An Affordable Alternative?

Investigating the use of Camel’s milk as an Adjunctive Therapy for Insulin-Dependent Diabetes Mellitus

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Abstract

Globally, there are approximately 415 million people suffering from diabetes. A significant portion of these individuals require insulin for primary treatment. As the prevalence of diabetes increases, especially in developing countries, there is need for less expensive therapies. As insulin is one of the most expensive liquids in the world, decreasing its demand in impoverished areas is crucial for lowering the levels of morbidity and mortality. The purpose of this structured review was to assess the correlation between drinking camel’s milk and decreased need for exogenous insulin for diabetes management. From our review of the University of Ottawa’s online library database, 5 relevant studies were found. These studies showed a significant correlation between the intake of camel’s milk and the reduction in need of exogenous insulin. From the gathered research, the derived conclusion is that camel’s milk as an adjunctive therapy for insulin-dependent diabetes significantly reduces the required volume of insulin and is a possible method of reducing management costs for diabetes.

Background

In Rajasthan, India, it was found that a camel herding community called the Raikas, had a near zero prevalence of diabetes mellitus despite the heavy presence of the HLA alleles, predisposing genes for type 1 diabetes (1) After comparing the incidence rates of type 1 diabetes in the Raikas with those of neighbouring communities, researchers hypothesized that differences in lifestyle were responsible for disparity in prevalence of type 1 diabetes between the groups. Due to similar geographic location of all communities involved, other environmental factors needed to be examined. The discovery that 82.5% of Raikas consumed camel’s milk at least 5 times a week compared to 25.9% of non-Raikas launched the investigation into the preventative effects of camel’s milk regarding the development of diabetes.

Research Question:

Does the consumption of camel’s milk in insulin-dependent diabetes reduce required amount of insulin for treatment?

Methods

Figure 1. (pictured) depicts the methodology used to select articles for this structured review. Using the University of Ottawa’s library database, articles were selected using the keywords Camel’s milk and diabetes mellitus, and glycemic control. Articles limited to those that were peer-reviewed, written in the English language, and published after 2000. In this review, relevant articles containing only human experimentation were included where the studies were either randomized control trials or cohort studies using subjects without other preexisting autoimmune conditions

Results

From all five studies, the use of camel milk as an adjunctive therapy led to a significant decrease in the use of insulin. In addition, these studies showed a significant increase in glucose levels in patients consuming the milk. In each study, all patients showed a decrease in the mean doses of insulin that each group required. The group that had regularly consumed camel’s milk also showed a significant decrease in the amount of insulin. In addition, one of the studies showed a substantial increase in C-peptide levels in the camel’s milk group. This implies that insulin beta cell function was improved by the intervention.

Conclusion and Discussion

Conclusions

Implications

The use of camel milk as an insulin substitute therapy could lead to reduced management costs for type 1 diabetics. In addition, since camel milk may improve beta cell function, this could lead to recovery of beta cells in type 1 diabetes. The recovery of beta cells could lead to some insulin production in type 1 diabetics. The exact mechanism is unknown. Only used one database. This may have caused a selection bias in the study. The results in the University of Ottawa database may have been chosen because they rejected the null hypothesis. Only used studies in English. This may have created language bias. Also, studies were only selected post 2000. Could have excluded relevant studies

Strengths

All the studies used the same measurements to determine the effectiveness of the interventions. This created homogeneity.

Limits

All the studies were randomized controlled trials. All the studies found a statistically significant α value in their results.

References