल में होने वाले अल्पकालीन और दीर्घकालीन प्रदूशणों का हृदयवाहिनी रोगों से सीधा रिश्ता है। इस सबंध में यह स्पष्ट नहीं कि इसका प्रभाव किसी व्यक्ति विशेष पर ही होता है या फिर उपवर्ग पर। कुछ आकलनों के अनुसार बड़ी आयु तथा दीन आर्थिक अवस्था में रहने वाले लोग इसका अधिक शिकार होते हैं। अपने आप में बड़ी आयु, हृदयवाहिनी रोगों की पूर्व उपस्थिति या फिर अन्य कारण इसके मूल में हैं। पर निश्चित रूप से ऐसा नहीं कहा जा सकता। पहले से ही फेंफड़े व हृदय रोगों की उपस्थिति से मृत्यु दर में वृद्धि के जोखिम बढ़ जाते हैं। हाल ही के एक शोध अध्ययन से पता चला है कि जो लोग मधुमेह से ग्रस्त हैं उनमें अन्य के मुकाबले हृदयवाहिनी रोगों के जोखिम दोगुने बढ़ जाते हैं।

इस सबसे यही निष्कर्ष निकलता है कि वायु प्रदूषण किस प्रकार इस कदर जान लेवा हो सकता है?

वायु प्रदूषण के हृदय रोगों का कारण बनने की संभावित जैविक प्रक्रिया में शामिल हैं

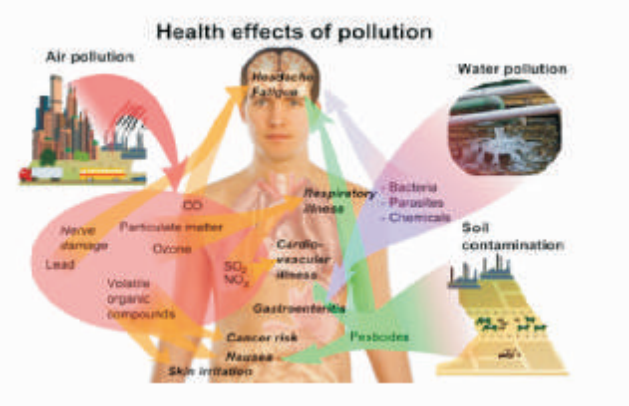
- हृदयवाहिनी प्रणाली, रक्त और फेंफड़ों पर प्रदूषकों का प्रत्यक्ष प्रभाव
- प्रदूषकों के संपर्क में आने पर होने वाले अप्रत्यक्ष प्रभाव

प्रत्यक्ष प्रभाव उन कारकों द्वारा जो वायु की लहरों के साथ हमारी श्वास नलियों में प्रवाहित होते हैं, जैसे गैसे और वायु में उपस्थित महीन कण। यह प्रक्रिया हृदयवाहिनियों में जो पहले से ही कोलोस्ट्रोल की उपस्थिति से संकरी हो गई होती हैं में और तेजी लाती है और फलतः रक्त वाहिनियां और संकरी होने लगती। इनका परिणाम जानलेवा दिल के दौरों के रूप में हमारे सामने आता है।

एक सामान्य नागरिक के तौर पर हम ऐसा क्या कर सकते हैं जिससे हम इन हृदय रोगों के जोखिमों से दूर रह सकें? जैसे कि पहले भी कई बार कहा जा चुका है सरल तरीके बहुत असरदार होते इसलिए कुछ सरल तरीके जो हम अपना सकते हैं निम्नलिखित हैः

1. बागवानी कचरे को खुले में जलाना बंद करें। वायुमंडल में कणों और सल्फयूरिक एसिड की उपस्थिति का यह एक बहुत बड़ा कारण है। यदि ऐसे कचरे को जमीन में दबा दिया जाए तो इसके दोहरे लाभ होंगे। एक तो प्रदूषण कम होगा और दूसरे इससे वनस्पतिक खाद प्राप्त होगी। यही नहीं इस प्रक्रिया यानी खड्डे खोदने में शरीर को व्यायाम के अवसर भी प्राप्त होंगे।
2. ऐसी जगहों पर जहां यातायात बहुत हो सैर और दौड़ने के लिए न जायें। ऐसी जगहों पर धूल के कणों, कार्बन मोनोऑक्साइड और सल्फर ऑक्साइड का बहुत अधिक जमाव होता है जो आपको नुकसान पहुंचायेगा।

3. खुले में अलसुबह की सैर खास तौर पर सर्दियों के मौसम में न करे क्योंकि इन दिनों में सुबह के समय काफी धुधं होती है। सुबह की व्यायाम गतिविधियों को शुरु करने से पहले सुनिश्चित कर लें कि धुंध हट गई है।



4. जितना संभव हो सके जीवाश्म ईंधन पर निर्भरता कम करें। यह बात हमें बचपन से ही स्कूलों में बताई जाती रही है।

उपरोक्त चर्चा से एक बात स्पष्ट है यदि हम अपनी अर्थव्यवस्था को स्वास्थ्य सेवाओं के खर्च से बचाना चाहते हैं तो हमें वायु प्रदूषण पर सख्ती से रोक लगानी होगी। इससे हमारी टूटती हुई पारिस्थितिकी में सुधार होगा। लेकिन यह सब तभी हो पायेगा जब दुनिया के सभी देश मानव कल्याण की भावना मन में संजो कर इस दिशा में कठोर कदम उठायेंगे।

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