

Drug resistance TB and challenges ahead

DR MD RAJIB HOSSAIN

Rising trend of multi-drug resistant TB (MDR-TB) has emerged as major threat to tuberculosis (TB) control programme in Bangladesh. Experts identified inappropriate and irregular treatment beyond programmatic control, lack of diagnostic facility and treatment of existing MDR cases as the contributor of rising number of MDR-TB patients.

According to global TB control report 2008, WHO estimated that the percentage of MDR-TB for new cases is 3.6 and for previously treated cases is 19 in Bangladesh.

TB is usually treated with a course of four standard (first-line) anti-TB drugs. Multidrug-resistant TB (MDR-TB) is resistant to these drugs (or at least two of the best anti-TB drugs, Isoniazid and Rifampicin). If these drugs are misused or mismanaged, multi-drug-resistant TB (MDR-TB) can develop.

MDR-TB takes longer to treat and can only be cured with second-line drugs, which are more expensive and have more side effects. Another kind of more dangerous and almost untreatable strain of TB is termed as extensively drug-resistant TB (XDR-TB) that can also develop when these second-line drugs are misused or mismanaged and therefore it becomes resistant to all first and second-line drugs. It might be devastating for the country as the treatment

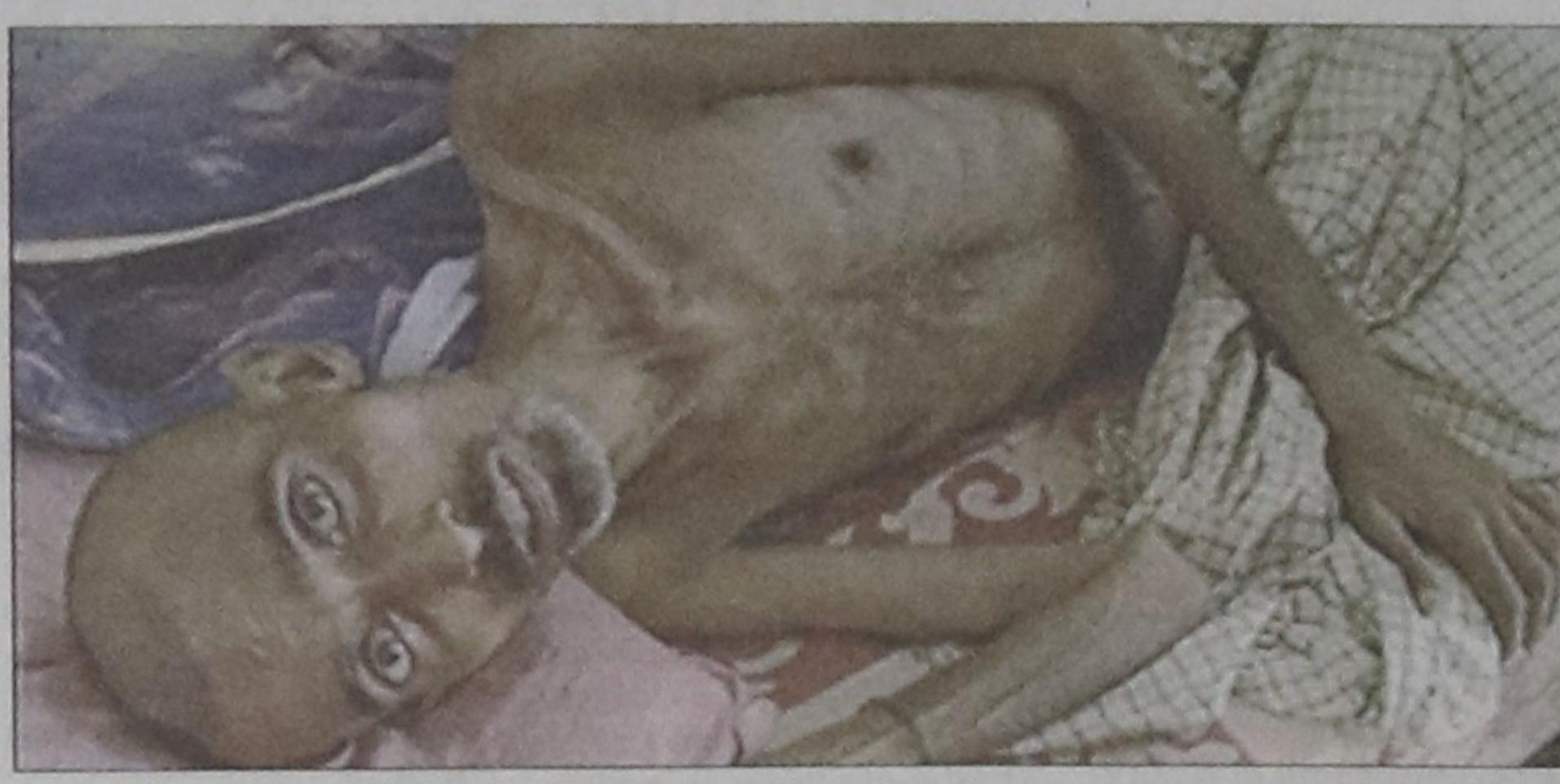
options are seriously limited and the risk of death is extremely high.

Statistics show that 300,000 people in Bangladesh fall ill from TB in a year and more than seventy thousand die from it. World Health Organisation (WHO) ranked Bangladesh sixth among the world's 22 high-burden TB countries. The WHO estimates that nearly 500,000 people a year become infected with drug-resistant TB. But the exact number of people affected is uncertain due to the lack of capacity to diagnose it accurately.

Till date, maximum emphasis is given on non-drug resistance TB and MDR-TB remains in the back seat. According to the experts, it is the high time to focus on MDR-TB.

Lack of sufficient effective programmes and low coverage of services play an important role in the growth of MDR-TB. The Damien Foundation is one of the very few organisations who are currently working to control and management of MDR-TB. It has been working since 1997 and currently covering their services to 29 districts. And the government in collaboration with Green Light Committee of WHO have just started DOTS-plus strategy to combat MDR-TB. But these services are limited to certain areas. So majority people throughout the country have not the access to proper diagnosis and treatment.

All the programmes running currently for MDR-TB



have only covered treatment of about 600 patients out of total 10000 patients. Among the huge remaining MDR-TB patients most of them are maltreated and several remain untreated. This indirectly contributed to develop XDR. If timely actions are not taken to identify and treat these MDR cases its spread can not be controlled, experts warned.

Dr Md Abdul Hamid Salim, Country Director and Medical Advisor of Damien Foundation expressed his deep concern regarding MDR-TB. He pointed out that inadequate treatment and malpractice in the treatment of TB contribute majority of MDR-TB cases. He said, "Mismanagement of ordinary TB gives rise to MDR-TB and further mismanagement of MDR-TB will give rise to more dangerous XDR-TB."

He mentioned that in private practice, many doc-

tors prescribe an additional 2nd line drug (Quinolone group) along with specific standard TB regimen for better outcome. But it is strongly prohibited as it can give rise to XDR-TB. He urged that sound implementation of DOTS strategy, detection of existing MDR-TB cases and rational use of Quinolones are imperative in preventing the development of MDR-TB and XDR-TB. He also added that patients with suspected TB should not readily be treated by antibiotic Quinolone that is a 2nd line drug for TB.

Dr Erwin Cooreman, Medical officer — TB, WHO Bangladesh has shared the WHO's plan of action. He stated that lack of diagnostic facility and expensive long term treatment are key obstacles to tackle MDR-TB. He said that quality must be assured. Control of drug resistance TB will rely on quality assured

and internationally recommended treatment regimens administered under strict supervision as part of the Directly Observed Therapy Short course Plus (DOTS-Plus) programme. He warned that the existence of MDR-TB is a serious and emerging public health threat and its superior XDR-TB can also be more fatal for the country.

TB here in Bangladesh is closely related to financial burden and social stigma. More than three quarters of all TB cases are among people 15-54 years old — those in their prime working years. If the only earning member is affected, the entire family suffers huge economic crisis and their sufferings knows no bound. The disease is therefore a major cause of poverty for affected individuals and their families. Ironically, MDR-TB patients need to be admitted into hospitals for as long as 5-6 months for proper

supervised treatment and management of side effects.

Moreover, expensive drugs for MDR-TB are not produced in Bangladesh. Importing of drugs adds additional financial burden.

In many parts of the country, TB carries a stigma that has to be overcome. Patients may be afraid they will lose employment and income as a result of the disease; they may not realise the threat they pose in spreading disease to the rest of the community; and they may see the insistence on their taking tablets and injections as an infringement of rights.

Dr Asif Mujtaba Mahmud,

Associate Professor of National Institute of Diseases and Chest Hospital (NIDCH) has identified lack of technical and financial support contributes in rising trend of MDR-TB. He informed that we have only 3 internationally recognised labs for culture sensitivity testing for MDR-TB. These need to be expanded. "Social rehabilitation can reduce the financial burden," he noted.

Fight against drug resistance TB is very challenging in a country like Bangladesh. Without cumulative effort and joint movement it is not possible. Experts urge all citizens to come forward and participate proactively to combat TB effectively and to ensure that every person with TB has access to accurate diagnosis, effective treatment and cure and to stop the transmission of TB.

Breast changes tell whether treatment works

REUTERS, Washington

It may be possible to predict which breast cancer patients will be helped by tamoxifen based on changes in so-called breast density, researchers reported.

Women with dense breasts — a term meaning they have more non-fatty tissue — are known to have a higher risk of breast cancer and the study suggests that lowering density using tamoxifen also lowers the chances tumors will come back.

Women whose breasts became noticeably less dense after a year or so of taking tamoxifen had a 63 percent reduced risk of breast cancer, the team of British researchers told a breast cancer meeting in San Antonio, Texas.

"It is important to find a way to predict who will respond to tamoxifen, and changes in breast density may constitute an early indicator of benefit," said Jack Cuzick of the Wolfson Institute of Preventive Medicine in London.

He said about 10 percent of women have dense breasts. Such breasts are harder to read on mammograms but there is evidence the tissue in their breasts may be more cancer-prone.

"Women with dense breasts are typically at four to five times the risk of developing breast cancer than women without dense breasts," Cuzick told the meeting.

Dr Celine Vachon and colleagues found that dense breast tissue has more aromatase enzyme than non-dense tissue. This is significant because aromatase helps convert hormones into estrogen, which can fuel breast cancer development.

"If aromatase is differentially expressed in dense and non-dense breast tissue, this could provide one mechanism by which density may increase breast cancer risk," Vachon said in a statement.

If a woman's breast density did not change during the treatment, she was much more likely to develop cancer despite taking tamoxifen, Cuzick told the meeting.

Two-thirds reduction "Women who lost 10 percent or more in breast density — 40 percent of the women getting tamoxifen — had a 63 percent, almost a two-thirds, reduction in all breast cancer," he told the briefing.

Cuzick stressed the study only looked at tamoxifen and not at other treatments, such as the newer drugs known as aromatase inhibitors. But he said it validated the idea of using breast density as a way of telling whether a treatment is working, whether tamoxifen or something else.

"If a woman doesn't show breast density dropping within a year or so, you might want to consider other therapy," Cuzick said.

In another report, a team at the Mayo Clinic in Rochester, Minnesota said they found some clues as to why dense breast tissue is more likely to develop tumors.

Dense breast tissue contains more cells believed to give rise to breast cancer, Dr. Karthik Ghosh told the meeting.

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Diabetes nutrition: Including sweets in your meal plan

DR TAREQ SALAHUDDIN

Diabetes nutrition focuses on healthy foods. But you can eat sweets once in a while without feeling guilty or interfering with your blood sugar control. The key to diabetes nutrition is moderation.

The scoop on sugar

For years, people with diabetes were warned to avoid sweets. But what researchers understand about diabetes nutrition has changed.

Total carbohydrate is what counts. It was once assumed that honey, candy and other sweets would raise your blood sugar level faster and higher than would fruits, vegetables or "starchy" foods such as potatoes, pasta or whole-grain bread. But this is not true, as long as the sweets are eaten with a meal and balanced with other foods in your meal plan. Although different types of carbohydrates can affect your blood sugar level differently, it is the total amount of carbohydrate that counts the most.

But don't overdo empty calories. Of course, it is still best to consider sweets as only a small part of your overall plan for diabetes nutrition. Candy, cookies and other sweets have few

vitamins and minerals and are often high in fat and calories. You will get empty calories — calories without the essential nutrients found in healthier foods.

Have your cake and eat it, too

Sweets count as carbohydrates in your meal plan. The trick is substituting small portions of sweets for other carbohydrates — such as bread, tortillas, rice, crackers, cereal, fruit, juice, milk, yogurt or potatoes — in your meals. To allow room for sweets as part of a meal, you have two options:

• Replace some of the carbohydrates in your meal with a sweet.

• Swap a high carb-containing food in your meal for something with fewer carbohydrates and eat the remaining carbohydrates as a sweet.

Let's say your typical dinner is a grilled chicken breast, a medium potato, a slice of whole-grain bread, a vegetable salad and fresh fruit. If you would like a frosted cupcake after your meal, look for ways to keep the total carbohydrate count in the meal the same. Trade your slice of bread and the fresh fruit for the cupcake. Or replace the potato with a low-carbohydrate vegetable

such as broccoli. Adding the cupcake after this meal keeps the total carbohydrate count the same.

To make sure you are making even trades, read food labels carefully. Look for the total carbohydrate in each food, which tells you how much carbohydrate is in one serving of the food.

Consider sugar substitutes

As part of diabetes nutrition, artificial sweeteners can offer the sweetness of sugar without the calories. Artificial sweeteners may help you reduce calories and stick to a healthy meal plan — especially when used instead of sugar in coffee and tea, on cereal or in baked goods. In fact, artificial sweeteners are considered free foods because they contain very few calories and don't count as a carbohydrate, a fat or any other food in your meal plan.

Examples of artificial sweeteners include:

- Acesulfame potassium
- Aspartame
- Saccharin
- Sucralose

Artificial sweeteners don't necessarily offer a free pass for sweets.

• Keep an eye out for calories and carbs. Many products made with artificial

sweeteners, such as baked goods and artificially sweetened yogurt or pudding, still contain calories and carbohydrates that can affect your blood sugar level.

• Sugar alcohols are not calorie-free. Sugar alcohols, another type of reduced-calorie sweetener, are often used in sugar-free candies, chewing gum and desserts.

Check product labels for words such as "isomalt," "maltitol," "mannitol," "sorbitol" and "xylitol." Although sugar alcohols are lower in calories than is sugar, sugar-free foods containing sugar alcohols still have calories. And in some people, sugar alcohols can cause diarrhea.

Reconsider your definition of sweet

Diabetes nutrition does not have to mean no sweets. If you are craving them, ask a registered dietitian to help you include your favorite treats into your meal plan. A dietitian can also help you reduce the amount of sugar and fat in your favorite recipes. And don't be surprised if your tastes change as you adopt healthier eating habits.

Food that you once loved may seem too sweet — and healthy substitutes may become your new idea of delicious.



Sprints may be best for diabetes prevention

A few minutes of intense exercise a week is just as good as a half-hour of moderate physical activity a day for reducing a person's risk of developing type 2 diabetes — and may actually be even more effective, new research hints.

"It is possible to gain significant health benefits from only 7.5 minutes of exercise each week — if that is all that you find the time to do," Dr. James A. Timmons of Heriot-Watt University in Edinburgh, one of the researchers on the study, told.

"This is a dramatically different view from current thinking," he admitted.

Timmons and his team found that young sedentary men who did just 15 minutes of all-out sprinting on an exercise bike spread out over two weeks substantially improved their ability to metabolise glucose (sugar). Traditional aerobic exercise programs can boost sensitivity to the key blood-sugar-regulating hormone insulin. The high-intensity programme did this too, but it also directly reduced the men's blood sugar levels — something that standard exercise programs have not been shown to do.

Current exercise guidelines recommend at least 30 minutes of exercise a day at least five days a week, but "the general population fails to follow such regimes due to lack of time, motivation and adherence," the investigators note in the journal *BMJ Endocrine Disorders*. They hypothesised that high intensity exercise might improve insulin sensitivity more efficiently.

To investigate, they had 16 men in their early 20s do six sessions of exercise, each including four to six 30-

second sprints interspersed with four-minute rest periods. The time commitment for each session ranged from 17 to 26 minutes.

After two weeks, the amount of time the men's blood sugar and blood insulin levels were above normal after they drank a solution containing 75 grams of glucose was reduced by 12 percent and 37 percent, respectively. When people eat, Timmons explained, their blood sugar levels rise, but in very fit people levels speedily return to normal. In less-active people, high blood sugar levels are more prolonged, which over time can damage the body and lead to cardiovascular disease.

Based on the findings, Timmons told Reuters Health, people should try for four to six 30-second bouts of intense exercise, such as cycling or running up stairs, twice a week. While this is appropriate for people 20 to 40 years old who are in good health but not fit, he added, people with diabetes or heart disease should gradually increase their activity under a doctor's supervision.

Recommendations for high intensity, short duration exercise could one day replace current physical activity guidelines, Timmons said. "Only large scale trials could prove this," he said. "But there is mounting evidence that doing this new protocol will deliver the same reductions in risk factors. The key thing with exercise is the more routine you make it, the more likely you will benefit." And doing seven minutes of exercise a week, every week, he added, may be better than doing three hours a week just a few times a year.

Source: *BMJ Endocrine Disorders*