Consensus on Bridges for Barriers to Insulin Therapy

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Abstract

Introduction: Insulin is an effective, safe and well-tolerated drug for glycaemic control. However, there are significant barriers to its use.

Objectives: This consensus statement aims to define these barriers and suggest bridges to overcome them.

Methods: The consensus statements are based upon deliberations of a meeting held at New Delhi, India on 20 August 2016. The expert group committee reviewed various barriers to insulin use and categorized them into various categories: patient/community-related, physician-related and drug-related. The committee further proposed recommendations, based on published literature and their clinical experience, to address each of these barriers.

Results: Barriers (and bridges) can be classified as patient/community, physician/provider, and drug/device. Patient and physician barriers can further be categorized as those related to perceived inadequacy, perceived high cost, and perceived lack of benefit. Drug and device barriers can similarly be classified as those linked with perceived inadequacy, perceived high cost, and perceived lack of tolerability. Such a classification allows diabetes care providers to build appropriate bridges, which in turn facilitate timely insulin usage. Patient related barriers can be bridged by education, support and counselling. Use of modern insulin regimes and social marketing can address barriers related to perceived cost and lack of benefit. Physician related barriers can be resolved by training on various aspects of diabetes care. This will also help to break drug and device barriers, by ensuring appropriate choice of regimes, preparations and delivery devices.

Conclusion: The consensus statements provide an easily understandable taxonomic structure of barriers to insulin use. By using a reader-friendly rubric, and by focusing on bridges (rather than barriers alone), it promotes a proactive and positive approach to diabetes management. The consensus statement should serve as a useful pedagogic and clinical tool for diabetes care professionals, and facilitate good diabetes care across the world.

Introduction

Diabetes is one of the leading global health emergencies of the 21st century. Approximately 642 million people, or 1 in 11 adults, will have diabetes by 2040. As per International Diabetes Federation Diabetes Atlas 2015 (7th edition), the highest percentage of the diabetes population (aged 20-79 years) will reside in China (150.7 million) followed by India (123.5 million) by 2040.¹

Insulin therapy is an important component in the management of type 2 diabetes. According to the long-term follow-up United Kingdom Prospective Diabetes Study (UKPDS) the risk of complications can be significantly lowered in patients with strict glycaemic control.² Notably, patients, treated with sulphonylurea and insulin, in the intensive therapy group have shown better glucose control, in early stages of their therapy with reduction in vascular complications persisting even a decade later.³

Traditionally, insulin was used only when oral anti-diabetic drugs (OADs) failed to control blood glucose levels. But currently all international and national guidelines on diabetes suggest early initiation with insulin for effective glycaemic control and to delay diabetes-related complications.⁴ According to Consensus Statement by The American Association of Clinical Endocrinologists (AACE) and American College of Endocrinology (ACE) on the comprehensive type 2 diabetes (T2DM) management algorithm 2017, insulin is preferred in symptomatic patients with glycosylated haemoglobin (HbA1c) > 9%.⁵

Inspite of established advantages of insulin therapy, there are significant barriers to its use, both at patient/community and physician level. Hence, there is a need to understand these barriers and address them. A group of experts from across India held a consensus meeting in New Delhi on 20 August 2016, to provide simple and easily implementable guidelines to all

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The objectives of the meeting were to:

- Understand, evaluate and classify barriers to insulin therapy
- List bridges to overcome barriers to insulin therapy
- Evolve consensus statement of recommendations

### Table 1: Patient and community barriers and bridges

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Subcategory</th>
<th>Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived inadequacy</td>
<td>Inability to inject, monitor and titrate</td>
<td>Teach injection technique</td>
</tr>
<tr>
<td></td>
<td>Non-adherence</td>
<td>Support and counsel</td>
</tr>
<tr>
<td>Perceived high cost</td>
<td>Economic</td>
<td>Modern insulin regimes</td>
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<td></td>
<td>Weight gain</td>
<td>Social marketing</td>
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<td></td>
<td>Hypoglycaemia</td>
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<td></td>
<td>Lifestyle intrusion</td>
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<td></td>
<td>Social stigma</td>
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<tr>
<td>Perceived lack of benefit</td>
<td>Lack of understanding of benefits of insulin</td>
<td>Patient education</td>
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<td></td>
<td>Effects of uncontrolled diabetes</td>
<td>Social marketing</td>
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### Table 2: Physician and provider Barriers and Bridges

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Subcategory</th>
<th>Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived inadequacy</td>
<td>Inadequate communication/ motivation skills</td>
<td>Soft skills training</td>
</tr>
<tr>
<td></td>
<td>Inability to initiate, optimize, intensify insulin</td>
<td>CME on insulin use</td>
</tr>
<tr>
<td>Perceived high cost</td>
<td>3 T (Time Taken to Teach)</td>
<td>Create and utilize paramedical support</td>
</tr>
<tr>
<td></td>
<td>Loss of clientele</td>
<td>Create awareness on financial assistance programs</td>
</tr>
<tr>
<td></td>
<td>Psychosocial - Compassion fatigue</td>
<td>Coping skills training</td>
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<tr>
<td></td>
<td>Biomedical</td>
<td>CME on appropriate insulin regime, preparations and technique</td>
</tr>
<tr>
<td></td>
<td>Low priority for diabetes care</td>
<td>CME on diabetes epidemiology and its impact</td>
</tr>
<tr>
<td>Perceived lack of benefit</td>
<td>Effects of uncontrolled diabetes</td>
<td>CME on diabetes complication and care</td>
</tr>
</tbody>
</table>

CME = continuing medical education

### Table 3: Drug and devices Barriers and Bridges

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Subcategory</th>
<th>Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived inadequacy</td>
<td>Suboptimal effects of insulin</td>
<td>CME on choice of insulin regimes, preparations, delivery devices</td>
</tr>
<tr>
<td></td>
<td>Uncertain cold chain, quality of biosimilars</td>
<td>Quality control</td>
</tr>
<tr>
<td>Perceived high cost</td>
<td>Biomedical</td>
<td>Prefer modern insulins</td>
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<tr>
<td></td>
<td>Economic</td>
<td>Follow insulin technique</td>
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<tr>
<td></td>
<td>Cost containment</td>
<td>CME on health economics</td>
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<tr>
<td>Perceived lack of tolerability</td>
<td>Lack of flexibility</td>
<td>Prefer flexible regimes and preparations</td>
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<td></td>
<td>Device discomfort</td>
<td>Modern delivery devices, shorter needles</td>
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CME = continuing medical education

### Methods

During the consensus meeting, the expert group committee reviewed various barriers to insulin use and categorized them into various categories: patient/community-related, physician-related and drug-related. The committee further proposed recommendations, based on published literature and their clinical experience, to address each of these barriers.

### Barriers to Use of Insulin Therapy

There are various barriers against the use of insulin, which range from patient/community-related to physician-related and drug-related. All insulin-related barriers can be overcome by teamwork aiming to enhance patient education and diabetes awareness among patients and physicians.

The experts listed all the barriers and considered various classification schemes during the consensus meeting. Various pedagogic frameworks like the binomial model (patient related and physician related barriers) and the biopsychosocial model were evaluated. However, the most relevant taxonomic model was the one based upon Quadruple of Atreya (described by famous Ayurveda physician Atreya). Atreya’s 4 essential components of a successful treatment regime consists of -physician, drug, patient, and attendant (trained nurses, committed counselors and other healthcare professionals and family members) components. All the four components must work in concordance in order to achieve optimal outcomes in diabetes management.

In view of extensive overlap, it was concluded that Atreya’s model can be simplified by combining patient and community barriers. It was therefore decided to list three categories of barriers: patient and community barriers, physician and provider barriers, and drug and device barriers. Further discussions led to the creation of a 3x3x3 rubik with each barrier divided into various sub-categories: 1) perceived inadequacy, 2) perceived high cost and 3) perceived lack of benefit; thus providing an easily understandable taxonomic framework. This classification helps in efficient teaching, learning and sharing of this concept, and facilitates generation of ideas regarding solutions for these challenges.

Tables 1, 2 and 3 summarize patient and community, physician
and provider and drug and device barriers, respectively.

**Patient and Community Barriers**

**Perceived Inadequacy**

Inability to inject, monitor and titrate: Patients with diabetes lack self-confidence regarding their ability to administer, monitor and titrate insulin therapy. They often have psychological insulin resistance, which may be due to fear of injections or fear of pain during the injections, fear of hypoglycaemia, social stigma or illiteracy. In a study, 43% of patients reported injection phobia and pain associated with needles as the prominent reasons for apprehension against the use of insulin therapy.9

Self-monitoring of blood glucose (SMBG) is often not a preferred tool for glucose measurement in routine practice by patients as it is considered a cumbersome and painful procedure. In a study done by Simon et al, 29% of the patients avoid SMBG due to pain or tenderness in their fingertips.10

Non-adherence: Patients report various reasons for omission or non-adherence to insulin treatment, including skipping of meal due to their busy schedule or travel plans, stress or emotional problems or due to public embarrassment.11 Perceived inability in handling such situations may act as a barrier to insulin use. Data from various surveys have demonstrated that patients face difficulty in taking insulin at the prescribed time daily or with meals every day and often plan their daily activities around insulin injections.12 ‘Dose omission’ (24.7%) is reported as the most common event in medication errors followed by ‘wrong drug’ (13.9%) and ‘wrong dosage time’ (9%) in insulin users (N=2057).

In a telephonic survey of 1530 insulin-treated patients (in China, Japan, France, Germany, Spain, Turkey, UK or USA), insulin omission/non-adherence to insulin at least for 1 day in the last month, with an average of 3.3 days, is reported in 33.2% of patients (i.e. 1/3rd of the total patients).13 Religious requirements like fasting also play an important role in compliance to insulin treatment.14 Patients may feel that insulin use will not allow them to fulfill their religious requirements.

**Perceived high cost**

Economic: Patients generally feel that insulin is an expensive therapy. However, Jacob et al in 2016 reported that insulin is less expensive than use of multiple oral medications to produce the same glycaemic outcomes. After evaluating the prescription patterns and the cost of anti-hyperglycaemic drugs, the annual cost of insulin is reported to be directly related to an increase in HbA1c level, BMI and presence of diabetes complications.15

Biomedical: Patients have frequent concerns over hypoglycaemia and weight gain. In a survey of young female patients with type 1 diabetes, it was seen that approximately half of them intentionally omit insulin for weight control purpose and suffer from higher psychological distress, lower glycaemic control and higher rates of complications than patients who did not omit insulin.16 In ‘The Global Attitude of Patients and Physicians (GAPP) 2’ study, “low blood sugar levels” (53% patients) and “to reduce the risk of having a hypoglycaemic event” (51% patients) are the two important reasons for insulin dose reduction.17

Psychosocial: Patients also have concerns about the need to self-inject in a public place. They feel embarrassed and consider injections to be a nuisance and an intrusion into their lifestyles. Negative thoughts like, “My life will be less flexible, less enjoyable”, “My diabetes has gotten worse”, “I’ve failed to manage my diabetes properly”, represent an intangible cost and may be great enough to offset the benefits of insulin.9

**Perceived Lack of Benefit**

Lack of understanding of benefits of insulin: Patients usually complain that they have insufficient awareness and knowledge about insulin treatment and its benefit in terms of good glycemic control, if used at an early stage of the disease. The most common reason for patients’ lack of awareness is their primary care physicians, who do not have sufficient time to educate them or prefer to prescribe OADs, suggest alternate therapies to retain patients or have shortage of resources/facilities to assist them.18

Effects of uncontrolled diabetes: As reported in a study, approximately 35% of the patients do not have adequate knowledge about the role of diabetes in both micro and macrovascular complications.19 Bad press plays an important role in patient decision regarding the use of insulin therapy. For e.g., statements like “the risk of treating diabetes with drugs are far worse than the disease”, “Why Is Too Much Insulin Bad?” can change the patient’s decision of using insulin.20 Patients may also face financial barriers due to lack of health insurance and poor economic background.

**Physician and Provider Barriers**

**Perceived Inadequacy**

Inadequate communication/motivation skills: Diabetes care professionals (DCPs) often feel inadequate in meeting the clinical challenges associated with insulin use. This may be due to suboptimal training (related to both hard [biomedical] and soft [communication] skills), lack of experience or paramedical support.

Inability to initiate, optimize and intensify insulin: As a result of lack of skills, they exhibit clinical inertia in initiating/intensifying therapy. In a survey of 600 physicians conducted across 6 countries, lack of experience with available insulins and regimens (50%), lack of simple guidelines for insulin titration and intensification (40%) and shortage of support and staff (30%) were considered as the major barriers for insulin treatment.21

**Perceived high cost**

Time taken to teach: DCPs often
lack the time required to give to their patients for explaining the benefits of insulin therapy. In a Global internet survey of physicians (N=1250), more than 25% of the physicians reported that they want to spend more time with their patients.12

Loss of clientele: In a pay-from-pocket, pay-per-visit market, physicians fear doctor shopping. Patients may visit multiple physicians to seek prescriptions for oral therapy in a misconceived bid to avoid insulin-based regimen. This results in prescription of alternate therapies other than insulin, so as to retain patients, leading to wrong/ negative management of diabetes.22

Psychosocial: Compassion fatigue: Compassion fatigue is the term used to describe emotional residue or strain, felt while working with those suffering from the consequences of traumatic events. DCPS working in busy diabetes clinics, who repeatedly have to motivate reluctant patients to accept insulin, may experience compassion fatigue. Such DCPs find it challenging to teach and counsel patients regarding the benefits of insulin, in an empathic and efficient manner.23

Biomedical: DCPs may feel that the benefits of insulin are outweighed by various risks associated with its use. These risks include local site reactions, hypoglycemia and weight gain. In a 2008 study, 27% physicians reported that the risk of weight gain associated with insulin therapy made them reluctant to prescribe insulin to most of their patients with BMI ≥ 35.24 In a Global internet survey of physicians (N=1250), 76% of the physicians had concerns of hypoglycemia, therefore failing to treat their patients as intensively as required.12

Drug and Device Barriers

Drug and device barriers may pertain to inappropriate choice of insulin regimes, insulin preparations, or insulin delivery devices. These barriers also include adverse effects due to the drug or its excipients; inappropriate dose or incorrect technique; and the complexity of insulin administration.

Perceived Inadequacy

Suboptimal effects of insulin: Regimens and doses of insulin need to be selected and titrated in a dynamic, patient centred manner. A negative perception of insulin therapy can be due to incorrect or incomplete prescriptions. For example, premix insulin or rapid acting insulin (and not basal) are effective in achieving euglycemia in patients with postprandial hyperglycaemia. If the appropriate regimen or dose is not prescribed in such cases, the purpose of insulin treatment may not be served. Another factor which decides the efficacy of insulin is the time gap between injection and meal. Regular human insulin if taken just before or immediately after the meal is less effective than rapid acting insulin analogues which can be administered immediately before or even after meals.25

Uncertain cold chain, quality of biosimilars: Insulin production is a highly skilled and sensitive process. Even a slight change in quality can impact the efficacy and safety of the molecule. Insulin transportation and storage also require maintenance of cold chain. If proper temperature is not maintained, insulin being a protein can undergo degradation and lose its efficacy.26 Use of insulins which have not been manufactured, transported, or stored properly, may lead to perceived inadequacy of insulin among DCPs.

Economic: Insulin is a life-saving medication. While insulin is listed as essential medication, and costs of insulin have not risen as much as those of other drugs, yet there are people who cannot afford the drug.28 This is especially true in pay from pocket or uninsured markets

Perceived Lack of Tolerability

Lack of flexibility: Flexibility of an insulin regime, or preparation, is defined as their ability to be injected at variable times, with variable injection-meal time gaps, in a dose frequency and quantum determined by shared decision making, with minimal requirement of glucose monitoring and health professional consultation, with no compromise on safety, efficacy and tolerability.29 Patients are often concerned about the lack of flexibility with insulin therapy. They feel there is a compulsion to follow a rigid lifestyle when on insulin, and this causes resistance to the use of insulin.

Device discomfort: Some insulin
Bridges Over Barriers

Barriers to use of insulin can only be abridged when patient and physician work together as a team, along with family and other DCPs. Atreya mentions four attributes which are necessary for each component of the quadruple.

A patient should be sincere, obedient to physician’s instructions, have good treatment compliance and follow transparency while communicating with physician. In addition, a physician should have a thorough theoretical and practical knowledge of diabetes management. To achieve this, both need active support from ‘attendants’, who include paramedical staff and family members. These people should be knowledgeable, efficient and ‘loyal’, helping patients to win their daily battle against diabetes.

Tables 1, 2 and 3 summarize bridges to patient and community, physician and provider and drug and device barriers, respectively.

Bridges for Patient and Community Barriers

Patient and community-related barriers to insulin use can be addressed with the support of DCPs, who can educate and counsel their patients and change their attitude towards insulin use. Knowledgeable, efficient, and empathic paramedical staff can help to combat misconceptions among patient and community.

Social marketing plays a big role in conquering patients’ social and psychological fear of using insulin and helps in bridging the barriers to insulin therapy. It attempts to achieve behaviour change by focusing on improving health care seeking behaviour with emphasis on timely insulin acceptance and usage. The final goal of social marketing is societal good. In this case, good glycaemic control, leading to complication-free diabetes, is achieved by timely use of insulin (which helps achieve this goal).

Perceived Inadequacy

Patients’ attitude towards insulin use can be improved, if both patient and DCP work together as a team and build trust and confidence among each other. Patients are more likely to trust those DCPs who give them time and understand their needs. They trust those DCPs who explain facts of insulin treatment in simple terminology. DCPs need to explain why and how diabetes is caused and make patient understand that diabetes can be well managed. This increases diabetes literacy, numeracy, and adherence of patients. Physicians should continuously monitor adherence and identify barriers in case of poor adherence.

IDF provides simple recommendations for strengthening patient-physician conversations: 1) offer care to all patients with diabetes with sensitivity to cultural wishes and desires, 2) encourage a collaborative relationship where all the issues of diabetes are addressed, 3) use protocol-driven diabetes care to deliver care plan at scheduled routine visits, 4) organize care around a person with diabetes, 5) provide access for a person with diabetes to a multidisciplinary diabetes team and 6) encourage self-management of diabetes.

High-quality diabetes self-management education improves patients’ self-management, compliance to insulin therapy and glucose control. The “5A” programme helps to facilitate insulin initiation. This programme includes a sequential series of steps to facilitate patient self-management and behaviour change (Assess: evaluate relevant attitudes and behaviour, Advise: provide personally relevant behavioural change recommendations, Agree: set specific, collaborative, feasible goals, Assist: anticipate barriers, problem-based solutions and complete action plan, Arrange: schedule follow-up).

Perceived High Cost

Patient perceive social stigma revolving around the use of insulin treatment, especially at initiation. However, with the support of social marketing (advertisements, radio, television, drama, theatre and road plays, newspapers) diabetes awareness programs and family-centric education programs, social stigma of insulin has alleviated considerably.

Patients often see insulin as an intrusion into their lifestyle. This is due to a fear that frequent self-injections and self-monitoring will require a rigid lifestyle. This fear is abridged by motivational enhancement therapy. DCPs should break down diabetes self-management skills into a series of manageable steps, and personalize it to the patient’s situation, so that the patient minimizes his or her discomfort of change. Patients behaviour and disease outcome can be improved by providing continuous support, encouraging patient support groups and by offering individualized diabetes education.

Coping skills training can be suggested to improve handling of diabetes distress. The Karnal model of diabetes counselling focuses on diagnosing a particular patient’s coping method. In this training (AEIOU approach), a physician first assess the patient’s attitude to insulin (A=ask for assess) followed by the elimination of his/her negative strategies (E=explain and eliminate; negative thinking includes thinking all time about diabetes, blaming oneself or others for diabetes), introduce and internalize the positive skills (I; e.g. have positive and pleasant thoughts, plan for jovial trips, etc.), observe the changes regularly (O) and constantly try to upgrade the patient’s health related behaviour (U).
diabetes support, counselling, therapeutic patient education and injection demonstrations. This helps achieve better glycaemic control and attain better quality of life. It also helps to strengthen the bond between patient and DCP, resulting in better patient adherence.  

**Perceived Lack of Benefit**

DCPs must focus on the benefits of effective management rather than emphasizing on the potential complications. This approach will help in motivating patients in initiation of insulin therapy and also improve compliance.

An approach which physicians often opt is “3I” strategy, where they first inform (I) the patient about the benefits of insulin followed by incubation (I) period where a physician provides time to a patient to think over the explained facts and the last step is initiation (I) of insulin treatment. This approach helps to build trust between patient and physician.

**Expert group recommendation**

1: Bridges for patient and community barriers

Diabetes care professionals should
- Build trust and confidence
- Educate, counsel and support the patient
- Practically demonstrate the technique of insulin use
- Encourage social marketing of benefits of insulin in the community at large

2: Bridges for physician and provider barriers

The characteristics of a perfect DCP can be explained by the mnemonic- CARES, i.e. one who is 1) (C) confident and competent (has a good command over theoretical knowledge and practical experience, has dexterity and is efficient in choosing appropriate drugs for treatment); 2) (A) assessable, 3) (R) gives reciprocal respect, 4) (E) expresses empathy and 5) (S) explains the facts in a straightforward and simple way. Every diabetologist wishes to be a perfect DCP. However because of inadequate soft and hard skills, fear of doctor shopping and fear of side effects (weight gain, hypoglycaemia) they fail to counsel or motivate patients to initiate and intensify insulin therapy.

**Perceived Inadequacy**

Physicians usually lack hard skills (i.e. adequate information on insulin types and regimen and inability to initiate or intensify insulin therapy) or soft skills (i.e. communication, counselling, etc.). Their hard skills can be improved through continuing medical education (CME) and physician training workshops. These skills further help them to gain confidence and lead to timely initiation and intensification of insulin therapy.

**Perceived Lack of Benefit**

Physicians’ lack of awareness about the importance of timely diabetes management is addressed by attending CME sessions, workshops, conferences, trainings and research. These interventions help physicians to gain an insight about the epidemiology and prevalence of diabetes, both at the national and global level, the healthcare costs associated with management of diabetes and its complications, and the benefits of timely insulin use.

**Expert group recommendation**

2: Bridges for physician and provider barriers

Diabetes care professionals should
- Empower and equip themselves with:
  1. Hard skills
  2. Soft skills
  3. Competent paramedical staff
  4. Lay educators
  5. Diabetes literate and numerate patients
Bridges for Drug and Device Barriers

There have always been apprehensions regarding the use of insulin. These can be addressed by appropriate choice of insulin therapy.

Perceived Inadequacy

Perceived inadequacy is abridged by ensuring patient-centered choices of insulin regimens, preparations and delivery devices. Less frequent administration with meal time flexibility helps to improve patient adherence to treatment. Adherence to insulin treatment is higher with once daily injections than with twice or thrice daily regimens of insulin.

Insulin regimens vary in terms of frequency of administration, timing of administration, dose, safety and tolerability. Hence, choice of insulin therapy should be based on a patient centric approach. Good injection practices can reduce injection-associated pain, risk of complications, daily insulin dose, fasting plasma glucose and HbA1c and help patients achieve satisfaction towards treatment.

Perceived High Cost

Modern insulin analogues allow great degree of treatment flexibility, offer minimal glycaemic variability and reduce the risk of weight gain and hypoglycaemia. These analogues can help patients lead a normal life without developing a feeling of intrusion into their lifestyle. Good injection practices can reduce the risk of injection site reactions. Regular demonstration of insulin injection technique to patients can help to reduce wrong injection techniques and injection site reactions. FITTER recommendations suggest systematic rotation of injection sites, and limiting the use of pen needles and syringes to one-time.

Cost of the drug plays an important role in patient adherence to the treatment. DCPs must be aware of the cost of medication, and judiciously suggest insulin preparations which are affordable. Reusable (durable) pens are an affordable and convenient method of insulin delivery.

Perceived Lack of Tolerability

Patients may feel embarrassed while handling insulin delivery devices. Patient-friendly insulin delivery devices (pens requiring low pressure for injection), and less intrusive insulin regimens with lower risk of hypoglycaemia, can help in alleviating the fear of injection, dose adjustment, dose omission/non-adherence, pain and anxiety levels.

The Forum for Injection Technique and Therapy Expert Recommendations (FITTER) include the use of short pen needles (4 mm) or syringe needles (6 mm) for injecting insulins. Short needle use avoids the risk of intramuscular administration, is less painful, and helps to avoid patient’s psychological insulin reluctance resulting in higher treatment compliance. Short needles provide comparable glycaemic control to long needles without increasing the risk of leakage.

Expert group recommendation 3: Bridges for drug and device barriers

Diabetes care professionals should advocate:
- Availability/accessibility/affordability of insulin
- Use of insulin with low risk of hypoglycaemia, glycaemic variability and weight gain
- Use of patient-friendly insulin delivery devices
- Flexibility in time of administration of insulin
- Lower frequency of administration of insulin

Summary

The current paper summarizes the barriers to insulin use, and suggests bridges to address these barriers. Patients should be educated and counselled regarding the benefits of early insulin treatment, with minimal risk of hypoglycaemia and weight gain. Social media, diabetes education programs and diabetes educators can help motivate and encourage patients to use insulin. Physician and provider barriers can be addressed by enhancing their soft and hard skills through CMEs’ and other training programs/workshops. Paramedical staff can further help in facilitating insulin use. Drug and device barriers can be bridged by opting for flexible, comfortable and safe insulin regimens, preparations and delivery devices. Overall, barriers to insulin use can be addressed by adopting a positive team spirit, based on competence, trust and confidence, and supported by use of modern insulins and delivery devices.

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