Overcoming Barriers to Glycemic Control in African Americans with Type-2 Diabetes: Benefits of Insulin Therapy

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Financial support: Support was provided by Sanofi-Aventis U.S.

A disproportionate number of African-American men and women are affected by obesity and diabetes. The documented rate of poor glycemic control in the African-American population may contribute to the high rate of morbidity and mortality due to diabetes observed in these patients. Since the benefits of strict glycemic control have been demonstrated in multiple large trials, the aim of treatment should be to achieve the goals set forth by the American Diabetes Association. Insulin remains an essential therapeutic agent for helping patients achieve glycemic control and preventing long-term comorbidities. However, barriers to insulin therapy exist for both the physician and patient. Strategies to counter this resistance include identifying barriers to treatment, restoring the patient's sense of control, utilizing simple regimens, and reviewing the benefits of insulin and the risk of hypoglycemia. In treating African-American patients with diabetes, providers of various racial and ethnic backgrounds may maximize treatment efficacy by attempting to understand and practice culturally competent care.

Key words: diabetes ■ insulin ■ African Americans

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INTRODUCTION

Diabetes is a significant public health issue in the United States today; among people aged ≥20 years, 9.6% have diabetes.[1] One-quarter of men and one-third of women are obese,[2] and obesity is associated with diabetes in both adults and children;[3] therefore, the incidence of diabetes might well be expected to rise. This might especially be the case in African Americans, in whom rates of obesity and diabetes continue to increase.[1,2] Indeed, over the next 50 years, the highest percentage increases in the prevalence of diabetes have been projected for minorities and the elderly (aged ≥75 years).[4] In addition, African-American patients with type-2 diabetes have poorer glycemic control compared to Caucasians and have higher morbidity and mortality due to diabetes.[5] In order to achieve glycemic control to reduce the long-term complications associated with diabetes, it is critical to increase awareness among providers regarding the effect of diabetes and its associated morbidity in African Americans, as well as the importance of early initiation of intensive insulin therapy.

PREVALENCE

Of all African Americans aged ≥20 years, 13.3% have diabetes.[1] Although exact diabetes prevalence estimates are not available for children and adolescents, 55.9% of all African-American children ages 6–19 years are either overweight or at risk for being overweight. This percentage is significantly greater than for non-Hispanic whites (41.8%, $p<0.05$).[6] Despite the high incidence of obesity and diabetes in African Americans, there is a gap in perceived risk versus actual risk for diabetes. A community-based screening of primarily African Americans found that 36% of the participants who believed they had no risk for developing diabetes were actually at high risk.[7] In addition, type-2 diabetes is frequently diagnosed only when patients present with complications, and one third of patients with diabetes remain undiagnosed.[3] Thus, it is likely that a large number of African Americans have undiagnosed diabetes.

MORBIDITY AND MORTALITY

Even after receiving a diagnosis of diabetes, African Americans have been shown to have poor glycemic control. Among subjects aged ≥20 years with diagnosed diabetes who participated in the 1999–2000 National Health and Nutrition Examination Survey (NHANES), African Americans had higher levels of fasting blood glucose (FBG) and glycosylated hemoglobin A1C (A1C) compared to whites.[5] African Americans also have higher rates of diabetic retinopathy,[8] diabetes-related end-stage renal disease,[9] lower-extremity disease[10] and hospitalizations as a result of diabetes[11] than non-Hispanic whites. More striking is that, while diabetes was the seventh leading cause of death in the United States in 1998,

the rate of death due to diabetes was 2.4 times greater in African Americans than in whites.[12] The increased incidence of complications in African Americans might be the result of not only poor glycemic control but also of delays in treatment initiation or advancement or of reduced access to medical services. Apart from physiologic complications, diabetes impacts socioeconomic areas for African Americans, such as family life, child care and employment.[13] Consideration must be given to the treatment and education of these patients to reduce their rates of morbidity and mortality as a result of diabetes.

ADHERENCE TO GUIDELINES

The American Diabetes Association (ADA) publishes annual recommendations for glycemic control. Table 1 displays the ADA recommendations for adult patients with diabetes, which include targets for glucose levels, blood pressure, and cholesterol.[3] In NHANES 1999–2000, only 37% of examined adults, of which 17.8% were non-Hispanic African-American patients, had A1C levels at the ADA goal of <7.0%.[14] Even fewer adults met all recommendations. In NHANES 1999–2000, only 7.3% of all adults with diabetes achieved the recommended goals for A1C, blood pressure and total cholesterol.[14] As with the overall population of patients with diabetes, care of African-American patients must be sufficient to reach the guidelines set by the ADA for good glycemic control and the prevention of comorbidities.

TREATMENT OF DIABETES

While type-1 diabetes involves beta-cell destruction and absolute insulin deficiency, type-2 diabetes is characterized by an underlying insulin resistance, followed by a progressive decline in beta-cell function (with accompanying defects in insulin secretion).[3] Individuals at high risk of developing type-2 diabetes should be counseled on the benefits of weight loss and physical activity in delaying diabetes.[3] Lifestyle modification (diet and exercise) is the cornerstone of management for type-2 diabetes. When patients require pharmacologic therapy in addition to lifestyle modification, oral antidiabetic drugs (OADs) or insulin or both are prescribed. Although treatment can be initiated with OADs, these agents alone are often ineffective over time for achieving recommended A1C levels;[15,16] because type-2 diabetes is a progressive disease, most patients will eventually need insulin to improve their glycemic control.

In addition to OADs, exenatide, an injection administered twice daily that enhances insulin secretion by pancreatic beta cells, has recently been approved for use in combination with metformin or sulfonylurea, or both.[17] In an open-label trial, adjunctive therapy with exenatide or insulin glargine resulted in equivalent reductions in A1C levels. While exenatide was associated with weight loss (-2.3 kg at study end), it also showed significantly more adverse gastrointestinal effects than insulin glargine [e.g., nausea: 57.1% and 8.6%, exenatide vs. glargine, respectively ($p<0.001$)].[18] The long-term efficacy and safety of exenatide injection are currently unknown.

More recently, sitagliptin has been approved as monotherapy or in combination with metformin, pioglitazone or rosiglitazone for the treatment of diabetes. Sitagliptin is an oral agent that inhibits the inactivation of incretins, gastrointestinal hormones that enhance insulin secretion. Sitagliptin improves glycemic control and is well tolerated, but, like exenatide, its long-term efficacy and safety are unknown.[19]

Because OADs have limited efficacy over time[15,16] and the long-term efficacy and safety of exenatide are unknown, insulin is an essential therapeutic agent that can help patients achieve glycemic control and prevent long-term comorbidities. For most patients, the natural history of type-2 diabetes necessitates an escalation of therapy (i.e., from diet and exercise to pharmacological therapy, from monotherapy to combination therapy, from OADs to insulin). Insulin is the oldest agent used for glycemic control. More than 20 types of insulin products are available for the intensive treatment of type-2 diabetes (Table 2), and they vary in the timing of onset and duration of action.

BENEFITS OF INTENSIVE BLOOD GLUCOSE CONTROL

In contrast to conventional treatment, intensive treatment is used to restore tight or near-normal glycemic

Table 1. American Diabetes Association recommendations for adults with diabetes[3]

Glycemic Control	
Glycosylated hemoglobin A1C	<7.0%
Preprandial capillary plasma glucose	90–130 mg/dL (5.0–7.2 mmol/L)
Peak postprandial capillary plasma glucose*	<180 mg/dL (<10.0 mmol/L)
Blood Pressure	<130/80 mmHg
Lipids	
Low-density lipoprotein	<100 mg/dL (<2.6 mmol/L)
Triglycerides	<150 mg/dL (<1.7 mmol/L)
High-density lipoprotein†	>40 mg/dL (>1.1 mmol/L)

* 1–2 hours after the beginning of a meal; † Increasing goal by 10 mg/dL has been suggested for women; Copyright © 2003 American Diabetes Association from *Diabetes Care*. 2003;26:S4-S42. Reprinted with permission from The American Diabetes Association

control in patients with diabetes. The benefits of strict glycemic control have been demonstrated in multiple large trials and include a decrease in the risk of microvascular complications,[20] macrovascular events[21] and cardiovascular disease events[22] in patients with type-1 and type-2 diabetes. Since type-2 diabetes is frequently diagnosed only when patients present with complications,[3] an important consideration is when to initiate insulin. Small studies have documented long-term maintenance of euglycemia following short-term intensive insulin therapy in patients with newly diagnosed type-2 diabetes.[23,24]

ATYPICAL DIABETES IN AFRICAN AMERICANS

In the management of African-American patients, clinicians should keep in mind that these patients may present with atypical features.[25] Some patients with type-2 diabetes may present with diabetic ketoacidosis, a symptom that is typical of type-1 diabetes.[26,27] In contrast to type-1 diabetes, however, African-American patients with atypical diabetes are often obese with evidence of insulin resistance and acute defects in insulin secretion, and they do not have the autoimmune markers present in type-1 diabetes.[27,28] For the management of these patients, there might be a transient need for insulin therapy; in fact, spontaneous remission has been seen following intensive therapy.[28] Recurrence of diabetic ketoacidosis is rare, but it might occur if the patient is not compliant with insulin therapy.[26] Another unique feature of diabetes in African Americans is that intensive initial therapy to achieve glycemic control has been associated with normoglycemic remission in some African Americans who are newly diagnosed with type-2 diabetes and are not ketotic.[29,30] In these select patients, insulin therapy can be discontinued, but patients should be monitored from time to time for any changes in their condition. Clinicians should be aware of such atypical features of diabetes that may occur in African Americans, and they should be aware that transient use of insulin may result in remission in some patients.

BASAL INSULIN THERAPY

As a patient's A1C rises above 8.4%, fasting hyperglycemia (and not postprandial hyperglycemia) becomes the major contributor to overall glycemic control.[31] Using simple dosing regimens to combat fasting hyperglycemia, basal insulin can be added to existing treatment in patients with poor glycemic control. In the treat-to-target trial, patients with uncontrolled type-2 diabetes who were taking OADs received a single bedtime dose of insulin glargine or human neutral protamine Hagedorn (NPH) insulin, titrated to reach a target FBG ≤100 mg/dL.[32] The addition of either of these basal insulins to existing oral therapy resulted in mean A1C levels <7.0% in each group at the end of the study.[32] Importantly, >10% of subjects in each group were African American, and insulin glargine was associated with significantly less

Table 2. Overview of insulin formulations[64-66]

Generic Name	Brand Name	Form	Onset	Peak	Duration
Rapid Acting ("Bolus" Insulins)					
Insulin lispro	Humalog®	Analog	<15 min	1–2 h	3–4 h
Insulin aspart	NovoLog®	Analog	<15 min	1–2 h	3–4 h
Insulin glulisine	Apidra®	Analog	<15 min	0.5–1.5 h	1–2.5 h
Inhaled insulin	Exubera®*				
Regular					
Regular	Humulin® R	Human	0.5–1 h	2–3 h	3–6 h
	Novolin R, ReliOn® (Wal-Mart)	Human	0.5–1 h	2–3 h	3–6 h
Intermediate Acting					
Neutral protamine Hagedorn (NPH)	Humulin R	Human	2–4 h	4–10 h	10–16 h
	Novolin R, ReliOn (Wal-Mart)	Human	2–4 h	4–10 h	10–16 h
Long Acting (Basal Insulins)					
Insulin glargine	Lantus®	Analog®	2–4 h	No peak	20–24 h
Insulin detemir	Levemir®	Analog	0.8–2 h	Slight peak 6–8 h	6–23 h
Mixtures					
70% NPH/30% regular	Humulin 70/30	Human		N/A	
	Novolin 70/30, ReliOn (Wal-Mart)	Human		N/A	
50% NPH/50% regular	Humulin 50/50	Human		N/A	
75% lispro protamine/25% lispro	Humalog Mix 75/25	Analog		N/A	
70% aspart protamine/30% aspart	Novolog Mix 70/30	Analog		N/A	

* Food and Drug Administration approved, but not yet available

nocturnal hypoglycemia than NPH.[32] In addition, NPH insulin is best given at bedtime, in contrast to dinnertime, to avoid nocturnal hypoglycemia.[33]

Basal insulin is easy to incorporate into a patient's lifestyle. Dosing can be titrated using a simple algorithm based on the patient's self-monitored FBG, such as the one shown in Table 3, and can be used at any time during a 24-hour period.[32,34] Physicians should be aware that dosing of insulin therapy can be adjusted based on ADA recommendations and individualized goals for glycemic control as long as excessive hypoglycemia is avoided.

Additional studies have demonstrated the efficacy of basal insulin in achieving glycemic control. Twice-daily insulin detemir was compared to NPH insulin in patients with type-2 diabetes.[35] Both treatments produced similar reductions in A1C (from 8.6% to 6.7% and from 8.5% to 6.6% for detemir and NPH, respectively) with a greater proportion of patients achieving these values without hypoglycemia using insulin detemir (26% vs. 16%, $p<0.008$, for insulin detemir and NPH, respectively).

Once-daily insulin glargine was compared with biphasic insulin aspart 70/30 (BIAsp 70/30) administered twice daily in a separate trial of uncontrolled type-2 diabetes in patients taking OADs.[36] Greater reductions in A1C were achieved with BIAsp 70/30 (-2.79) than with insulin glargine (-2.36; $p<0.01$ between groups), although significantly more hypoglycemic episodes occurred in the BIAsp 70/30 group (3.4 episodes per year) than in the glargine group (0.7 episodes per year, $p<0.05$).[36] In this study, ≥15% of the subjects in each group were African American.[36] Patients who fear hypoglycemic episodes or the pain of injections might be particularly well suited for once-daily basal insulin regimens, which are associated with fewer hypoglycemic episodes than some of the other insulin formulations.

The effect of active (weekly) versus usual insulin titration and laboratory versus point-of-care A1C testing with the use of a basal insulin regimen has been evaluated.[37] The addition of basal insulin glargine using a simple algorithm significantly improved glycemic control in patients with type-2 diabetes uncontrolled with OADs, with greater improvements seen in patients receiving active titration and point-of-care A1C testing [active titration vs. usual titration, 1.5% vs. 1.3%, respectively ($p<0.0001$)].[37] These data highlight the important role of titration and A1C testing in a primary care setting, where 16% of the 914 subjects in this trial were African American.[37] Providers should be challenged to rethink the methods that they use to titrate insulin or obtain A1C levels, with the knowledge that the status quo, particularly in African-American patients, might delay improvements in glycemic control in patients who might already have a slow progression in treatment advancement.

PRANDIAL INSULIN THERAPY AND ALTERNATIVE INSULIN DELIVERY SYSTEMS

When fasting glucose levels are normalized with a basal insulin regimen—but control of mealtime glycemic excursions is still needed to achieve target A1C levels—a prandial insulin treatment can be initiated. Postprandial hyperglycemia accounts for about one-fourth of total diurnal hyperglycemia;[31] therefore, reducing mealtime glycemic excursions can contribute to overall glycemic control. A basal-prandial treatment regimen with insulin detemir and the rapid-acting analog, aspart, was shown to be as effective as NPH in combination with mealtime regular human insulin in patients with type-2 diabetes, although 69% of the patients required twice-daily dosing of insulin detemir.[38] In addition, daily insulin glargine with adjusted mealtime doses of glulisine that targeted preprandial glucose in patients with uncontrolled type-2 diabetes demonstrated that a simple algorithm for titrating mealtime prandial insulin was as effective as carbohydrate counting in reducing A1C values and symptomatic hypoglycemia (<50 mg/dL).[39] Varieties of short-acting insulin formulations are available for use and are shown in Table 2.

PROVIDER BARRIERS TO INSULIN

Clinical inertia may contribute to the poor glycemic control observed in African Americans. In this context,

Table 3. Example of a basal insulin titration schedule[32]

Start With 10 IU/d Bedtime Basal Insulin and Adjust Weekly	
Mean of Self-Monitored Fasting Blood Glucose Values from Preceding 2 Days	**Increase of Insulin Dosage (IU/d)**
≥180 mg/dL (10 mmol/L)	8
140–180 mg/dL (7.8–10.0 mmol/L)	6
120–140 mg/dL (6.7–7.8 mmol/L)	4
100–120 mg/dL (5.6–6.7 mmol/L)	2

Goal fasting blood glucose ≤100 mg/dL. Exceptions include no increase in dosage if plasma-referenced glucose <72 mg/dL at any time in preceding week, and small dose decreases (2–4 IU/d per adjustment) are allowed if severe hypoglycemia (requiring assistance or plasma-referenced glucose <56 mg/dL) is documented in the preceding week.

clinical inertia refers to the lack of or delay in appropriate intensification of the therapeutic regimen to achieve glycemic control. Although insulin may help patients achieve glycemic targets, some clinicians exhibit avoidance or procrastination regarding insulin initiation. Providers might want to give their patients another chance, or they might even regard insulin use in a patient with type-2 diabetes as their own failure to treat the patient.[40] Fear of losing the patient, or the amount of time it takes to educate the patient about insulin therapy, might also deter the physician from initiating insulin therapy.[40]

For African-American patients, race can be a factor as well. According to the Institute of Medicine study, provider bias, stereotyping and clinical uncertainty contribute to disparities in healthcare among minorities.[41] When providers must make treatment decisions with limited time and information, stereotyping can come into play and ultimately affect the clinical course.[41] Providers of different ethnic and cultural backgrounds should be aware of any biases they might have that can influence clinical outcomes in patients.

Although insulin has been in use for many years and has been shown to prevent long-term morbidities, providers often fail to advance therapy when indicated. At baseline in the Improving Primary Care of African Americans with Diabetes (IPCAAD) 8 trial, no change in therapy occurred in 65% of visits where glucose levels were high, and only 21% of visits had therapy advanced sufficiently to meet recommendations.[42] Similar results were found in a recent retrospective cohort study—of the patients with an A1C >9.0%, less than half (48.5%) had their medication changed at their last clinic visit.[43] In the treatment of diabetes, clinical inertia might vary based on the clinical setting. One large trial found significantly higher A1C values in patients managed at a medical clinic (average A1C, 8.6%) versus a diabetes clinic (average A1C, 7.7%); the medical clinic was also associated with lower rates of therapy advancement and less insulin use.[44] An urban diabetes care center also reported better outcomes after adopting a management program that included patient education, regular follow-up visits, a multidisciplinary care team, a treatment algorithm and self-evaluation.[45] Therefore, in the quest for optimal glycemic control, it is critical for both providers and patients to understand the importance of intensive insulin management.[46]

PATIENT BARRIERS TO INSULIN

Many factors on the patient side might be barriers to insulin therapy. Insulin itself might be associated with fears and negative perceptions. Patients might be in denial regarding their need for insulin, and they might believe that insulin signals a worsening of their disease.[40] Misconceptions about insulin can also include the notion that insulin might hasten the onset of diabetic complications.[40] Patients might be reluctant to commit to the perceived

Table 4. Counseling techniques to challenge barriers to insulin therapy[40]

Patient	Physician Response	Technique
"High blood sugar doesn't make me feel tired"	"I'd like to know more details about how you feel. For instance, what is it like for you when you get up in the morning?"	Acceptance Questioning Clarification
"I just don't want to use insulin"	"I respect your feelings about that. Can you tell me why it bothers you so much?" OR "I wonder if you would do a short-term experiment to see what insulin does for you. Then you can make an informed decision about insulin."	Acceptance Questioning Negotiation Empowerment
"Well, I tried it. Now what?"	"Congratulations. I'm impressed that you were willing to try something new. What you did—taking insulin—has normalized your blood sugars. I bet you can apply this success to your other efforts—diet and exercise".	Esteem building Cognitive reframing Empowerment
"Having to use insulin must mean I'm getting worse"	"I can understand how you could conclude that. What's happening to you is actually quite normal for people who have had diabetes as long as you have. The purpose of insulin is prevention, not progression."	Acceptance Verification Normalization Positive reframing
"Can't I just try a stronger pill?"	"I know it would be easier if you could. Unfortunately, we don't have any stronger pills. I want to reassure you that insulin is what your body needs at this time. Can you try thinking of insulin as the only route at this time to give your body the help it needs?"	Validation Acceptance Support and information Positive reframing

amount of time it takes to administer insulin and be fearful of injections or hypoglycemic events or both.[40,47] Fear of insulin often arises when patients erroneously associate a family history of type-2 diabetes that includes amputation, blindness, kidney disease or stroke with the initiation of insulin therapy rather than the ongoing disease.[48] In addition, fear of pain and needle anxiety are also significant barriers to self-injection, particularly at the initiation of insulin therapy. In the U.K. Prospective Diabetes Study (UKPDS), 676 patients who were newly diagnosed with type-2 diabetes were randomized to insulin; more than one-fourth (27%) refused insulin,[49] which indicated that barriers to treatment might be fairly common among patients. Limited access to or the cost of healthcare services or medicines might be a barrier to effective treatment. The Institute of Medicine study found that in some cases, racial disparities in healthcare were associated with socioeconomic differences.[41] African-American households had the lowest median income, with 9 million (24.7%) in poverty and 7.2 million (19.7%) without health insurance coverage.[50] Additionally, patients with a low level of health literacy might find it difficult to comprehend and act upon medical instructions or complex treatment regimens. In a study among primary care patients with type-2 diabetes in which 25% of subjects were African American, low health literacy, insurance status and treatment with diet or oral hypoglycemic agents were associated with worse glycemic control.[51] As disturbing as these statistics are, physicians can take comfort in knowing that they can have a role in fostering changes that will enable all patients to receive high-quality healthcare.

Even without socioeconomic differences, other factors exist in the African-American community that might influence treatment decisions. Patients' cultural orientations and perceptions of racism might influence their interactions with healthcare professionals and their adherence to medical advice. One focus group study of African Americans in Chicago indicated that contributing factors to patient distrust in physicians included a perceived quest for profit and expectations of racism and experimentation during routine healthcare. Conversely, patients' trust in their healthcare providers encouraged patient honesty in communicating with their physician, increased adherence to therapy and facilitated care-seeking behavior.[52] Another study found traditional African-American cultural orientation and increased cultural mistrust were significantly associated with decreased dietary adherence, while age and education level correlated significantly with average A1C levels.[53] Greater awareness of these influences might help physicians to deliver culturally sensitive care and to improve patient trust.

OVERCOMING CLINICAL INERTIA AND PATIENT RESISTANCE TO INSULIN

Strategies to combat resistance to insulin therapy might include identifying barriers to treatment, restoring the patient's sense of control, using simple regimens and reviewing the benefits of insulin and the risk of hypoglycemia.[54] One method in which physicians can empower patients is by providing a straightforward insulin regimen that allows ease of initiation and titration, such as the addition of basal insulin to an existing regimen of OADs.[54] Furthermore, insulin pens can help insulin-naive patients to overcome injection anxiety because these devices are easier to operate and are less disagreeable than traditional syringes.[54] Such a simple regimen would result in few disruptions to the patient's lifestyle. Patients should also receive counseling regarding the risk of hypoglycemia and what actions to take if it occurs. Table 4 provides examples of ways that physicians can challenge patients' attitudes about insulin and mentions the techniques employed in each case. Recently, motivational interviewing has been advanced as a teachable, evidence-based and patient-centered technique that focuses on empathy and reflective listening skills to help patients recognize their ambivalence regarding behavior modification and how behavioral targets can be achieved.[55] Providers should recognize that they are in a position to speak with patients to identify and correct any fears or misconceptions about this therapy.

To reinforce the efficacy of insulin, it is equally important to follow up with the patient and to intensify therapy when appropriate.[54] Advancing insulin therapy has been independently associated with improvements in A1C ($p<0.001$) in African-American patients with type-2 diabetes.[44] In turn, improvements in glycemic control might reinforce the benefit of insulin therapy to patients.

One interesting aspect of this urban management program was the team approach to medical management: nurse managers first evaluated patients, and then endocrinologists made changes as necessary; other team members included dietitians and podiatrists.[45] Such an approach to treating diabetes has been recommended by others in diabetes care.[46] In fact, other studies have demonstrated improvements in glycemic control with endocrinologist feedback and computerized reminders[56] or nurse-directed care with the use of detailed protocols.[57] Furthermore, it has been shown that consultation with diabetes care nurses significantly reduced the length of stay of hospitalized patients with diabetes and improved patient knowledge of diabetes self-management, which is important for maintaining glycemic control after patient discharge.[58,59] Therefore, it has been recommended that a full-time diabetes educator act as a central educational resource and coordinate the activities of diabetes care specialists who are selected from the staff nurses assigned to each hospital unit.[58] These methods might be made available or adapted for the treatment of African American patients where appropriate.

In treating African-American patients with diabetes, providers should make an effort to understand and practice culturally competent care, as inherent biases can

lead to disparities in healthcare.[60] In addition, healthcare organizations should involve the community in improving the quality of care delivered to ethnic minorities.[60] Culturally tailored community support groups and initiatives have been shown to improve diabetes outcomes in several studies.[61,62] The U.S. Department of Health and Human Services' National Diabetes Education Program has also launched a public awareness campaign called More Than 50 Ways to Prevent Diabetes, which delivers the message that African Americans can help prevent type-2 diabetes through regular physical activity and modest weight loss.[63] Educational initiatives such as this play an important role in encouraging patients to take an active part in preventing or managing their disease. This is particularly important to stem the epidemic of obesity in African-American children and its attendant increased risk for type-2 diabetes.

CONCLUSION

It is evident that, although the benefits of glycemic control are proven, many African-American patients do not receive sufficient treatment to achieve target goals and reduce complications. Reasons for this might include the progressive nature of type-2 diabetes, the limited duration of effectiveness of treatments such as OADs and the lack of appropriate intensification of therapy. In managing diabetes, providers should be aware of both their own barriers and potential patient barriers to insulin. Insulin has been used for many years to improve glycemic control. Regimens such as once-daily basal insulin therapy can be easily initiated with little change to a patient's schedule. Overall, greater awareness is needed regarding the issues facing African-American patients with diabetes. Because all patients deserve high-quality care, physicians should be reminded that their individual efforts to foster improvements in healthcare can affect the treatment of diabetes in the entire African-American community.

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