Effects of Clear Kefir on Biomolecular Aspects of Glycemic Status of Type 2 Diabetes Mellitus (T2DM) Patients in Bandung, West Java [Study on Human Blood Glucose, c Peptide and Insulin]

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ABSTRACT

Background: Diabetes Mellitus (DM) triggers an excessive reaction of free-radicals. It increases reactive oxygen species and reduces antioxidants status as well as the β cell damage. Clear kefir was used for DM therapies, however it limited biomolecular exploration of its bioactive roles. Research aimed to investigate the effects of clear kefir on the biomolecular nature of the glycemic status of T2DM in Bandung.

Methods: The randomized pretest-posttest control group was conducted by 106 T2DM patients. Research was done in several hospitals in Bandung and Cimahi, West Java from 2012–2013. Samples were divided randomly into three groups: (1) T2DM with $HbA_{1c} < 7$ was fed a standard diet, supplemented with 200 ml/day of clear kefir, (2) T2DM with $HbA_{1c} > 7$ fed standard diet and supplemented 200 ml/day by clear kefir, (3) T2DM with HbA_{1c} was fed a standard diet as a control group. Dose response was obtained from a preeliminary vivo study, and then converted to human dosage by year 2011. Intervention was effectively done for 30 days. HbA_{1c} was measured by HPLC. Fasting blood glucose (FBG) and Postprandial blood glucose levels (PBG) were measured by enzymes levels. C Peptide and insulin were measured by Elisa. Data was analyzed by a statictics programme by significance p<0,05. Study was approved by ethic committee.

Results : HbA$_{1c}$ was significantly reduced in delta level (p<0.01) and FBG (p<0.015) among kefir groups. PBG was not significantly reduced among groups. C-Peptide was significantly increased in delta level, except in control group (p<0.014). Insulin was reduced significantly, except in control group (p<0.003).

Conclusions : Supplementation of clear kefir reduced blood glucose levels (HbA$_{1c}$, FBG, PBG) and increased c-peptide. Clear kefir's biomolecular mechanisms and chemistry characterization is a challenge for future studies.

Keywords: Diabetes melitus, hyperglicemia, clear kefir, insulin, c peptide