

Uncontrolled Diabetes Mellitus: A Devastating Disease

Prof. Habibuz Zaman

MR Abdur Rahim, 62, obese, developed tiny painful boils (furuncles) over the nose and forehead on a number of occasions. These had resolved usually after the use of antibiotics.

Following several bouts of over-indulgence in eating, especially of sweets and biryani over several weeks in December, 1988, Mr. Rahim came down with a fever, cough, breathlessness and wheezing (as in asthma). He recovered with use of antibiotics and ventolin. A few days later he had a painful boil on the back of one of his fingers and an abscess within an armpit. A general surgeon incised the boil and dressed the burst abscess. At this time, the urine and blood were examined and showed the following results: Urine: Sugar: +VC (3+); Blood: glucose-fasting: 180 mg/100ml or 10 Units; 2 hours after breakfast: 234 mg/100ml or 10 Units. Both these tests were repeated and the results confirmed. Mr. Rahim was diagnosed as a case of diabetes mellitus, maturity onset type (or Type II) and treated presumably as a non-insulin dependent diabetic.

On doctor's advice, Mr. Rahim has cut down his total consumption of carbohydrates to about 50 per cent of his daily diet. Now he altogether avoids taking refined sugar and sweets; his total consumption of food has also been reduced. He has already lost ten pounds in weight. He takes a walk for at least 40 minutes everyday. He feels good. His urine became sugar-free and his blood sugar came down to normal levels within a few weeks. Presently he checks his urine for sugar once a day, two hours after breakfast and his blood sugar once in three to four weeks. He visits his physician once in 3-4 months. Lucky, Mr. Rahim was diagnosed as a case of diabetes mellitus before

more serious complications had set in. If he keeps up his efforts and his discipline, chances are good that he may lead an active life for many more years without difficulty.

Mrs. N. H. 57, active housewife, mother of four grown-up children had been in apparent good health until four weeks ago, when she felt unwell. But this did not stop her from carrying on her many household chores. Three weeks ago, she felt weak and had a spell of fainting, which lasted for about 15 minutes. When she regained her bearings, she felt weak on one side of her body. Her son noted that her face appeared distorted on one side (facial paralysis). A young physician, who was called in, recorded a raised blood pressure of 190/110 mm Hg. Her blood sugar levels were elevated - fasting: 180mg per cent or 10 units; and 2 hours after breakfast: 280 mg per cent or 15.5 units. The tests were repeated and approximately the same results were reported.

With diet control, and use of drugs to bring down the blood pressure, Mrs. N. H. made a rapid recovery. After further studies it was determined that she is a case of non insulin dependent diabetes. She may have had the disease for several years, and her diabetes and hypertension may have contributed to the thickening of the arteries of the brain (cerebral arteries), with reduced blood and oxygen supply to the brain. If Mrs. N. H. keeps up her diet control (no refined sugar, no sweets, no saturated fats for cooking, and little or no beef or mutton), she may not need any medication for her diabetes. Of course she is being treated for her hypertension.

Like Mr. Rahim and Mrs. N. H. many cases of maturity onset diabetes mellitus (NIDDM) may be controlled with restriction of food, reduction of body weight and regular physical

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exercise. Over 85 per cent of these individuals are above the age of 40. Since they do not normally need insulin for their treatment, they are also known as cases of non-insulin dependent diabetes mellitus (NIDDM). Occasionally some of them may require cover of oral medicines (hypoglycaemic agents) or insulin for limited periods, especially during some other serious illness or surgical procedures or pregnancy.

We have seen that Mrs. N. H. came down with one of the complications viz. CEREBRAL

ARTERIOSCLEROTIC DISEASE leading to a mild attack of stroke, before the diagnosis of diabetes mellitus was established. Similarly, poorly treated cases of IDDM and also NIDDM may develop several other complications, besides coma and infections to which reference have already been made. Many of these are generally related to the accelerated process of atherosclerosis, i. e. thickening of the inner lining (intima) with fibrosis of the large, medium and small sized arteries (or arterioles). This leads to a gradual narrowing of the lumen (opening or passage) of these blood channels.

Ultimately these passages may be completely blocked. Occlusion of these arteries may also be hastened by the formation of a blood clot (thrombus), since slowing of the flow of blood helps the process of abnormal clot formation (thrombosis).

As a consequence, in the long run, diabetics may have a heart attack from coronary thrombosis, resulting in myocardial infarction or a cerebrovascular incident as in the case of Mrs. N.H. In fact, a great many elderly diabetics may eventually die of heart attack or become crippled with paralysis from a stroke, or go into kidney failure (from diabetic nephropathy).

An uncontrolled diabetic may develop gangrene (death of tissue EN MASSE) of a toe or part of a lower limb, depending on the size and location of the artery affected by this disease process. In these cases, the affected part may have to be amputated in order to save the patient from infections, toxemia and imminent death. With involvement of the tiny blood vessels to the nerves, a diabetic may develop neuropathies with increased sensation of pain or a complete lack of sensation. The latter event may lead to damage to a foot with devel-

opment of deep infected wounds, and ulceration, causing serious distress and inconvenience to the patient. Involvement of sympathetic and parasympathetic nerves may cause such diverse problems, as postural hypertension. Delayed emptying of the stomach, diabetic diarrhoea, neurogenic bladder leading to infections, and even impotence.

One of the most unfortunate complications of poorly controlled diabetes is diabetic retinopathy, leading blindness, unless promptly screened and treated with photocoagulation (laser). Diabetics also develop cataract much earlier in life with loss of vision, until corrected by surgery.

These varied complications of poorly controlled diabetes mellitus may be prevented and certainly delayed by many years by early diagnosis and adequate treatment. It is most important that the blood sugar level be maintained as close to the normal as is feasible. While the competence and the continued interest of the treating physician are not doubt important, the active role and determination of the diabetic in taking care of himself are decisive factors for his continued well being.

The most recent development of synthetic insulin from bacteria by the technique of genetic engineering has assured an endless supply to meet with the growing global demands for this miracle drug. Despite this unlimited potential resource, much still remains to be done for the great majority of over 30 million diabetics globally, who lack even the rudiments of care. All of them could be helped. Lives could be saved and chronic disability prevented".

(Concluded)

Disease Closing in on Brazil's Cities



A MERICAN singer Bob Dylan has cancelled a tour planned for Latin America later this year because of the risk of cholera, and he is probably only the first of many to make such a decision.

Brazil is bracing itself for the disease which has already infected some neighbouring states. It is already lapping at the edges of Amazonia, spreading into the big cities along the coast where almost two-thirds of the country's 140 million inhabitants now live, most of them in overcrowded, unsanitary conditions.

Up to three million people are expected to catch cholera here during the next few years and up to 20,000 are expected to die of the disease. In Peru, it has already killed hundreds of people and cost millions of dollars.

Basic sanitation has been almost completely neglected over the past few decades in Brazil, creating horrendous conditions for the tens of millions of migrants who have come from surrounding jungles to crowded cities during that time. The spread of cholera will, if nothing else, bring attention to the enormous problems of public welfare facing the country.

On top of the huge cost of treating the millions who will contract cholera, threat of the disease is also hindering the country's tourist trade. Many tourists have cancelled visits to the Amazon region, causing hotels to slash their rates and provide guests with free mineral water to drink and clean their teeth.

The state governor drinks nothing but mineral water and has also given up eating vegetables. But not everyone in the city can afford to do the same.

Migration from the surrounding jungle has swollen one of Brazil's largest centres, Manaus, to 1.5 million, five times the size it was two decades ago. Its facilities are the worst of any city in Brazil. Only four per cent of homes are connected to the main drainage system and only a third of the population has access to piped water. The rest drink water from the Amazon River, which they also use to wash in and dispose of their waste.

The mighty Amazon River is carrying the disease from neighbouring Pacific coast countries, where cholera is now endemic. It won't be long before it creeps into the teeming cities of the coast. Rio de Janeiro is certain to be hard hit. There, untreated waste is pumped into the city's famous bay, where most locals swim and lounge every weekend.

Cholera is only the latest and most dramatic of the diseases to hit Brazil, many of which have been around before.

If 20,000 people die from cholera, that will only equal the number of young children who die each year from dysentery and diarrhoea. Forty per cent of Brazilians are badly malnourished and nearly 10 million suffer from schistosomiasis, a disease carried by water beetles.

Six million people have Chagas disease, carried by a beetle which nests in wattle and daub huts common in the interior. Dengue fever, virtually eradicated from Brazil early in the century, is making a comeback. The mosquito that carries it breeds in stagnant water and drains.

Another mosquito-borne disease making a comeback is malaria. Last year more than a million cases of the disease were reported, double the number of two years previously.

Half a million people have Hansen's disease, better known as leprosy.

One cause of the spread of the diseases is that people move around the country far more than in the past. As an example, miners may contract a disease without realising it while panning for gold in the Amazon, and then return to their homes in the cities and pass the disease on to others.

Right now, around \$80 million is spent each year on water aims and services in Brazil, or around 50 cents per person. However, it is estimated that to see any real improvements, spending must reach at least \$3 billion, almost 40 times as much. Meanwhile, the country is carrying a national debt of \$115 billion.

Apart from Bob Dylan's concert, another cholera-casualty could be the United Nations Conference on the Environment, scheduled for June 1992 in Rio de Janeiro.

Blood pressure affects heart disease more than we thought

THE link between blood pressure and the risk of stroke and heart disease is far stronger — and affects far more people — than previously thought, according to researchers in Oxford. Scientists have for decades underestimated the strength of the link, simply because they have failed to allow for the statistical effects of random errors in the studies performed so far.

There is no risk. In other words, the lower the blood pressure, the lower the risk. Anyone whose blood pressure falls within the normal range, and not just those with relatively high levels, would face lower risk of disease if their blood pressure was lower.

Richard Peto, an epidemiologist at the University of Oxford known for his work on cancer and smoking, and his colleagues have re-examined the statistics from nine major studies. These measured people's blood pressure, then kept track of them and recorded how many had heart attacks and strokes. The resulting data in these studies had been used to calculate the relative risks of vascular disease carried by different levels of blood pressure in the 420,000 subjects.

In all the studies so far, says Peto, random inaccuracies in the figures recorded for individuals' baseline blood pressures have systematically "diluted" the strength of the link between blood pressure

and risk. All other analysts have overlooked this effect.

A person's real blood pressure may be inaccurately registered for two reasons. First, it varies at random above and below its usual level. Secondly, the person who measures it may make a mistake.

To analyse the data, statisticians usually assign people to groups — for example, those with low, medium and high blood-pressure levels. But because of the inaccuracies, some people will be wrongly assigned to groups with a blood-pressure range above or below their own. As a result, the "low" group will include some individuals whose usual blood pressure and risk is really higher, while the "high" group will include some whose usual pressure and risk is really lower.

So when blood pressure is plotted against the relative risk of vascular disease, the line of slope reflecting the relationship between them will be much less steep than it should be.

By adjusting the figures to allow for this, the researchers calculated that blood pressure was 60 per cent more important as a risk factor than previously believed. What is more, says Peto, the statistical effect will apply equally to risk factors other than blood pressure, such as levels of cholesterol in the blood, because the measured level will vary in the same way.

The discovery that risk factors like these are much more important than we thought they were clarifies our understanding of vascular disease. "We know more than we thought we did," says Peto. The team publish their findings in the current and forthcoming issues of The Lancet.

The results translate into reality like this. Suppose, for the sake of argument, your blood pressure is 120/80 millimetres of mercury (mmHg). This means that the pressure in the artery is 120 mmHg when the heart muscle is contracted, and 80 when it is relaxed. It is the second figure that we are concerned with here, the so-called diastolic pressure.

After correcting for the statistical effect, Peto and his colleagues conclude that a reduction of 5 mmHg in the diastolic blood pressure would reduce a person's risk of stroke by a third, and of heart disease by a fifth.

INDIA is sitting on an AIDS timebomb. Dr James McDermott, a US Congressman on a fact-finding mission on AIDS (Acquired Immune Deficiency Syndrome) to India, Thailand and the Philippines, warned: "It's not unreasonable to suggest that there will be more infected people in India alone in the year 2000 than in the world today."

The World Health Organisation (WHO), says India may have 300,000 to 400,000 carriers of the Human Immunodeficiency Virus (HIV), which causes AIDS. Doctors in India consider this figure too low.

"The reported cases in India represent only the tip of an epidemic iceberg," says Dr. B. Shankrananda, a researcher. "There's no concerted programme in the country, either to detect or combat its spread."

The main sources of AIDS have been identified as prostitution in Bombay, Calcutta, Madras and Delhi, intravenous heroin addicts in Manipur state, and faulty blood transfusion.

Bombay alone has over 100,000 prostitutes. Forty per cent are believed infected with AIDS. Those who tested positive at the Sexually Transmitted Disease clinic continue to work, serving six to eight people a day.

This alone could be enough to bring about the world's worst AIDS nightmare. The prostitutes visit the clinics not for condoms, education or even medical examination, but in search of medicines to cure AIDS.

Dr Geeta Bhavne, head of the city's only AIDS Surveillance Centre, has no such medication since there is no cure for AIDS. Instead, she distributes a sugar-coated pill dusted with a powder made of ground insects, herbs, diseased human tissue, flowers and chemicals.

She says the pill is her invention. "I believe in miracles," she says, while admitting that her methods are crude.

In India, issues like promiscuity, homosexuality and condom use are still generally taboo, but promiscuity is rampant. Said Dr A. S. Paintal, former director-general of the Indian Council of Medical Research (ICMR): "We used to think our women were chaste. But people would be horrified by the level of promiscuity here."

Unchecked Epidemic of AIDS Faces India

There is a belief in India that AIDS affects only a few poor people, prostitutes and drug addicts. No official statistics are available of the incidence of the disease and there are no plans to detect it or combat its spread. Gemini News Service reports on an epidemic in the making. by A. J. Singh

While half the prostitutes in Bombay have tested positive, no such testing has been done among other major towns. Forty HIV test centres have been commissioned for Delhi, Bombay, Madras, Calcutta and Bangalore but most exist only on paper.

The ICMR study revealed that of the 610 registered blood banks in India, fewer than 58 per cent were performing all the mandatory tests to certify blood purity. Doctors say that in most blood banks testing facilities for detecting AIDS are either suspect or non-existent.

Unemployed Mansur Ali, 58, had been selling blood for almost two decades, making Rs. 40 to Rs. 250 a bottle. Last year someone got curious and did a blood test on him. He was found to be HIV positive.

Mansur Ali was then barred from giving blood. Unable to hold out against starvation and begging, Mansur simply changed his name then started donating blood to one of the

shady blood banks where the pathologists are believed to fix the results.

Heroin addiction, which sees addicts use and exchange intravenous needles, has become another source of spreading AIDS in Manipur state. Sharing a border with Burma, Manipur falls on the drug trail which leads from the Golden Triangle (where Burma, Laos and Thailand meet) to India, Nepal and Bangladesh.

Heroin is available in Manipur at Rs. 100,000 a kg, 30 times cheaper than in Bombay. This has led to drug addiction of 15,000-20,000 Manipuri youth. Nearly half have tested HIV positive. In Churachandpur (pop: 25,000), 60 km from Imphal (capital of Manipur State) on the Indo-Burma border, at least one person per family is said to be hooked on heroin.

The regional medical college hospital at Imphal has stopped admitting AIDS cases: "It's very contagious and the staff are scared. So we send them to the New Jawaharal Nehru Hospital," says a senior superintendent.

All that hospital does is to keep AIDS victims in an isolation ward for a few days, then release them.

A Christian healing centre, Gammuan Christian Home, admits drug addicts and AIDS victims. There they are kept chained to stop them running away and reverting to heroin and, it is said, to prevent other from contacting the AIDS virus.

The Home, housed in a nondescript thatched structure, does not prescribe any detoxifying medicines. "When they are in pain, they are asked to pray," says D. Paukholian, the manager. "When the pain increases they are asked to pray more."

Critics say neither central nor state government have acted. There is no official data on the number of AIDS cases.

Says Dr. Jaishind Reddy of the Osmania Medical College Hospital in Hyderabad: "Proper data can't be maintained because the patients just vanish when we tell them that they are carriers."

Unlike in the US and Europe, where the disease is treated seriously, in India "only those who read Time and Newsweek knew about the disease," says Dr. N. K. Shah of the WHO. "Not prostitutes and people who need to know the facts."

In India AIDS is still considered a disease of the poor, the illiterate, the prostitutes, the homosexuals and drug addicts. "The bureaucrats, the rich and the politicians don't think it can hit them too," says Lilla Bhatt, a social worker. "Only when it does, will their attitude change." — GEMINI NEWS.

No EXCUSE...

MORE AND MORE PEOPLE, ESPECIALLY FROM DEVELOPING COUNTRIES, ARE GOING TO OTHER LANDS TO FLEE POVERTY, POLITICAL OPPRESSION, OR AN ENVIRONMENT THAT CAN NO LONGER GIVE THEM SUSTENANCE.

THE STRONGEST PRESSURES TO MIGRATE ARE SAID TO ARISE IN COUNTRIES WITH RAPID POPULATION GROWTH AND A SLOW PACE OF DEVELOPMENT.

BUT AN EASIER LIFE DOESN'T ALWAYS AWAIT THESE MIGRANTS, AS SHOWN BY THE RECENT EXPERIENCE OF THOUSANDS OF ASIANS TRAPPED IN THE GULF WAR.

JOBS FOR MIGRANT WORKERS ARE ALSO HARD-TO-COME-BY EVEN IN INDUSTRIALIZED COUNTRIES.

THERE IS NO EXCUSE FOR PEOPLE FLEEING TO OTHER LANDS BECAUSE OF POPULATION PRESSURES AT HOME.

Depthnews

New Limbs for Dancing, Ping Pong and Farming

LE Hong Trai, victim of an artillery shell which claimed his left leg during the Vietnam war in 1968, limped into the clinic and removed his heavy wooden leg. Someone took a plaster cast of his stump, and then Trai waited quietly.

A few hours later, he walked off a few pounds lighter and a lot stronger. He wore a new leg, designed by computer and moulded in plastic. It was an example of a new technique which may well revolutionise the treatment of amputees in developing countries.

The Prosthetic Research Centre in Hanoi is producing "state-of-the-art" limbs, says prosthetist David Boone, who works there. The system came from research developed after the Vietnam war to improve life for disabled American veterans who complained that their artificial legs were too limiting.

Dr Ernest Burgess, a founder of the Prosthetics Research Foundation of Seattle, which oversees the Hanoi project, pioneered the system.

With US government funding, Burgess designed a system around what is known as the "Seattle Foot", a life-like artificial foot that is springy and enables amputees to run, jump or walk with no noticeable limp. Some of Burgess's patients run marathons.

Computerisation of the process made the real difference and enabled limbs to be made quickly and at a fractional cost of the wood and aluminium models. Much of the technology is in a computer programme called the Seattle Shapemaker, which designs a custom socket after measuring a plaster cast of an amputee's stump. The socket is made from a tough plastic melted around a mould, carved to the computer's

instructions. Once the socket is made, technicians assemble the rest of the leg from off-the-shelf parts, such as a flexible plastic shank, plastic joints, stainless steel bolts and a Seattle Foot.

The original American design has been modified for the Vietnamese climate. Sockets have air spaces to allow circulation beneath the stumps. The knee joint is cut to enable amputees to pedal a bicycle, essential in Hanoi.

The foundation has even designed a special foot for amputee rice farmers. Regular-shaped feet often get stuck in mud at the bottom of a soggy rice paddy, so researchers developed something that looks like an oversized pogo stick bottom.

Doctors throughout the US are beginning to use the system. Burgess thought it has promise for the developed world because it is fast and cheap.

He found a proving ground in Vietnam. Years of war, disease and hard living have left at least 110,000 amputees. Of these, an estimated 60,000 were crippled during the war, or by unexploded land mines, booby traps or artillery shells. One in 10 amputees is under 16.

Burgess decided on Hanoi after talking to an American Vietnam war veteran called Len Nicholls. Nicholls, a patient of Burgess's, had a leg calf blown off in a helicopter gunship. He returned to Vietnam in 1987 as a tourist and was amazed by the number of amputees.

"Everywhere I went, particularly in the centre part of the country, I saw amputees," said Nicholls, a charter pilot who is partial to cowboy hats and disco dancing.

When American amputees get out of hospital, he added, they can go to a prosthetist and get a new leg. "Some of

these people, though, have been waiting eight to 10 years to see a prosthetist."

Nicholls told Burgess what he had seen and from that discussion came plans for the Prosthetic Research Centre in Hanoi. Nicholls and a retired Marine lieutenant-colonel went to work for Burgess's foundation and laid the groundwork for the clinic.

The centre produces limbs in a ours rather than months under the old system of wood and aluminium limb manufacture. A person entering the clinic on crutches in the morning can walk out unaided in the afternoon.

A Seattle leg that costs a US amputee \$3,000 — 5,000 costs about \$200 to make in Hanoi, including the cost of shipping materials from the US. The difference is caused by Vietnam's low overheads and labour costs.