

REVIEW ARTICLE

# A review on new guidelines updates in diabetes management 2020

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## ABSTRACT

Diabetes is a leading chronic disease globally. Additionally, it is a significant risk factor for cardiovascular diseases, which increases its morbidity and mortality. In spite of the presence of many pharmacological classes for ant diabetic agents, there is an annual update on their indications and use. This review article aimed at evaluating the literature on the updates in the new diabetes guidelines in 2020. Medical databases were examined thoroughly to explore the eligible articles for inclusion. Twenty articles appeared in the search result. The produced reports were evaluated against the pre-decided inclusion criteria. After reviewing the literature, four articles were eligible to be included in this review. The included articles were published in 2019. Patient-centered approach should be used when choosing the individuals therapeutic plan. Atherosclerotic complications are a significant challenge in diabetes management.

**Keywords:** Diabetes, guidelines, updates.

## Introduction

Diabetes mellitus is regarded as a global burden, which affects about 1 in 11 individuals all over the world [1]. Moreover, some reports showed that almost a third of the universal population would have diabetes by the year 2050 [2].

Diabetes also has leading morbidity and mortality rates compared to other chronic diseases [3]. This is mainly attributed to the increased incidence of diabetes complications, especially cardiovascular diseases [4]. Annual diabetes-related mortality is estimated to be four million patients [5].

As well as costing lives, diabetes represents a significant economic burden [6]. In the United States, expenditures on Diabetes management approached 27 billion USD in the year 2017 [7]. Forty percent of this expenditure was primarily on pharmacological treatment to control blood glucose levels and to treat diabetes complications [8].

Diabetes comorbidities are another problem in diabetic patients [9]. Especially, in the elderly population, it is reported that diabetic patients live with at least one diabetic comorbidity, where the vast majority of patients live with more than one [10].

Due to the complexity of the disease, continuous updates on diabetes diagnosis and management are crucial to reducing its health and economic burden on individual patients as well as the broader communities [11].

## Method

An online examination for different databases was carried to find the articles that are included in this study. A wide range of databases was used, including Pubmed, Google Scholar, and CINAHL. Different keywords were used, including “Diabetes,” “ management,” and “Updates” to find all the potential articles to be included in this review.

Twenty articles resulted from this search that contained any of the pre-mentioned keywords. Fifteen items were excluded because they did not mention the use of pharmacological treatment in diabetes; however, they were non-pharmacological treatment options. Furthermore, one article was excluded because of being a short communication. Only four articles were included that were published in the duration between 2012 and 2019.

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**Received:** 30 December 2019 | **Accepted:** 07 January 2020

## Discussion

Diabetes is a common chronic condition that requires regular follow up, not only for glycemic control but also to control other risk factors that may be present along with diabetes [12]. Additionally, education and support for diabetic patients play a significant role in minimizing the burden of the disease as well as preventing its complications [13].

### 2020 Updates in the Management of Diabetes

#### *Insulin therapy*

Both type 1 and type 2 diabetes can be treated with insulin injection; however, insulin represents the first-line treatment for type 1 diabetes due to the pathophysiology of the disease. Insulin therapy is usually used as multiple doses per day [14].

The 2020 American Diabetes Association (ADA) recommends the use of rapid-acting insulin for the management of type 1 diabetes to reduce the risk of hypoglycemia [15]. It is also recommended that insulin to be used on the postprandial and basal basis, while the continuous infusion of insulin should be used in emergency conditions [16].

Patients with diabetes who are prescribed insulin require education about its use and how to adjust individual doses of insulin based on the carbohydrate in the diet and the level of physical activity [17].

#### *Pharmacotherapy of oral anti-diabetics in diabetes*

Combination therapy is also recommended in the case of patients who are not controlled on insulin [18]. Per ADA 2020 guidelines, Metformin remains the initial oral anti-diabetic of choice, especially with Type 2 Diabetes [19]. Sometimes combination therapy can be used even earlier; the rationale for this strategy is to reduce the incidence of any therapeutic failure [20].

Additionally, patients should continue taking metformin unless it becomes contraindicated or if patients had any intolerance issues from the medication [11]. If blood glucose did not reach the desired level on metformin monotherapy, other oral anti-diabetic agents or insulin could be combined with metformin for additional control of blood glucose [14,16].

Regarding combination with insulin, it can be considered at earlier steps of diabetes treatment if additional high-risk categories are present [7,9]. These include weight loss, persistent hyperglycemia, glycated hemoglobin levels greater than 10%, or random blood glucose greater than 300 mg/dl [10,14].

In spite of the presence of many alternative strategies for the management of diabetes mellitus in the guidelines, clinicians should be aware of following a patient-directed therapy protocol [12,13,16].

ADA guidelines 2020 strongly recommends considering other risk factors for each particular patient, especially cardiovascular risk factors [14,18]. Furthermore, other factors related to the drug should be considered, such as drug cost and adverse effects [20].

Furthermore, one of the newer recommendations of ADA 2020 guidelines that were also endorsed by the European Society of Cardiology 2019 guidelines is the use of glucagon-like peptide agonists and glucose co-transporter two inhibitors for the treatment of diabetic patients with cardiovascular or renal diseases [16,18].

The guidelines referred this recommendation to the added benefits of glucagon-like peptide agonists and glucose co-transporter two inhibitors, especially in an atherosclerotic disease like cardiac and renal diseases as well as heart failure in addition to the excellent control of blood glucose levels achieved [19,20].

Another advantage of glucagon-like peptide agonists is the use of these agents in combination with metformin, which should be given the preference over the use of insulin combination with metformin [11,14].

Furthermore, an essential aspect of the chosen treatment strategy is to be started as early as possible, particularly when monotherapy fails to control blood glucose level, and combination therapy becomes mandatory [16]. This could reduce the incidence and severity of diabetes-related complications [18].

Patients' therapeutic plan should also be revised every three to six months to check the suitability of the treatment for each particular patient [8,15]. Therapy should be modified in case of the presence of new complications or poor control of blood glucose levels [7,16].

#### *Risk management*

The most significant risk that was discussed by the ADA 2020 guidelines is hypertension [14]. The guidelines considered a blood pressure value of greater than or equal to 140/90 as hypertension [11]. Treatment should be initiated if this reading is confirmed in subsequent visits [10]. This can, in turn, reduce atherosclerotic cardiac diseases [7].

However, it is vital to advise patients of following up their blood pressure regularly and bring back their readings in their subsequent visits [8]. Additionally, clinicians should discuss with patients their preferences and any concerns they might have on their therapy [12].

Additionally, in support of the Kidney Disease Improving Global Outcomes (KDIGO) guidelines, the ADA guidelines strongly recommend keeping the blood pressure of diabetic patients controlled below 130/80. At the same time, the medication of choice to control hypertension should be angiotensin-converting enzyme inhibitors.

Furthermore, lifestyle modifications play a significant role in the control of blood pressure, which includes

increasing physical activity, reduce salt intake, reduce (or stop) alcohol intake, and avoid the administration of medications that could increase blood pressure, most commonly NSAIDs.

## Conclusion

The most recent guidelines developed by ADA are focusing on a patient-centered approach in the management of diabetes, especially when choosing a combination therapy.

Atherosclerotic diseases remain at the top of the list of diabetes complications, with a high emphasis on hypertension and the importance of controlling blood pressure.

## Recommendations

Glucagon-like peptide agonists and glucose co-transporter two inhibitors are strongly recommended in diabetic patients with cardiovascular diseases.

## List of Abbreviations

USD united states dollar  
ADA Americans with Disabilities Act

## Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

## Funding

None.

## Consent for publication

Not applicable.

## Ethical approval

Not applicable.

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