



Editorial

Glycaemic control in diabetes - Bridging the gap

While the diabetes pandemic continues to affect most parts of the world, significant advances in the management of diabetes have been made over the past few decades. These advances include newer oral agents for diabetes, better insulin and insulin delivery devices, superior glycaemic-monitoring strategies and the use of technology to improve diabetes care. These advances are targeted at achieving control of plasma glucose, which is logical because the long-term effects of poor glycaemic control on microvascular and macrovascular complications of diabetes are well documented¹. Based on available data, various societies have suggested a tight glycaemic control, as shown by a haemoglobin A_{1c} (HbA_{1c}) value <6.5-7 per cent for most of the patients. These glycaemic targets are adopted by most of the societies, all over the world, including India, as a measure of good glycaemic control.

However, there seems to be a huge gap between the effectiveness of these strategies and the real-world outcomes. Data from developed countries such as the USA (National Health and Nutrition Examination Survey and the Behavioral Risk Factor Surveillance System data; 1999-2010)² suggested that 52.2 per cent of patients could achieve HbA_{1c} of <7 per cent, while 12.6 per cent of patients had markedly elevated HbA_{1c} of >9 per cent. Although there is an improvement of the total number of patients achieving HbA_{1c} of seven per cent or less over the years (1999-2003:42.3 vs. 2007-2010:52.2%), still half of the diabetic population have poor glycaemic control². Similarly, good blood pressure control (<130/80 mm Hg) was achieved in 51.3 per cent and adequate low-density lipoprotein control (<100 mg/dl) was achieved in 56.8 per cent of patients². If we combine all the three cut-offs along with non-smoking status, only 14.3 per cent of the patients could achieve that, suggesting a huge gap between the suggested and achieved targets in diabetic patients. Similar data from Hungary also suggested that almost 50 per cent of the patients with

type 2 diabetes did not achieve HbA_{1c} levels of seven per cent or lower³. Although these percentages have shown improvement compared to the decade preceding these studies, the patients who do not meet glycaemic targets form a large portion of the diabetic population.

The situation in the developing world is much worse than that of the Western countries with better-developed health facilities and education programmes⁴. A systematic review of an audit of the quality of diabetes care in low- and middle-income Asian and Middle-Eastern countries over 20 yr reported non-achievement of the recommended treatment goals in most of the studies consistently despite variation in the data⁴. Recently, published data from the Centre for Cardiometabolic Risk Reduction in South Asia Trial (n=1146) showed that the proportion of patients who achieved guideline-recommended glycaemic control (HbA_{1c} <7%) was 16.3 per cent (95% confidence interval: 14.6, 18.1), over a median follow up of 28 months⁵. In a multivariate model, adherence to prescribed medications, adherence to dietary plans and middle age group (50-64 yr) were associated with achieving HbA_{1c} control of <7 per cent, while the presence of microvascular complications reduced the probability. Longer duration of diabetes (>15 yr), dyslipidaemia and younger age group (35-49 yr vs. >64 yr) were associated with persistently poor glycaemic control with HbA_{1c} >9 per cent⁵. Because Asians have been shown to develop diabetes at an earlier age, the potential impact of poor glycaemic control over a longer period of time can be devastating⁶. Further, among patients with diabetes, younger age groups are likely to have poorer control as compared to older age groups. Poor glycaemic control in the younger people would increase the risk of future complications, making things much worse. In addition, patients with microvascular complications are more likely to have worse control - this may accelerate organ damage progression. Interestingly, education (primary/

secondary school or graduation) did not affect the risk of poor glycaemic control⁵.

Diabetes is a lifestyle disorder, and its management requires the patient to be adherent to diet and physical activity, which are cornerstones of the treatment. Similarly, compliance with drug therapy is also equally important. A lack of diabetes education can seriously impair the adherence of the patient to these factors⁷. Apart from the patient, failure to escalate therapy by the treating physician is also contributory⁸. In responding to poor glycaemic control, physician inertia is well known and not limited to just primary care physicians but also seen in specialists⁹. Physician inertia is often a manifestation of reticence of the patient to follow an intensified regimen.

There is an urgent need to translate available information on diabetes management to the primary care physicians, who are our main workforce in the fight against diabetes. Drug development in diabetes is also fast and every 3-4 yr, there is a new family of a drug marketed. These new drugs although costly have many additional advantages over older drugs. Providing the rationale knowledge of these drugs is an important part but very much limited. However, at the same time, focus on time-tested and cost-effective drugs such as metformin, sulphonylureas and glitazones, along with conventional insulin, especially when dealing with underprivileged populations, should not be lost as these are the cornerstone of routine diabetes management.

At the systemic level, access to diabetes care and the overall organization of healthcare are the factors which can affect glycaemic control. Overcrowded hospitals and outpatient departments discourage the patient from adhering to regular follow up visits¹⁰. The hospital timings often clash with the working hours of patients, and hence the affordability, in terms of loss of a day's earnings, may be an issue. Distance between the place of residence and the clinic, along with facilities for commuting, is also an important concern. The absence of a proper referral system may discourage the patient from seeking specialist medical advice when the primary care provider is not able to manage the disease adequately. Conversely, the lack of a referral system overburdens the tertiary care centre with patients who may have been treated in primary care. In addition, for resource-poor countries, the increasing popularity of newer and more expensive diabetes treatments may discourage

patients in terms of affordability. Older, relatively cheaper and yet effective options often remain underutilized.

While research work to discover better drugs and devices for diabetes management should continue, efforts to implement the existing knowledge and tools in order to harness their true potential is the need of the hour. Diabetes education, including preventive measures, is also an integral part of diabetes management and has shown efficacy in preventing or delaying complications⁷. However, even in developed health infrastructure, 40-50 per cent did not receive diabetes education, vaccinations or annual examinations². The situation in the developing world needs much effort to spread preventive awareness and education.

The efforts by the Ministry of Health and Family Welfare, Government of India, to promote information, education and communication (IEC) activities could be an important step in this regard (<https://main.mohfw.gov.in/sites/default/files/17563256478856633221.pdf>). Appropriate IEC material can be disseminated through electronic, print and mass media. Social media platforms may also help in rapid dissemination. Patients diagnosed with diabetes must receive diabetes self-management education from a trained diabetes educator. Apart from the initial interaction, follow up meetings with the educator will reinforce the education provided earlier. Although attempts have been made to generate more and more diabetes educator workforce in the country through diabetes educator programmes, apart from few tertiary care centres, most diabetes management centres lack trained diabetes educators to interact with patients. More efforts are required to train diabetes educators to improve care management¹¹.

Physician inertia can be solved by formal training, continuing medical education and providing feedback from specialists. Translating already-available information about the goals of treatment in a diabetes patient would help a lot. The employment of a healthcare team to manage diabetes, which includes doctors and allied professionals, can help in delegating different responsibilities, thus reducing workload and minimizing the chances of errors/omissions, which manifest as physician inertia. Regular team meetings with a focus on adherence to practice guidelines are also essential. Electronic health records with built-in prompts regarding targets may be useful. The chronic care model, which encompasses several of the above features and increased patient participation in his/

her care, has shown good results in terms of diabetes outcomes¹². The combined use of both non-physician care coordinators to reinforce diabetes education (increased patient adherence) and decision support electronic health record software (to counter physician inertia) has led to twice as many patients achieving $HbA_{1c} < 7$ per cent when compared to the usual care¹³. At the systemic level, appropriate training needs to be provided at the primary healthcare level to diagnose and initiate diabetes management and provide follow up to uncomplicated cases. Similarly, a well-laid-out protocol for referral of patients to higher centres should be in place. More diabetes clinics with flexible working hours can improve patient attendance and encourage follow up. Mobile diabetes clinics have also been created and may play a role in bridging the distance and commuting problems encountered in several areas¹⁴.

The success in bridging the gap between the potential and the reality may prove to be the decisive factor in the fight against diabetes.

Conflicts of Interest: None.

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