



From the Tap to Treatment: Water's Influence on Diabetes Control

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Abstract

Recent research explores the potential influence of drinking water, including mineral water, on glycemic parameters in individuals with and without type 2 diabetes. Heterogeneous findings emphasize the complexity of the issue. Meta-analyses and prospective cohort studies suggest potential positive effects, particularly when replacing sugary beverages with water or incorporating bicarbonate, magnesium-rich water. Conversely, concerns arise regarding the impact of certain water minerals like fluoride and arsenic on diabetes rates. Larger, rigorous trials are needed for definitive conclusions. This research informs healthcare professionals, policymakers, and individuals about water, minerals, and glycemic control in diabetes management.

Keywords: Glycemic Parameters; Meta Analyses; Sugary Beverages; Diabetes Management

Introduction

There is high significance of consideration of drinking water on diabetes management. The importance lies in its exploration of the multifaceted relationship between drinking water and diabetes management. It delves into the potential positive impact of mineral-rich water, such as magnesium-enriched water, on glycemic control and insulin resistance in individuals with type 2 diabetes [1]. Simultaneously, it sheds light on the concerning aspect of certain minerals in drinking water, like fluoride, which has been associated with increased diabetes incidence and prevalence, highlighting the need for a deeper understanding of the role of water minerals in diabetes epidemiology [2]. By synthesizing evidence from various studies, including randomized controlled trials, observational research, and meta-analyses, this article underscores the complexity of the issue and emphasizes the importance of further research to harness the potential benefits of drinking water for improved glycemic parameters and overall diabetes management [3-6].

Effect of Drinking Water on the Improvement of Diabetic Patients

Recent research has explored the potential influence of drinking water, particularly mineral water, on the improvement of glycemic parameters in individuals, whether they have type 2 diabetes or not. Various studies, including randomized controlled trials (RCTs), observational research, and animal experiments, have contributed to this investigation. While the findings exhibit heterogeneity, suggesting the complexity of the issue, meta-analyses and prospective cohort studies have indicated a probable positive effect of drinking water and mineral water on glycemic parameters, particularly when replacing sugary or diet beverages with water, or when incorporating bicarbonate and magnesium-rich water. These results, despite the existing challenges and need for larger and more rigorous trials, underscore the importance of exploring the potential benefits of drinking water for glycemic control Albaker, et al.

[1,4,5].

Positive Effects of Minerals of Water on Diabetes: Minerals present in drinking water have drawn significant attention due to their potential positive impact on diabetes. One such mineral is magnesium, and its effects have been studied in detail. Research suggests that increasing the consumption of magnesium-rich water may lead to improvements in glycemic control and insulin resistance in individuals with type 2 diabetes mellitus (T2DM). A randomized cross-sectional controlled clinical trial revealed that daily consumption of drinking water enriched with magnesium chloride significantly improved parameters such as HbA1C, insulin levels, and homeostasis model assessment-estimated insulin resistance (HOMA-IR) in patients with T2DM, emphasizing the potential of magnesium-rich water as an adjunct in diabetes management Lalovic, et al.; Dubey, et al. [1,7,8].

Negative Effects of Water Minerals on Diabetes: On the flip side, there is growing concern regarding the potential negative effects of certain minerals in drinking water, such as fluoride. A study conducted across 22 states found that added water fluoridation was associated with an increase in age-adjusted diabetes incidence and prevalence, while natural fluoride concentration in water was protective. The results suggested that for counties using fluorosilicic acid as a chemical additive, both diabetes incidence and prevalence were lower. These findings raise questions about the impact of water fluoridation on diabetes epidemiological outcomes and warrant further investigation into the role of fluoride in diabetes [2,5,6].

Conclusion

This Mini Review highlights the importance of investigating drinking water, including mineral water, arsenic, and magnesium, in relation to glycemic parameters in individuals with and without diabetes. While evidence suggests potential positive effects, the complex findings warrant larger, rigorous trials for definitive conclusions. Additionally, concerns about certain water minerals like fluoride, arsenic, and the potential benefits of magnesium-rich water on glycemic control require further investigation. This research offers crucial insights for healthcare professionals, policymakers, and individuals interested in

optimizing diabetes management through water and mineral consumption.

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