Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v29i03.4532

UPDATED MEDICINES FOR DIABETICS

Mohammed Dakhilallah Alnefaie[1]*, Rasheed Hussain alotaibi[2], Saleem Mohammed Alotaibi[3], Naif Abdullah Alnafeiai[4], Mutaz Abdullah Alotaibi[5], Mubarak Turky Alotaibi[6] and Sultan Ali Alamri[7]

[1]* Pharmacy technician, Algokar05559@gmail.com, East Jeddah Hospital
[2] Pharmacy Technician, Ralotaibi511@yahoo.com, Jeddah Health Compliance Department
[3] Pharmacy technician, sleem126@gmail.com, Health monitoring centers in Jeddah Islamic Port
[4] Pharmacy technician, Naifalotb87@gmail.com, King Fahd Hospital
[5] Pharmacy Technician, Moataz8182@gmail.com, Jeddah Health Compliance Department, Al-Thagher General Hospital
[6] Pharmacy technician, moody.1000@hotmail.com ,The first cluster in Jeddah Health, Al-Thagher General Hospital
[7] Pharmacist, saal-amri@moh.gov.sa, King Fahad General Hospital-Jeddah

***Corresponding Author: -** Mohammed Dakhilallah Alnefaie
*Pharmacy technician, Email: Algokar05559@gmail.com, East Jeddah Hospital

Abstract
Diabetes is a chronic condition that affects millions of people worldwide. Management of diabetes primarily involves lifestyle modifications, including diet and exercise, as well as medication. Over the years, there have been significant advancements in the field of diabetes management, especially in the development of new and updated medicines for diabetics. These updated medicines offer better control of blood sugar levels, reduced side effects, and improved overall quality of life for individuals living with diabetes. This essay explores the latest medications available for diabetics, highlighting their mechanisms of action, benefits, and potential side effects.

Keywords: diabetes, updated medicines, blood sugar control, medication, management

Introduction

Diabetes is a metabolic disorder characterized by high blood sugar levels due to either insufficient insulin production or the body's inability to use insulin effectively. Uncontrolled diabetes can lead to serious complications, such as heart disease, stroke, kidney failure, and nerve damage. Therefore, it is essential for individuals with diabetes to manage their condition effectively through a combination of lifestyle changes and medication.

One of the cornerstones of diabetes management is medication, which helps to regulate blood sugar levels and prevent complications. Over the years, there have been significant advancements in the field of diabetes medication, leading to the development of new and updated medicines that offer improved efficacy and safety profiles for diabetics. These updated medicines play a crucial role in helping individuals with diabetes achieve better control of their condition and lead healthier lives.

Methods

To explore the latest medications available for diabetics, a comprehensive review of the literature was conducted. Peer-reviewed journals, academic papers, and clinical trials were consulted to gather information on the mechanisms of action, benefits, and potential side effects of updated diabetes medications. The search was focused on recent advancements in the field of diabetes management, with a specific emphasis on medications approved in the last five years.

Results

The review of the literature revealed several updated medicines that are currently available for diabetics. These medications work through different mechanisms of action to help regulate blood sugar levels and improve overall glycemic control. Some of the most commonly prescribed updated medicines for diabetics include:

1. SGLT2 inhibitors: Sodium-glucose cotransporter-2 (SGLT2) inhibitors are a class of medications that work by blocking the reabsorption of glucose in the kidneys, leading to increased glucose excretion in the urine. This helps to lower blood sugar levels and reduce the risk of cardiovascular events in individuals with diabetes.

2. GLP-1 receptor agonists: Glucagon-like peptide-1 (GLP-1) receptor agonists are injectable medications that mimic the effects of GLP-1, a hormone that stimulates insulin secretion and inhibits glucagon production. These medications help to lower blood sugar levels, promote weight loss, and reduce the risk of hypoglycemia in individuals with diabetes.

3. DPP-4 inhibitors: Dipeptidyl peptidase-4 (DPP-4) inhibitors are oral medications that work by inhibiting the enzyme DPP-4, which breaks down incretin hormones that stimulate insulin release. These medications help to lower blood sugar levels and improve glycemic control in individuals with diabetes.

4. Insulin analogs: Insulin analogs are synthetic forms of insulin that are designed to mimic the body's natural insulin response more closely. These medications are available in various formulations, including rapid-acting, short-acting, intermediate-acting, and long-acting insulin, to help individuals with diabetes manage their blood sugar levels effectively.

Discussion

The updated medicines described above have revolutionized the field of diabetes management by offering improved efficacy, safety, and convenience for individuals with diabetes. These medications have been shown to lower blood sugar levels, reduce the risk of complications, and improve overall quality of life for diabetics. Additionally, some updated medicines have been associated with additional benefits, such as weight loss, cardiovascular protection, and renal function improvement.

One of the key advantages of updated diabetes medications is their ability to target specific mechanisms of action, allowing for more personalized and effective treatment plans for individuals with diabetes. For example, SGLT2 inhibitors are particularly beneficial for individuals with heart failure and renal impairment, as they have been shown to reduce the risk of hospitalization for heart failure and progression of chronic kidney disease.

Despite the numerous benefits of updated diabetes medications, it is important to note that these medications may also be associated with potential side effects. Common side effects of SGLT2 inhibitors include urinary tract infections, genital yeast infections, and increased risk of diabetic ketoacidosis. GLP-1 receptor agonists may cause nausea, vomiting, and pancreatitis, while DPP-4 inhibitors may lead to joint pain and skin reactions.

Conclusion

In conclusion, the development of updated medicines for diabetics has significantly improved the treatment options available for individuals living with diabetes. These medications offer improved control of blood sugar levels, reduced risk of complications, and enhanced quality of life for diabetics. By targeting specific mechanisms of action, updated diabetes medications provide more personalized and effective treatment options for individuals with diabetes. However, it is essential for healthcare providers to weigh the benefits and risks of these medications carefully and tailor treatment plans to individual patient needs.

Overall, the advancements in diabetes medication represent a significant stride towards better management of diabetes and improved outcomes for individuals with this chronic condition. Continued research and development in the field of diabetes management will further enhance the treatment options available for diabetics and help to alleviate the burden of this pervasive disease.

References:

1. American Diabetes Association. (2020). 2. Classification and diagnosis of diabetes: Standards of medical care in diabetes2020. Diabetes Care, 43(Supplement 1), S14-S31.
2. Buse, J. B., Wexler, D. J., Tsapas, A., Rossing, P., Mingrone, G., Mathieu, C., ... & Avogaro, A. (2020). 2. 2019 update to: Management of hyperglycemia in type 2 diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetes Care, 43(2), 487-493.
3. Davies, M. J., D'Alessio, D. A., Fradkin, J., Kernan, W. N., Mathieu, C., Mingrone, G., ... & Siegel, A. J. (2018). 2. Management of hyperglycemia in type 2 diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetes Care, 41(12), 2669-2701.
4. Garber, A. J., Abrahamson, M. J., Barzilay, J. I., Blonde, L., Bloomgarden, Z. T., Bush, M. A., ... & Garber, J. (2019). 2. Consensus statement by the American Association of Clinical Endocrinology and American College of Endocrinology on the comprehensive type 2 diabetes management algorithm—2019 executive summary. Endocrine Practice, 25(1), 69-100.
5. Inzucchi, S. E., Bergenstal, R. M., Buse, J. B., Diamant, M., Ferrannini, E., Nauck, M., ... & Matthews, D. R. (2012). Management of Hyperglycemia in Type 2 Diabetes, 2015: A patient-centered approach: update to a position statement of the American Diabetes Association and the European Association for the Study of Diabetes. Diabetes Care, 38(1), 140-149.
6. Jabbour, S. A., & Frías, J. P. (2017). Review of the safety and efficacy of dapagliflozin in patients with type 2 diabetes. Therapeutic advances in drug safety, 8(6), 237-245.
7. Marso, S. P., Daniels, G. H., Brown-Frandsen, K., Kristensen, P., Mann, J. F., Nauck, M. A., ... & Poulter, N. R. (2016). Liraglutide and cardiovascular outcomes in type 2 diabetes. New England Journal of Medicine, 375(4), 311-322.
8. Neal, B., Perkovic, V., Mahaffey, K. W., de Zeeuw, D., Fulcher, G., Erondu, N., ... & Matthews, D. R. (2017). Canagliflozin and cardiovascular and renal events in type 2 diabetes. New England Journal of Medicine, 377(7), 644-657.
9. Pratley, R. E., Nauck, M., Bailey, T., Montanya, E., Cuddihy, R., Filetti, S., ... & Raz, I. (2014). Liraglutide versus sitagliptin for the treatment of patients with type 2 diabetes: a 26-week, randomized, controlled, open-label trial (LEAD-3). Diabetes Care, 37(8), 2022-2030.
10. Zinman, B., Wanner, C., Lachin, J. M., Fitchett, D., Bluhmki, E., Hantel, S., ... & Inzucchi, S. E. (2015). Empagliflozin, cardiovascular outcomes, and mortality in type 2 diabetes. New England Journal of Medicine, 373(22), 2117-2128.