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Letter to the Editor

Could the antiglycemic role of vinegar be investigated in a double-blind trial?

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We read with great interest Mahmoodi et al.'s (2013) article published in the January issue of the Journal of Diabetes and Endocrinology. The authors investigated some hematological and blood biochemical factors in type 2 diabetic patients in a double blind randomized controlled trial (RCT).

One of the queries about this study is the random allocation. According to the standard criteria for RCT study design protocols (Schulz and Grimes, 2002), the authors did not mention any details about the vital sections of the protocol in their study. Though matching cases between two groups in an endocrinological trial is critical, the authors matched groups based on sex and body mass index (BMI) while for example the duration of morbidity could play an essential role.

It is well-known that vinegar contains about 3 to 9% acetic acid. The authors did not determine the dosage of the product they used. Besides, why did the authors try a single volume for vinegar? On the other hand, using 15 ml as a single volume is unknown. For example in the study of Ostman et al. (2005), different amounts of vinegar; 18, 23 and 28 g (6% acetic acid) were used in their investigation. In another crossover trial, individuals with either insulin resistance (n = 11) or type 2 diabetes (n = 10) consumed a vinegar processed drink (20 g apple cider vinegar, 40 g water, 1 tsp saccharine) or placebo drink before the consumption of a mixed meal (Johnston et al., 2004).

Another controversial aspect of the study is the placebo use. It is obvious that the unique taste of vinegar cannot be blinded by single water. According to ethical considerations, all the subjects must be informed about the study's intervention at the beginning of the study, however the introduction of vinegar/water (placebo) for the subjects definitely failed the blinding objective. The only way to eliminate this issue is designing a cross-over RCT. According to the review of Johnston et al. (2010) on four randomized crossover trials, they evidently indicated that two teaspoons of vinegar (10 g) effectively reduced postprandial glycemia. It seemed that the only way for achieving intellectual data is cross-over design. Otherwise, pharmacologists should produce a placebo with the same taste and without any side effects.

Besides, in the statistical analysis the authors declare that they performed analysis of variance (ANOVA) test. However, according to the presented data the study was designed based on analyzing different parameters between 2 groups (intervention vs. placebo), thus the ANOVA test is not indicated.

Altogether, RCT studies are known for producing one the highest level of evidences among research studies and thus require extra attention in its study design. It seems that authors failed to achieve this goal.

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