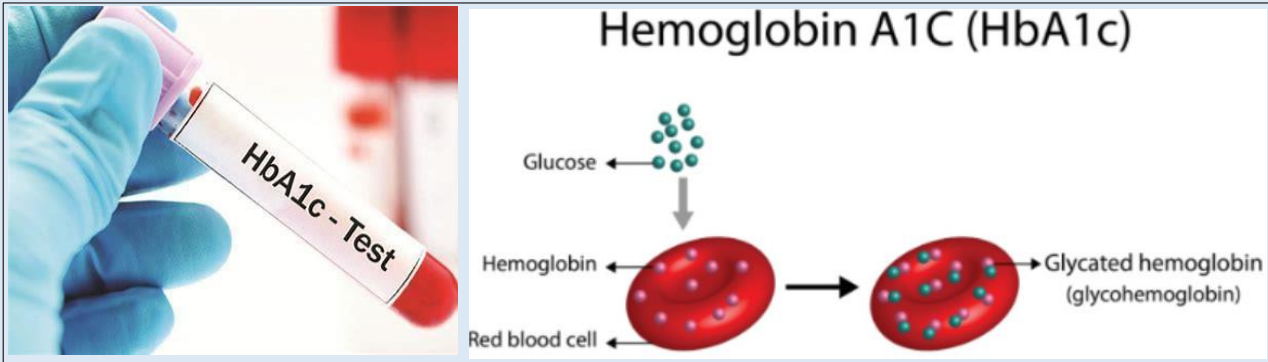




Title & Name :

Exploring the efficacy of various dietary approaches for improving glycated haemoglobin for the treatment and management of type 2 diabetes mellitus

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Introduction

- ❖ Diabetes mellitus type 2 (T2DM) is a significant global health concern, stemming from pancreatic beta cell dysfunction, leading to impaired insulin secretion and disrupted glucose homeostasis (Galicia-Garcia et al., 2020).
- ❖ Clinical manifestations include polyuria, polyphagia, polydipsia, blurred vision, fatigue, delayed wound healing and neuropathic symptoms (Artasensi et al., 2020).
- ❖ It is a major contributor for myocardial infarction, cardiovascular accident, vision loss, renal failure and lower limb amputations due to vascular complications (Farmaki et al., 2021).
- ❖ Diabetes is one of the world's most serious public health issues, with the prevalence expected to rise to 629 million by 2045, with association in health, social and economic implications.
- ❖ Resulting in over 1 million annual fatalities, making it the ninth leading cause of mortality (Khan et al., 2020).
- ❖ Diet is pivotal in mitigating mortality and disability risk associated with diabetes.
- ❖ Three family members who were not adhering to their dietary and medication regimen succumbed from the complications associated with T2DM served as inspiration for researching this topic.

Aims

- ❖ Investigate, analyse and discuss evidence accumulated from previous published studies on the effects of diet to improve HbA1c by consuming a low glycaemic index, low carbohydrate, Mediterranean and vegan / vegetarian diet for the treatment and management of T2DM in adults over 18 years.
- ❖ Determine if a vegetarian/ vegan is more efficacious than the omnivorous diet regarding the improvement of HbA1c.



- ❖ Reveal any potential gaps or difficulties with the adoption of dietary modifications for the efficient management of T2DM.

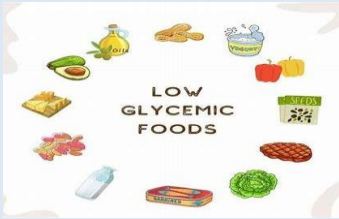
Methodology

- Population** – adults >18 years with T2DM
- Intervention** – non vegan/ vegetarian diets
- Comparison** – vegetarian /vegan diet
- Outcome** – improved HbA1c



This narrative review synthesises evidence from systematic reviews, meta-analyses and randomized controlled trials between January 2014 and March 2024 in the following databases: PubMed, Science Direct, Google Scholar, American and British Medical Journals.

Results



- ❖ Low glycemic index diet enhanced HbA1c levels, insulin sensitivity, weight management, BMI, waist circumference, blood glucose levels, lowered the risk of cardiovascular diseases; decreased LDL cholesterol and dependency on diabetes medication.
- ❖ Low carbohydrate diet led to enhancements in HbA1c levels, glycemic variability and lipid profile; including reductions in triglycerides and LDL cholesterol whilst increasing HDL cholesterol. It also improved systolic blood pressure. Additionally, individuals were able to discontinue medications for diabetes and hypertension, experienced weight loss and relied less on diabetes medications like sulfonylureas and dipeptidyl peptidase 4 inhibitors.
- ❖ The adoption of a vegan or vegetarian dietary approach yielded improvements in HbA1c levels and lipid profile, notably decreasing LDL cholesterol and thereby attenuating the risk of cardiovascular complications. Moreover, it resulted in a diminished dependence on medication, facilitated weight loss and bolstered both insulin sensitivity and alleviation of neuropathic symptoms.
- ❖ Conversely, the Mediterranean diet has demonstrated efficacy in ameliorating liver steatosis within non-alcoholic fatty liver disease (NAFLD) contexts. Furthermore, it has shown potential to induce remission in HbA1c levels in certain instances. This dietary regimen influences gut microbiota, resulting in reduced HOMA-IR, mitigated insulin resistance, adiposity, BMI, blood pressure and waist-to-hip circumference ratio. Additionally, it has been associated with improvements in lipid profiles, characterized by lowered triglycerides and LDL cholesterol, alongside elevated HDL cholesterol, thus diminishing cardiovascular risk markers. Moreover, the Mediterranean diet exhibits favourable effects on renal function, manifested through reductions in albuminuria, serum creatinine levels and enhancements in estimated glomerular filtration rate.
- ❖ Vegetarian/ vegan diets are equally effective as omnivorous diets, showing significant improvements in glycaemic control (measured by HbA1c) amongst individuals with T2DM.
- ❖ Adoption of any dietary regimen hinges on an individual's adherence level, influenced by factors including personal preference, current lifestyle, religious beliefs, cultural practices, economic considerations like affordability and accessibility to ingredients.

Discussion

- ❖ This research offers insights into employing dietary regimens as a non-pharmacological intervention for T2DM.
- ❖ Insights from this review will empower healthcare professionals, public health policymakers and educational institutions to make informed decisions concerning lifestyle modification, improve nutritional literacy and enhance clinical outcomes of patients and or clients.
- ❖ Consequently, this approach can mitigate the health, social and economic burdens associated with T2DM.
- ❖ The outcomes gleaned from this review are aligned with the conclusions drawn from earlier investigations conducted pre-2014 concerning the efficacy of diverse dietary methodologies in enhancing HbA1c levels in people diagnosed with T2DM.

Reflection

- ❖ Conducting a narrative review is not inherently challenging as it primarily involves synthesizing existing literature and presenting it in a cohesive narrative. However, it requires intellectual rigor in critically analysing and interpreting the sources to construct a meaningful narrative.
- ❖ Approach a narrative review with enthusiasm and passion.
- ❖ When facing limited journals on a specific aspect, suggest widening the search scope to related topics or alternative sources.
- ❖ Maintain frequent communication with your supervisor to receive guidance when required.

References

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