|| ISSN(online): 2589-8698 || ISSN(print): 2589-868X ||
International Journal of Medical and Biomedical Studies
Available Online at www.ijmbs.info
NLM (National Library of Medicine ID: 101738825)
Index Copernicus Value 2019: 79.34
Systematic Review Article
Volume 5, Issue 1; January: 2021; Page No. 92-96

PATIENT AND PHYSICIAN RELATED FACTORS OF ADHERENCE TO EVIDENCE-BASED GUIDELINES IN DIABETES MELLITUS TYPE 2

Dr. Khaled Hassan[1]*, Khalid Altowairqi[2], Sultan Abu Alamah[3], Amirah Ahmed Dheyab Sharif[4], Norah Daifullah Alotaibi, Ashwaq Alanazi[5], Firas Almomen[6], Ismail Mobarki[7], Turki Alsulami[8], Bayan Shekiri[9], Manahel Qurban[9], Nuha Almatrafi[10], Zainab Aljubarah[11], Mohammed Aldubayyan[12], Majd Majoun[13], Fedaa Alshehri[13], Ghader Jahri[14], Anhar Alfateel[15], Omar Kuraydis[16], Rasha Alsalman[12], Beshayer AlHentti[12]

[1]Consultant Family Medicine, Saudi Arabia.
[2]Taif University, Saudi Arabia.
[3]King Abdulaziz University, Saudi Arabia.
[4]AlMaarefa University, Saudi Arabia.
[5]Imam Abdulrahman bin Faisal University, Saudi Arabia.
[6]King Saud University, Saudi Arabia.
[7]Jazan University, Saudi Arabia.
[8]Debrecen University, Hungary.
[9]Taibah University, Saudi Arabia.
[10]Batterjee Medical College, Saudi Arabia.
[11]Ibn Sina National College, Saudi Arabia.
[12]Qassim University, Saudi Arabia.
[13]Dar Al Uloom University, Saudi Arabia.
[14]Umm Al Qura University, Saudi Arabia.
[15]The Jordanian Royal Medical Services, Jordan.
[16]King Khalid University, Saudi Arabia.

Article Info: Received 27 November 2020; Accepted 08 January 2021
DOI: https://doi.org/10.32553/ijmbs.v5i1.1636
Corresponding author: Dr. Khaled Hassan
Conflict of interest: No conflict of interest.

Abstract

Background: Chronic disorders, such as; diabetes mellitus type 2 and cardiovascular diseases are the most common reason of disabilities and increased the rates of morbidities and mortalities among population worldwide. The current review aims to explore the patients and physicians related factors of adherence to evidence-based guidelines in T2DM and cardiovascular diseases.

Methods: Scientific articles that linked to the present topic were obtained using an online searching process. The searching process included different scientific websites such as Google Scholar and PubMed. We obtained 18 articles that matched with the current subject and written in English. Of those 18 articles, 6 were excluded as they published before 2000, or mayn't focusing on the present topic or written in a language other than English; therefore, only 12 papers were included, and they were published till 2020.

Results: Articles were selected according to the inclusion criteria that we selected, and then the discussion of the subject was performed under the main titles.

Conclusion: Chronic diseases are considered the most dominant sources of morbidity and mortality worldwide (coronary artery disease, diabetes, and ischemic stroke). Most patients didn't know why they didn't know adequate information about the guidelines, or they felt embarrassing when receive drug recommendation. Lack of awareness, knowledge and communications are the most barriers for physicians' non or poor adherence to evidence-based guidelines. Physicians should educate patients about adherence to the guidelines of diabetic and cardiovascular diseases. More health education programs should be implemented to increase the knowledge of patients and physicians about the risk of T2DM and CVD and adherence to the guidelines to could manage, control, and prevent these diseases.

Keywords: Cardiovascular risk factors, Chronic diseases, Diabetic mellitus T2 risk factors, Evidence-based guidelines, Health literacy.

Introduction

Chronic diseases, such as; coronary artery disease, diabetes, and ischemic stroke, are considered the most dominant sources of morbidity and mortality worldwide [1]. Cardiovascular disease leads to premature death and disability among population, which promoted the costs of healthcare [2]. Diabetes mellitus is a chronic disease that also leads to morbidity, but early diagnosis, detection, and management of chronic diseases could reduce its risks [3]. Also, the burden of chronic diseases could be reduced through developing of treatment guidelines, according to the current best evidences of clinical trials [4]. The development of these practice guidelines is to help physicians/general practitioner and patients to take a proper decision regarding health care, particularly clinical circumstances [5]. Successful implementation of these guidelines enhances the quality of healthcare through accelerate the application of effective advances to daily practices [6].

Additionally, implementation of these guidelines could significantly prevent and decrease the morbidities and mortalities related to non-communicable diseases [7].

Although these guidelines became a major tool for promoting the quality of healthcare service provided, their effect is significantly different [8]. Also, evidence-based guidelines had limited impact on changing the behavior of physicians, few numbers of them aware of the factors related to the way of changing their practice methods based on their knowledge of guidelines [9-11]. There are several barriers which inhibit the adherence of physicians to the guidelines either of diabetes or cardiovascular diseases [12, 13]. Most barriers are related to physicians' lack of awareness about the presence of these guidelines and lack of familiarity with these guidelines which might lead to deviation from recommended therapy [13, 14]. Also, the poor of physicians' compliance to guidelines might be returned to lack of awareness of recent guidelines, their attitudes and beliefs are considered reasons for non-adherence [15]. Regarding patients' adherence to guidelines, several studies reported that patients' preferences and abilities are considered barriers [16]. But there are other barriers limiting physicians and patients from adherence to guidelines. Therefore, the current review aims to explore factors and barriers related to patients and physicians' adherence to diabetic and cardiovascular diseases' guidelines and prevention strategies.

Materials and Methods

Scientific article that linked to the present topic were obtained using an online searching process. The searching process included different scientific websites, such as; Google Scholar and PubMed, using several keywords such as; Cardiovascular risk factors, Chronic diseases, Diabetic mellitus T2 risk factors, Evidence-based guidelines, Health literacy. We obtained 18 articles that matched with the current subject and written in English. Of those 18 articles, 6 were excluded as they published before 2000, or mayn't focusing on the present topic, or written in a language other than English; therefore, only 12 papers were included, and they were published till 2020.

Discussion

Diabetes mellitus type II and Cardiovascular diseases

Diabetes mellitus (DM) is a chronic disease resulted from a shortage of pancreas in production of insulin or improper use of the insulin by the body [17], furthermore, DM could be managed and prevented [18]. But, achieving successful treatment through achieving a proper level of glycated hemoglobin (HbA1c) is not satisfactory [19], that led to increasing of diabetic complications with a longer period [20]. Hyperglycemia and diabetic complications could be addressed through adherence to medical guidelines which increased the knowledge of physicians regarding daily medical practice and achieve a successful treatment [21]. Cardiovascular disease (CVD) is a chronic disease that increase the rate of morbidity and mortality among population worldwide [2]. The term adherence is referred to a variety of context, such as; evidence-based guidelines, lifestyle modifications, and medications [22]. The rate of adherence to T2DM are low which accounting for 40% to 60% worldwide. A poor adherence to the cardiovascular disease guidelines and prevention was reported through several meta-analysis studies, which ranged from 60 to 75% [23]. Several factors determine the adherence to evidence-based guidelines, such as; patients' factors, physicians' factors, and healthcare system factors [24]. The current review addresses patients and physicians' factors of adherence to diabetic guidelines in T2DM.

Patient related factors of adherence to T2DM and CVD guidelines and prevention.

Health literacy, awareness of patients about the disease, and their lifestyle are considered the most related factors of adherence to diabetic guidelines [25]. Additionally, cost, side effects, forgetfulness, mental illness, a feeling of guilt or failure, and complex regimes are also other factors or barriers related to adherence of patients to diabetic guidelines and prevention [25]. Additionally, the inability to harmonize patient preferences with guidelines recommendation is considered a major barrier for non-adherence. The way at which patients receive the guidelines recommendations might embarrass them and most physicians reported that they themselves are considered as barriers for patient adherence to guidelines [13, 26].

Health literacy

Education of patient with T2DM about the regimens of medication, drugs' purpose, the mechanism of its working, drug conjugation with each other, and the necessity of lifestyle changes is essential for managing the disease. Additionally, improving patients' education on how they could solve problems enabled them to self-manage their diabetes effectively. It was reported that increased diabetic patients' education had a positive effect on glycemic control, which could be occurred through providing health educational programs [27]. Several studies reported that diabetic self-management education' standards which had a good diabetic education could enable physicians to provide evidence-based guidelines to their patients and improved knowledge regarding fasting glucose, diabetes, and A1C over one year [28]. Also, implementation of educational programs for patients with CVD increased the adherence of patients and improved the outcomes [22]. Regarding poor adherence or non-adherence of patients to medication guidelines of CVD, several factors are reported, such as; educational level of the patients, inadequate patient education about the risk of CVD and the guidelines, and health literacy could affect patient adherence to CVD medication [29-31].

Improving Convenience

Complex treatment regimens are considered as one of the leading causes of non-adherence to medications among diabetic patients. Therefore, a fixed-dose combination therapy (FDCT) had a good impact in the reduction of medication burden and improved medication adherence among patients who couldn't adhere to diabetic guidelines.

Previous studies found that FDCT improved the adherence to diabetic medication by 10% to 13%, increased patient satisfaction towards medications, and reduced the medical costs which considered another barrier of adherence to diabetic guidelines [27, 32]. Additionally, among patients with CVD and receiving more complex medication regimens decreased their adherence to the guidelines [33, 34].

Lack of diabetes or CVD acceptance as chronic diseases:

Most patients with T2DM or CVD require significant lifestyle modifications because they failed to identify the seriousness of their conditions. Additionally, most of them lack information and motivation which are related factors of adherence to diabetic guidelines. Lack of motivations decreased self-management among patients, and they preferred to take a pill rather than adherence to guidelines which need a lot of encouragement. Lack of adherence is also associated with patients' attitude toward chronic diseases, a previous history among family members with diabetes or CVD might lead to a fatalistic attitude. Also, other patients' attitudes, such as; passivity, denial, or unrealistic perspectives are considered major barriers related to adherence to diabetic or CVD guidelines and prevention. Most T2DM patients suffered from other co-morbidities, such as; kidney failure, lost their foot due to infection, alcohol addiction, some cultural background, cost of medication, and hardworking are considered other barriers limiting patients with T2DM from adherence to evidence-based guidelines and to manage/control their diabetes [35, 36]. Elderly patients and smokers with chronic diseased T2DM or CVD had a poor adherence to the medication guidelines, it was reported that smoking status with CVD were risk factors for poor adherence among patients to the medications, such as; aspirin and ß-blocker [37]. On the other hand, there are some facilitators which promote patient to adhere to the guidelines, such as; during the diagnosis time (opportune time), most patients who experienced anxiety are more likely to receive information which motivate patients' behaviors, helped them to change their lifestyle, and this interventions gave a better outcomes among patients with chronic diseases [35].

Physicians related factors of adherence to T2DM guidelines and prevention

There are factors related to physician adherence to the guidelines, such as; the ability to set clear treatment goals, time for patient care/insufficient time, and reactive versus. proactive approach to care. Additionally, physicians' failure to recognize and manage comorbidity, failure to initiate and set clear goals, concern of causing harm, insufficient focus on goal attainment, underestimating of patient' needs [27, 38].

Lack of knowledge and agreement towards diabetes and CVD guidelines

Lack of knowledge about T2DM guidelines and the latest updates in devices, treatments, and therapies, especially physician who didn't treat many patients with T2DM are considered major barriers to control and manage glycemic control. Lack of awareness of the clinical guidelines might cause difficulties in taking proper decisions and knowing the treatment strategies. Additionally, most physician due to lack the adherence to diabetes guidelines, they lack the proper time for initiating diabetic diets or starting insulin. Also, lack of knowledge about the guidelines caused a shortage of knowledge about the adherence to T2DM medication and resulted in poor treatment compliance and most physicians wanted to keep the patients happy. Other barriers about the adherence to guidelines, most physicians didn't track or recall their patients with T2DM that led to poor communication between physicians and patients [35, 39]. Most physicians lack agreement with a specific guidelines of CVD diseases prevention [40], lack of self-efficacy in prescribing medications to lower the cholesterol which is associated with physicians initiating therapy consistent with national guidelines. Low self-efficacy might be due to lack of confidence or lack of preparation that lead to poor or non-adherence to the guidelines of CVD diseases [41].

On the other hand, there are motivators/facilitators factors for physicians are related to adherence to diabetes guidelines, such as; increase the education of physicians about T2DM, its risks, and the guidelines adherence. Additionally, increased familiarity with the information technology regarding T2DM and the guidelines to could track the diabetic patients and educate them about the diabetes and guidelines adherence [35].

Conclusion

Chronic diseases are considered the most dominant sources of morbidity and mortality worldwide (coronary artery disease, diabetes, and ischemic stroke). Most patients didn't know why they didn't know adequate information about the guidelines, or they felt embarrassing when receive drug recommendation. Lack of awareness, knowledge, communications are the most barriers for physicians' non or poor adherence to evidence-based guidelines. Physicians should educate patients about adherence to the guidelines of diabetic and cardiovascular diseases. More health education programs should be implemented to increase the knowledge of patients and physicians about the risk of T2DM and CVD and adherence to the guidelines to could manage, control, and prevent these diseases.

References

1. *World Health Organization*, 2002. *The World Health Organization Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva: WHO.
2. *World Health Organization. Prevention of recurrent heart attacks and strokes in low and middleincome populations. Evidence-based recommendations for policy makers and health professionals. Geneva, 2003 http://www.who.int/bookorders.*

3. Alhajji ZMA, AlZuwayyid MAH, Abdullah LMA, Alhassan MYH, Aldoughan SFM, AlGhadeer SZA. Adherence of primary healthcare physicians to diabetes guidelines: a systematic review. Zainab Mohammed Ali Alhajji et al, 2019;3(12):1162–1166. https://doi.org/10.24911/IJMDC.51-1572103060.
4. EBM-Guidelines online. 2011. http://onlinelibrary.wiley.com/book/10.1002/ 0470057203.
5. Field MJ, Lohr MJ, eds. Clinical Practice Guidelines: Directions for a New Program. Washington, DC: National Academy Press; 1990.
6. Chassin MR. Practice guidelines: best hope for quality improvement in the 1990s. J Occup Med. 1990; 32:1199-1206
7. Lopez AD et al. Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. Lancet. 2006;367(9524):1747–57.
8. Grimshaw JM, Thomas RE,MacLennan G, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess 2004; 8(6): iii–iv.
9. Kanouse DE, Winkler JD, Kosecoff J, et al. Changing Medical Practice Through Technology Assessment: An Evaluation of the NIH Consensus Development Program. Santa Monica, Calif: RAND; 1989.
10. Hayward RSA. Clinical practice guidelines on trial. CMAJ. 1997;156:1725-1727.
11. Goldman L. Changing physicians' behavior: the pot and the kettle. N Engl J Med. 1990; 322:1524-1525
12. Steinman MA, Patil S, Kamat P, Peterson C, Knight SJ: A taxonomy of reasons for not prescribing guideline-recommended medications for patients with heart failure. Am J Geriatr Pharmacother 2010, 8:583–594.
13. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR. Why don't physicians follow clinical practice guidelines? A framework for improvement. JAMA. 1999 Oct 20;282(15):1458-65. doi: 10.1001/jama.282.15.1458. PMID: 10535437.
14. Fürthauer J, Flamm M, Sönnichsen A. Patient and physician related factors of adherence to evidence based guidelines in diabetes mellitus type 2, cardiovascular disease and prevention: a cross sectional study. BMC Fam Pract. 2013 Apr 4;14:47. doi: 10.1186/1471-2296-14-47. PMID: 23557543; PMCID: PMC3623850.
15. Puder JJ, Keller U. Quality of diabetes care: problem of patient or doctor adherence? Swiss Med Wkly. 2003;133(39–40):530–4.
16. Lugtenberg M, Burgers JS, Besters CF, Han D, Westert GP: Perceived barriers to guideline adherence: a survey among general practitioners. BMC Fam Pract 2011, 12:98.
17. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes Care. 2014;37(1):s81–90. https://doi.org/10.2337/dc14-S081.
18. Rosengren AH, Renstrom E. Autologous hematopoietic stem cell transplantation in type 1-diabetes. Islets. 2009;1:81–3. https://doi.org/10.4161/isl.1.1.8817.
19. Nam S, C. Chesla, N.A. Stotts, L. Kroon, S.L. Janson, Barriers to diabetes management: patient and provider factors, Diabetes Res. Clin. Pract. 93 (2011) 1–9.
20. Blonde l, P. Aschner, C. Bailey, L. Ji, L.A. Leiter, S. Matthaei, Gaps and barriers in the control of blood glucose in people with type 2 diabetes, Diabetes Vasc. Dis. Res. 14 (2017) 172–183.
21. European Coalition for Diabetes, Diabetes in Europe; Policy Puzzle: the State We Are in, 2014.
22. Packard KA, Hilleman DE. Adherence to therapies for secondary prevention of cardiovascular disease: a focus on aspirin. Cardiovasc Ther. 2016 Dec;34(6):415-422. doi: 10.1111/1755-5922.12211
23. Naderi SH, Bestwick JP, Wald DS. Adherence to drugs that prevent cardiovascular disease: meta-analysis on 376,162 patients. Am J Med. 2012;125:882–887.
24. Chen DC, Armstrong EJ, Singh GD, Amsterdam EA, Laird JR. Adherence to guideline-recommended therapies among patients with diverse manifestations of vascular disease. Vasc Health Risk Manag. 2015;11:185–192.
25. Brenner S, Oberaigner W, Stummer H. In guidelines physicians trust? Physician perspective on adherence to medical guidelines for type 2 diabetes mellitus, Heliyon. 2020; 6(8):04803. **https://doi.org/10.1016/j.heliyon.2020.e04803**.
26. Woo B, Woo B, Cook EF, Weisberg M, Goldman L. Screening procedures in the asymptomatic adult: comparison of physicians' recommendations, patients' desires, published guidelines, and actual practice. JAMA. 1985;254:1480-1484.
27. Ross, S. A. (2013). *Breaking Down Patient and Physician Barriers to Optimize Glycemic Control in Type 2 Diabetes. The American Journal of Medicine, 126(9), S38–S48.* doi:10.1016/j.amjmed.2013.06.012.
28. Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic disease in primary care. JAMA. 2002;288:2469-2475
29. Ho PM, Bryson CL, Rumsfeld JS. Medication adherence: its importance in cardiovascular outcomes. Circulation. 2009;119:3028–3035.
30. Rodriguez F, Cannon CP, Steg PG, et al. REACH Registry Investigators. Predictors of long-term adherence to evidence-based cardiovascular disease medications in outpatients with stable atherothrombotic disease: findings from the REACH Registry. Clin Cardiol. 2013;36:721–727.

31. Davis EM, Packard KA, Jackevicius CA. The pharmacist role in predicting and improving medication adherence in heart failure patients. J Manag Care Spec Pharm. 2014;20:741–755.
32. Deakin T, McShane CE, Cade JE, Williams RD. Group based training for self-management strategies in people with type 2 diabetes mellitus. Cochrane Database Syst Rev. 2005;2:CD003417.
33. Benner JS, Chapman RH, Petrilla AA, Tang SS, Rosenberg N, Schwartz JS. Association between prescription burden and medication adherence in patients initiating antihypertensive and lipid-lowering therapy. Am J Health Syst Pharm. 2009;66:1471–1477.
34. Hutchins V, Zhang B, Fleurence RL, Krishnarajah G, Graham J. A systematic review of adherence, treatment satisfaction and costs, in fixed-dose combination regimens in type 2 diabetes. Curr Med Res Opin. 2011;27:1157-1168.
35. Brown JB, Harris SB, Webster-Bogaert S, Wetmore S, Faulds C, Stewart M. The role of patient, physician and systemic factors in the management of type 2 diabetes mellitus. Fam Pract. 2002 Aug;19(4):344-9. doi: 10.1093/fampra/19.4.344.
36. Baroletti S, Dell'Orfano H. Medication adherence in cardiovascular disease. Circulation. 2010;121:1455–1458.
37. Herlitz J, Toth PP, Naesdal J. Low-dose aspirin therapy for cardiovascular prevention: quantification and consequences of poor compliance or discontinuation. Am J Cardiovasc Drugs. 2010;10:125–141.
38. P.J. O'Connor, N.L. Bodkin, J. Fradkin, R.E. Glasgow, S. Greenfield, E. Gregg, et al., Diabetes performance measures: current status and future directions, Diabetes Care 34 (2011) 1651–1659.
39. Grant R, Adams AS, Trinacty CM, et al. Relationship between patient medication adherence and subsequent clinical inertia in type 2 diabetes glycemic management. Diabetes Care. 2007;30:807-812.
40. Olesen F, Lauritzen T. Do general practitioners want guidelines? attitudes toward a county-based and a national college-based approach. Scand J Prim Health Care. 1997;15:141-145.
41. Hyman DJ, Maibach WE, Flora JA, Fortmann SP. Cholesterol treatment practices of primary care physicians. Public Health Rep. 1992;107:441-448