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Consideration on the effects of natural water containing vanadium on diabetic mellitus

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Abstract:
This paper argues the possible effects of natural vanadium-containing Mt. Fuji ground water on the hyperglycemia based on our previously reported animal and clinical studies. In the animal studies, we documented that the activities of liver insulin receptors, particularly β subunit, and primary insulin-like growth factor-1 β were recovered to the normal levels by the daily forced oral treatment with Mt. Fuji ground water containing natural vanadium in Goto-Kakisaki (GK) rat which is the genetic model of Type II diabetes. Furthermore the increased levels of blood glucose and serum hemoglobin A1C (HbA1C) of GK rats were significantly blocked by the consecutive treatment of natural vanadium water. It is interesting that the other genetic model of Type II diabetes, KK^{Ay} mice, were likely to be shown the inhibitory effects of the consecutive treatment of natural vanadium water on increases of blood glucose but not significant. In these animals, however, the significant improvements of Glut 4 transporter and receptor activities in the adipose and muscle were detected. In the clinical studies, the levels of blood glucose and serum HbA1C of hyperglycemic patients were significantly reduced by three month consecutive treatment of this Mt. Fuji ground water, and also the QOL of these patients were completely improved, although these effects were clearly affected by the changes in each life style. Thus both animal and human studies suggest that the daily treatment with Mt. Fuji ground water containing natural vanadium is useful for the regulation of blood glucose levels and the improvement of QOL to the hyperglycemia patients due to the improvements of glucose transporter and the insulin receptor and so on. However it might be little difficult to expect the significant improvement

of the severe conditions of diabetes mellitus by the consecutive treatment of natural vanadium water, since this ground water is good as a supplement.

Key words: Natural vanadium-containing Mt. Fuji ground water, Blood glucose levels, cholesterol, Hyperglycemia, Clinical Trial, Animal model for disease test

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