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Published in:
Diabetic Medicine

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2011

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Kleefstra, N., Logtenberg, S. J. J., Groenier, K. H., & Bilo, H. J. G. (2011). Reply to Akilen et al. Effect of cinnamon on glycated haemoglobin and blood pressure (letter). *Diabetic Medicine*, 28(3), 380-380.

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Letter to the Editor

DOI:10.1111/j.1464-5491.2010.03225.x

Reply to Akilen *et al.* Effect of cinnamon on glycated haemoglobin and blood pressure

Diabet. Med. 28, 380 (2011)

We read, with interest, the article of Akilen *et al.* [1], in which the authors describe their investigation of the effects of 2 g of cinnamon in a randomized, placebo-controlled, double-blind trial. Without doubt, this study adds to the limited existing evidence, which up to now is mostly of poor methodological quality [2]. A recent meta-analysis showed that the overall effect of cinnamon on HbA_{1c} was 0.0% (95% CI -0.2 to 0.2) (0 mmol/mol; 95% CI -2 to 2), therefore this study does give some new hope for the effectiveness of cinnamon [3].

However, we have some concerns regarding the methodological quality and the external validity of this study. Firstly, it was stated in the article that the double blinding was ensured, for example, by matching the smell of the placebo and the cinnamon capsules. However, later on, it was stated that the placebo capsules were given the same aroma by placing cinnamon powder under the lid of only the placebo bottles. At the least, this potentially causes problems with the blinding of the researchers, especially with regard to the capsule count at week 6 of the study. Secondly, it is unclear whether the dosage of oral blood glucose-lowering agents could be altered. This study was conducted in a young population with an HbA_{1c} of $\geq 7\%$ (53 mmol/mol). Mean HbA_{1c}, for example, in the placebo group was 8.6% (70 mmol/mol) with a standard deviation of 1.8% (19 mmol/mol). This implies that distribution is skewed and that a median and interquartile range would be more informative, but this also means that a considerable proportion of patients might have had an HbA_{1c} measurement above 10% (86 mmol/mol), especially in the placebo group. Thirdly, there are some non-significant baseline differences and changes between groups; however, these differences could have some relevance and could be non-significant only because of the small sample size. For example, in the cinnamon group at baseline, mean BMI is higher by 1.2 kg/m². Body weight declines throughout the study by 2.9 kg, compared with 0.5 kg in the placebo group. This difference in change of body weight can only partly be explained from the differences in total energy intake. In our view, it would have been informative to adjust differences in HbA_{1c} change for changes in bodyweight and/or total energy intake in their analyses and to report the size of these effects, not only to see whether the influence is significant or not. Apart from

reporting confidence intervals for within-group effects, especially between group effects together with a 95% CI, adjusted and unadjusted for weight change, it is essential to be able to interpret the placebo-controlled effects of cinnamon. Fourthly, details regarding the predefined hypothesis and power calculation are, unfortunately, lacking. Lastly, because cinnamon contains many different components, the safety of high-dose cinnamon intake should be given more attention in future trials, as teratogenic and carcinogenic effects have been found in animal studies and case reports of certain components [2]. Furthermore, coumarin is one of the components of cinnamon and coagulation parameters should be part of the assessments of future trials.

Although this study gives some hope regarding the effectiveness of cinnamon, this should be confirmed in other, also well-performed trials. Furthermore, safety concerns regarding high-dose cinnamon remain, so, in our view, it is too premature to state (as the authors did) that cinnamon supplementation could be considered as an additional dietary supplement option in patients with Type 2 diabetes.

Competing interests

Nothing to declare.

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