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The effect of low doses of radon on Ghrelin and Glucose levels in rats with multiple low doses Streptozotocin-induced Type 2 Diabetes Mellitus

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Purpose: The aim of our research was to identify the ghrelin concentration in experimental animals with Type 2 Diabetes Mellitus (T2DM) and to study the effect of radon hormesis balneotherapy using natural thermal waters of Tskaltubo spring, practically, its effect on ghrelin and glucose metabolism.

Materials and methods: To study the effect of radon in balneotherapy, group of experimental animals (multiple low doses streptozotocin induced T2DM Wistar rats were used) went through the procedure of inhalation of radon by the Tskaltubo mineral water pool, once daily, during 10 days. In animals of the control groups, inhalation with radon was not used. The experimental group and the control group were brought from Tskhaltubo to Tbilisi to the Ivane Beritashvili experimental biomedicine center, where the blood of the rats was analysed.

Results : After radon inhalation therapy with Tskaltubo mineral water, a normalization of the ghrelin levels was observed in experimental group and despite the different body weight, the levels were approximately the same and close to those of the control group. In the experimental group, ghrelin level normalization was accompanied by glycaemia normalization.

Conclusion: This research showed that Tskhaltubo mineral water radon inhalation caused hormesis, which consequently decreased ghrelin levels in rodents with T2DM and obesity and the result was stable during 3 month. Ghrelin level stabilization positively influenced on glucose levels. The result of our experiment gives us a stimulus to continue future research to find more specific neurochemical mechanisms participating in radon hormesis processes and positively influencing on glucose levels and T2DM outcome.

Biography

Natia Chkheidze is a Georgian and was born in 1978 in Tbilisi, Georgia. She is from National Institute of Endocrinology, Tbilisi, Georgia. She is Chief of Clinical Oncology Department at American Hospital Tbilisi. From the very first day of cooperation, she has started perfecting patient-centered services based on the gained experience from various clinics in the US. The active work of Natia Jokhadze and her team with the International Agency for Research on Cancer and the Georgian National Center for Disease Control and Public Health has led to the foundation of a nationwide cancer registry. Natia Jokhadze has completed several vocational training courses in the United States and Europe, including the American National Cancer Institute (NIH / NCI) and Johns Hopkins University Clinic.