World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:11, No:05, 2017

Effect of Goat Milk Kefir and Soy Milk Kefir on IL-6 in Diabetes Mellitus Wistar Mice Models Induced by Streptozotocin and Nicotinamide

Authors : Agatha Swasti Ayuning Tyas

Abstract : Hyperglycemia in Diabetes Mellitus (DM) is an important factor in cellular and vascular damage, which is caused by activation of C Protein Kinase, polyol and hexosamine track, and production of Advanced Glycation End-Products (AGE). Those mentioned before causes the accumulation of Reactive Oxygen Species (ROS). Oxidative stress increases the expression of proinflammatory factors IL-6 as one of many signs of endothelial disfunction. Genistein in soy milk has a high immunomodulator potential. Goat milk contains amino acids which have antioxidative potential. Fermented kefir has an anti-inflammatory activity which believed will also contribute in potentiating goat milk and soy milk. This study is a quasi-experimental posttest-only research to 30 Wistar mice. This study compared the levels of IL-6 between healthy Wistar mice group (G1) and 4 DM Wistar mice with intervention and grouped as follows: mice without treatment (G2), mice treated with 100% goat milk kefir (G3), mice treated with combination of 50% goat milk kefir and 50% soy milk kefir (G4), and mice treated with 100% soy milk kefir (G5). DM animal models were induced with Streptozotocin & Nicotinamide to achieve hyperglycemic condition. Goat milk kefir and soy milk kefir are given at a dose of 2 mL/kg body weight/day for four weeks to intervention groups. Blood glucose was analyzed by the GOD-POD principle. IL-6 was analyzed by enzyme-linked sandwich ELISA. The level of IL-6 in DM untreated control group (G2) showed a significant difference from the group treated with the combination of 50% goat milk kefir and 50% soy milk kefir (G3) (p=0,006) and the group treated with 100% soy milk kefir (G5) (p=0,009). Whereas the difference of IL-6 in group treated with 100% goat milk kefir (G3) was not significant (p=0,131). There is also synergism between glucose level and IL-6 in intervention groups treated with combination of 50% goat milk kefir and 50% soy milk kefir (G3) and the group treated with 100% soy milk kefir (G5). Combination of 50 % goat milk kefir and 50% soy milk kefir and administration of 100% soy milk kefir alone can control the level of IL-6 remained low in DM Wistar mice induced with streptozocin and nicotinamide.

Keywords : diabetes mellitus, goat milk kefir, soy milk kefir, interleukin 6
Conference Title : ICMHS 2017 : International Conference on Medical and Health Sciences
Conference Location : Rome, Italy
Conference Dates : May 04-05, 2017