IMA Policy Document on Control of Diabetes in Kerala 2016

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ABSTRACT

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Diabetes is a devastating disease, not just for the individual, family or society but for the whole globe. 415 million (that is one in eleven adults) are considered to have Diabetes globally, the figure for our country being estimated at 69 million. The prediction for 2040 is that 642 million people (one in ten adults) are going to be affected by Diabetes globally. Every six seconds a life is lost somewhere due to Diabetes, accounting for five million deaths. Diabetes, also affects one in seven pregnancies. These figures are huge and the situation is alarming which calls for immediate and effective intervention. This has prompted the World Health Organisation (WHO) to declare "Beat Diabetes" as the theme for World Health Day this year.

Considering that, Diabetes is the sixth leading condition causing loss of life and the huge burden it produces on various vital organs, the threat can never be ignored. Diabetes increase risk of heart disease, stroke, blindness and nerve diseases. It accelerates all infections, increases chance of losing limbs and is the leading cause for failure of kidneys worldwide and in India. The economic burden it produces to the family and society also is quite big.

Though the challenge is huge, we do have solutions. We need to equip ourselves to know the disease, its after math and effectively intervene to prevent the deadly consequences. We have to form our region-specific guidelines to effectively combat the threat of Diabetes. This compilation is an earnest attempt by IMA to address the problem and suggest suitable interventions. We appeal for active discussion on this document and fine-tuning it further to render it more useful. Meanwhile we hope that this document will enable better prevention and care of Diabetes.

Keywords: Diabetes Management Guidelines, IMA Policy Document on Diabetes in Kerala 2016

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INTRODUCTION

Diabetes Mellitus is a chronic metabolic disorder characterised by hyperglycaemia caused by defective insulin secretion, insulin action or both. There are mainly three types of diabetes type 1 Diabetes, type 2 Diabetes and gestational diabetes. Among these type 2 Diabetes is the most prevalent one. Diabetes is considered as one the largest global emergencies of the 21st century. In the year 2015 globally 415 million people had diabetes. The global prevalence of diabetes for the age group 20 – 79 years in the year 2015 was 8.8% (7.2 – 11.4%). By the year 2040 the global prevalence of diabetes for the age group 20 -79 years is expected to become 10.4% (8.5 – 13.5%) and the number of people with diabetes in the same age group is expected to be 642 million. Three quarter of people with diabetes live in low and middle income countries. Among the top ten countries for number of people with diabetes India is in the second position with 69.2 million people with diabetes in the age group 20 -79 years, with a national prevalence of 8.7% (7.0 – 10.6%) in the year 2015.

PRESENT SCENARIO OF DIABETES IN KERALA

Kerala has a population of 3, 40. 40350 as per 2015 census. In 1999 the overall prevalence of type 2 diabetes in an urban settlement in Thiruvananthapuram was 16.35%; for the age group 30 – 64 it was 16.1% (Male – 16.2%, Female – 16.2%) and for the age group 65 years and above the prevalence was 29.7% (Male – 31.3%, Female – 18.6%). Another study in 2000, conducted in the Neyyattinkara taluk of Thiruvananthapuram district reported highest prevalence of

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type 2 diabetes in the urban area (12.4%), followed by midland (8.1%), highland (5.8%), and coastal (2.5%) regions. The community based cross sectional survey done in Ernakulam district in the year 2006, reported that the overall prevalence of type 2 diabetes in the age group 18 – 80 was 9% (Male - 8.7%, Female – 9.2%). Another cross sectional survey conducted in the rural central Kerala (Chengannur taluk, Alappuzha district) in the year 2007, the overall prevalence of type 2 diabetes was 14.6%. The prevalence of type 2 diabetes was 21.6% for the age group 45 -59 and 28.2% for the age group 60 years and above. The study by Thankappan et al. conducted in Thiruvananthapuram district in 2010 reported that the overall prevalence of diabetes mellitus for the age group 15 – 64 was 16.2%; in urban areas it was 14.85, in rural areas it was 20.6% and in slum regions it was 13.1%. The study done in Neyyattinkara taluk of Thiruvananthapuram district by Jose et al in the year 2013 reported that in the age group 30 years and above the overall prevalence of type 2 diabetes was 27.11% and that of pre-diabetes was 22.67%.

With changing lifestyles and expanding living standards the prevalence of diabetes and other non communicable disease is expected to increase in the coming years.

PRESENT SITUATION OF CARE AND CONTROL

The health care facilities broadly are public, private and cooperative sectors. The public health system is a well organized three tier system with Primary Health centres (PHC), Community HC, Taluk Head Quarters hospitals/General Hospital and Medical Colleges. Now the peripheral centres (PHC) are strengthened with NCD clinics from there the patients will get medicines free of cost and advice and health education on a monthly basis. The patients will be regularly followed up and if they develop complications they will be referred to tertiary care centres. The private sector plays a major share in health care especially in the urban areas

In the study by Menon et al. prevalence of newly diagnosed diabetes mellitus was 10.5% (55% of all diabetes). The control rates of diabetes are even poor. In the cross-sectional study from central Kerala, among those with diagnosed diabetes, 17.2% received no treatment, 14.7% were on diet alone, and 68% were on pharmacotherapy. Only 40% of people with diabetes had adequate glycemic control. The fasting blood glucose was 153 mg/dl and the mean glycosylated haemoglobin level (A1C) was 8.1%. A1C level was above the recommended target of 7% in 60% of subjects. Insulin use ranged from 2%-10%. Regarding the presence of other co-morbidities one in two had high blood pressure but only 29% of patients were on antihypertensive treatment. Only 5% were on lipid-lowering agents and 90% had low-density lipoprotein cholesterol (LDL-C) >100 mg/dl which is an important risk factor for CVD in diabetic population.

LACUNAE IN THE PRESENT SYSTEMS

In Kerala the high prevalence of diabetes is accompanied by poor detection. Only those with poor glycemic control are treated aggressively. Concomitant risk factors like hypertension and high cholesterol level are common among the diabetics but inadequately addressed. Among those who are treated for diabetes only one fifth have their glycemic level under control.

These are some of the other issues

1. Lack of research and credible data on the real magnitude of the problem.
2. Community involvement and group activities are limited.
3. Health education, prevention and early treatment are ignored by most persons involved patients, care givers and administrators. Focus on the preventive strategy is not adequate.
4. The medical officers and educators require adequate and repeated training
5. Lack of region specific definitive protocol especially guidelines for management of co-morbid conditions and methods of health education.
6. Lack of system for adequate and correct follow up and monitoring of patients.

Well organized system for care, control, resources or tools. is lacking It is left to individual or small group activity. All systems of medicine are involved and quacks thrive. Most patients are unaware of the long term consequences of diabetes. Very few are getting treated by a professional, trained in the management of diabetes. Despite being on medications most of the patients have uncontrolled blood sugars.

Areas for improvement and solutions suggested

There is a need for designing wide spread screening program for early detection among high-risk populations in Kerala state. This also points to the need of a statewide large population survey of diabetes to assess the actual prevalence of glucose intolerance in the State. This would help to design appropriate preven-

tion strategies based on public education and diabetes awareness program. The inadequate physical activity is a risk factor for diabetes. So there is a necessity to raise public awareness about the value of regular physical activity in preventing diabetes. Public health awareness programs should promote healthier lifestyle with increasing voluntary leisure-time physical activity, reduction in tobacco and alcohol consumption and greater consumption of healthy foods.

Facilities at PHC level to be improved like infrastructural facilities to be improved so that there should be space for examination of patient, to impart health education to them, to provide Medicines to the patients. Uninterrupted supply of Medicines including Insulin should be ensured. Training to be given for health care professionals in management especially to detect early development of complications and prevention, make available standard health education materials. Promote research in various aspect of disease prevalence and management.

Banning advertisements with unscientific claims like "cure of diabetes". The press / media should desist from propagating unscientific data. If a famous film actor says that he/ she has benefited from the 'medicine' it does not become a scientific fact.

Health education, improvement of awareness, steps for early diagnosis, adequate control and follow up should be ensured.

ROLE OF ADMINISTRATORS, MEDICAL PROFESSIONALS, PUBLIC

Administrators to provide adequate infrastructure and budgetary provisioning to ensure space, logistics, human resources and facilities for the NCD clinics closer to communities, so that they could be treated, closely monitored and educated. Special emphasis is needed to make available uninterrupted supply of medicines and other materials. Special budgetary allocation should be provided to diabetes as it a main cause of morbidity and mortality in Kerala population. A central-monitoring cell should be created to monitor and co-ordinate the workings of all the programs related to diabetes. Special media campaigns should be run by state authorities to promote the awareness of the disease. Direct/ indirect incentives should be given to agencies involved in diabetes prevention programs. Specialized continuing medical education programs should be organized to help the physicians to be updated on the current development in the field of diabetes management.

Medical professionals can play an important role in prevention and management of diabetes. They should have adequate knowledge on the guidelines of management of diabetes. Primary focus should be on preventive care. Special attention should be given to women with history of gestational diabetes mellitus. Doctors and other health care professionals should be able to provide customized information on diet, exercise and medication to the people for management and prevention of diabetes rather than providing generalised information. Medical professional should have utmost care in management, regular monitoring and prevention of Diabetes, they should also be able to detect early complications. They should update themselves with newer development, facilitate research.

Public should be aware of the importance of health education, regularly following advice and management. Public should actively participate in the various awareness programs conducted by government and other health organisations. They should make use of the facilities provided by the government like free blood glucose testing, preconception counselling. If they have any doubts regarding diet, exercise or medication they should not hesitate to ask the doubts to the health care providers.

Diet control

Healthy eating habits and good nutrition can go a long way in preventing and managing diabetes. Healthy food items such as whole grains are rich in components like dietary fibre, starch, fat, antioxidant nutrients, minerals, vitamin, legumes, and phenolic compounds that have been linked to the reduced risk of obesity, insulin resistance, dyslipidemia, diabetes and heart diseases

Exercise

There is firm and consistent evidence that programs of increased physical activity and modest weight loss reduce the incidence of type 2 diabetes. Starting from pre-school years, the importance of physical activity should be taught to the children. Safe and secure exercise areas should be made for women and children. It must be started in the early life itself in children, so that obesity, insulin resistance and diabetes and prevented. Encourage group exercise activity in apartments / resident's association premises.

Drugs

A recent study from Thiruvananthapuram showed that diabetic patients had poor adherence to medications. Patients using oral hypoglycemic agents, who had lower

per capita monthly expenditure, those with irregular blood sugar monitoring, who received limited diabetes management instructions from health professionals, who resorted to only symptomatic management, and those who did not receive family member's help to remember medications were more likely to report poor adherence compared with their counterparts.

Combination drugs should be used with caution and under strict medical supervision and only prescription by a modern medical doctor. Uninterrupted supply to be ensured, skipping of drugs should be avoided. Enhance production of drugs at government units and make drugs available at affordable cost to all.

Monitoring

Monitoring for the glycemic level and early detection of development of complications is essential in reducing morbidity and mortality among diabetic patients. Regular screening for complications which is the key for effective management and prevention of most of them should be as per standard protocols.

Regarding renal complications. monitoring should be with routine urine examination in the initial years. Indiscriminate request for microalbuminuria should be avoided, and should be ordered only in specific situations

HbA1C testing should be made available in government hospitals. People with diabetes and those at increased risk of developing diabetes should be made aware regarding importance of regular monitoring of blood glucose, especially women with a history of gestational diabetes mellitus

Complications

Cardiovascular disease is the most common cause of death in people with diabetes. High blood pressure, high cholesterol, high blood glucose and other risk factors contribute to increasing the risk of cardiovascular complications.

Kidney disease is much more common in people with diabetes than in those without diabetes. Maintaining near normal levels of blood glucose and blood pressure can greatly reduce the risk of kidney disease.

Diabetes can cause damage to the nerves throughout the body when blood glucose and blood pressure are too high. This can lead to problems with digestion, erectile dysfunction, and many other functions. Among the most commonly affected areas are the extremities, in particular the feet. Nerve damage in these areas is called peripheral neuropathy, and can lead to pain, tingling, and loss of feeling. Loss of feeling is particularly important because it can allow injuries to go unnoticed, leading to serious infections and possible amputations. People with diabetes carry a risk of amputation that may be more than 25 times greater than that of people without diabetes. However, with comprehensive management, a large proportion of amputations related to diabetes can be prevented. Even when amputation takes place, the remaining leg and the person's life can be saved by good follow-up care from a multidisciplinary foot team. People with diabetes should regularly examine their feet.

Many people with diabetes will develop some form of eye disease (retinopathy) causing reduced vision or blindness. Consistently high levels of blood glucose, together with high blood pressure and high cholesterol, are the main causes of retinopathy. It can be managed through regular eye checks and keeping glucose and lipid levels at or close to normal.

Women with any type of diabetes during pregnancy risk a number of complications if they do not carefully monitor and manage their condition. To prevent possible organ damage to the foetus, women with type 1 diabetes or type 2 diabetes should achieve target glucose levels before conception. All women with diabetes during pregnancy, type 1, type 2 or gestational should strive for target blood glucose levels throughout to minimize complications. High blood glucose during pregnancy can lead to the foetus putting on excess weight. This can lead to problems in delivery, trauma to the child and mother, and a sudden drop in blood glucose for the child after birth. Children who are exposed for a long time to high blood glucose in the womb are at higher risk of developing diabetes in the future.

Role of Surgery

Clinical studies show that the gastric bypass procedures help in diabetes management. The effect of this procedure does not depend only on the amount of weight loss. The anti-diabetic mechanism of the surgery may be from a combination of hormonal changes seen after exclusion of the proximal intestine and increasing nutrient delivery to the distal small bowel. Both mechanisms are currently being investigated.

Prevention

Aggressive health education, change of life style, avoidance of alcohol, smoking, diet, exercise, prevention of obesity, encouraging 'group exercise activity' -

all will contribute to prevent the epidemic of Diabetes

There is a lot of evidence which states that lifestyle changes (achieving a healthy body weight and moderate physical activity) can help prevent the development of type 2 diabetes. Obesity, particularly abdominal obesity, is linked to the development of type 2 diabetes. Weight loss improves insulin resistance and reduces hypertension. People who are overweight or obese should therefore be encouraged to achieve and maintain a healthy body weight.

Physical activity is one of the main pillars in the prevention of diabetes. Increased physical activity is important in maintaining weight loss and is linked to reduced blood pressure, reduced resting heart rate, increased insulin sensitivity, improved body composition and psychological well-being.

A balanced and nutritious diet is essential for health. A healthy diet reduces risk factors for cardiovascular diseases. Smoking is a well-established risk factor for many chronic diseases, including diabetes and its complications. As well as other harmful effects, smoking increases abdominal fat accumulation and insulin resistance. All smokers should be encouraged to quit smoking. However, weight gain is common when quitting smoking and therefore dietary advice on avoiding weight gain should also be given (e.g. managing cravings and withdrawal symptoms by using short bouts of physical activity as a stress-relief activity, rather than eating snacks).

There is evidence of a link between depression and both diabetes and cardiovascular disease. Both short (<6h) and long (>9h) sleep durations may be associated with a higher risk of developing type 2 diabetes. Sleep deprivation may impair the balance of hormones regulating food intake and energy balance. Long sleep durations may be a sign of disordered breathing or depression and should be treated appropriately. There is also a close association between obesity and obstructive sleep apnea syndrome (OSA), the most common form of sleep disordered breathing.

Tips for Prevention

1. Check your blood glucose levels. Regular monitoring helps to take necessary steps to manage our blood glucose levels.
2. Manage your weight. Excess body fat, particularly if stored around the abdomen, can increase the body's resistance to the hormone insulin. This can lead to type 2 diabetes.
3. Exercise regularly. Moderate physical activity on most days of the week helps manage weight, reduce blood glucose levels and may also improve blood pressure and cholesterol.
4. Eat a balanced, healthy diet. Reduce the amount of fat in your diet, especially saturated and trans fats. Eat more fruit, vegetables and high-fiber foods. Cut back on salt.
5. Limit takeaway and processed foods. 'Convenience meals' are usually high in salt, fat andkilojoules. It's best to cook for yourself using fresh ingredients whenever possible.
6. Restrict alcohol intake. Too much alcohol can lead to weight gain and may increase your blood pressure and triglyceride levels.
7. Quit smoking. Smokers are twice as likely to develop diabetes as non-smokers.
8. Control your blood pressure. Most people can do this with regular exercise, a balanced diet and by keeping a healthy weight. In some cases, you might need medication prescribed by your doctor.
9. Reduce your risk of cardiovascular disease. Diabetes and cardiovascular disease have many risk factors in common, including obesity and physical inactivity.
10. See your doctor for regular check-ups. As you get older, it's a good idea to regularly check your blood glucose, blood pressure and blood cholesterol levels.
11. Treatment has to be made less expensive

Tips for better care

1. Make a commitment to managing your diabetes

Members of your diabetes care team can help you learn the basics of diabetes care and offer support along the way. But it's up to you to manage your condition. Learn all you can about diabetes. Make healthy eating and physical activity part of your daily routine. Maintain a healthy weight. Monitor your blood sugar level, and follow your doctor's instructions for managing your blood sugar level. Ask your diabetes treatment team for help when you need it.

2. Don't smoke

Smoking increases your risk of various diabetes complications,[1] including: reduced blood flow in the legs and feet, which can lead to infections, ulcers and possible removal of a body part by surgery[2] (amputation), heart disease, stroke, eye

disease, which can lead to blindness, nerve damage, and kidney disease. Talk to your doctor about ways to help you stop smoking or using other types of tobacco.[3]

3. *Keep your blood pressure and cholesterol under control*

Like diabetes, high blood pressure can damage your blood vessels.[4] High cholesterol is a concern, too, since the damage is often worse and more rapid when you have diabetes.[4] When these conditions team up, they can lead to a heart attack, stroke or other life-threatening conditions.[5] Eating a healthy, reduced-fat diet and exercising regularly can go a long way toward controlling high blood pressure and cholesterol. Your doctor may also recommend taking prescription medication.

4. *Schedule regular physicals and eye exams*

Schedule two to three diabetes checkups a year, in addition to your yearly physical and routine eye exams.

5. *Keep your vaccines up to date*

High blood sugar can weaken your immune system, which makes routine vaccines more important than ever. Ask your doctor about:

a. Flu vaccine. A yearly flu vaccine can help you stay healthy during flu season as well as prevent serious complications from the flu.

b. Pneumonia vaccine. Sometimes the pneumonia vaccine requires only one shot. If you have diabetes complications or you're age 65 or older, you may need a five-year booster shot.

c. Hepatitis B vaccine. The Centres for Disease Control and Prevention, Atlanta USA recommends the hepatitis B vaccine for adults with diabetes who haven't previously received the vaccine and are younger than 60. If you're age 60 or older and have never received the hepatitis B vaccine, talk to your doctor about whether it's right for you.[6]

d. Other vaccines. Stay up to date with your tetanus vaccine. Your doctor may recommend other vaccines as well.

6. *Take care of your teeth*

Diabetes may leave you prone to gum infections. Brush your teeth at least twice a day, floss your teeth once a day and schedule dental exams at least twice a year. Call your dentist if your gums bleed or look red or swollen.

7. *Pay attention to your feet*

High blood sugar can reduce blood flow and damage the nerves in your feet. Left untreated, cuts and blisters can lead to serious infections. Diabetes can lead to pain, tingling or loss of sensation in your feet.

To prevent foot problems:

a. Wash your feet daily in lukewarm water. Avoid soaking your feet, as this can lead to dry skin.

b. Dry your feet gently, especially between the toes.

c. Moisturize your feet and ankles with lotion or petroleum jelly. Do not put oils or creams between your toes — the extra moisture can lead to infection.

d. Check your feet daily for calluses, blisters, sores, redness or swelling.

e. Consult your doctor if you have a sore or other foot problem that doesn't start to heal within a few days.

9. *Avoid alcohol*

Alcohol can cause high or low blood sugar, depending on how much you drink and whether you eat at the same time. So avoid alcohol.

10. *Stress reduction*

If you're stressed, it's easy to neglect your usual diabetes care routine. The hormones your body may produce in response to prolonged stress may prevent insulin from working properly, which only makes matters worse. To take control, set limits. Prioritise your tasks. Learn relaxation techniques. Get plenty of sleep. Above all, stay positive. Diabetes care is within your control. If you're willing to do your part, diabetes won't stand in the way of an active, healthy life.

END NOTE

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