

# Profound hypoglycemia-induced by *vaccinium corymbosum* juice and *laurocerasus* fruit

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## ABSTRACT

An emergency intervention was performed in a 75-year-old male patient with hypoglycemic attack and blackout. Although he was diagnosed with prediabetes before 2 years, he did not take any anti-diabetic drug or follow dietary advice. He drank *Vaccinium corymbosum* L (VC) juice daily with a belief that it increases sexual potency. Before the development of hypoglycemia, the patient had consumed about 500 ml VC juice in addition to eating 200-300 gram of *Laurocerasus officinalis* (LO) fruit. The measured plasma glucose (PG) level during loss of consciousness was 30 mg/dl. The profound hypoglycemia may be an unexpected side effect of an interaction between the chemical compositions of the two plants, occurred as a result of LO fruit intake that may have a strong PG-lowering effect or related to excessive intake of VC juice. Both plants may be considered in the alternative treatment of diabetes.

**KEY WORDS:** Hypoglycemia, *Laurocerasus officinalis*, *vaccinium corymbosum* L

## Introduction

*Vaccinium corymbosum* L (VC) (Blueberries) and *Laurocerasus officinalis* (LO) are summer fruits native to the Black Sea region. VC contains polyphenols and flavonols which contribute to the powerful antioxidant effect<sup>[1]</sup> and may diminish glucose level.<sup>[2]</sup> *Vaccinium vitis-idaea* which is another species of this plant has a positive effect on decreasing glucose and lipid levels.<sup>[3]</sup> LO (also called cherry laurel) has a high antioxidant capacity.<sup>[4]</sup> LO is a rich source of protective antioxidant compounds. Its antioxidant and radical scavenging activities were found to be comparable to or higher than those of the reference antioxidants.<sup>[5]</sup> We present a case of profound hypoglycemia after combined use of VC juice and LO fruit.

## Case Report

A 75-year-old male patient was brought to the emergency department with a complaint of loss of consciousness, after 1-2 minutes of cold sweats, palpitations, dizziness and blurred vision. Physical examination carried out revealed unconsciousness, loss of cooperation and orientation, cold and

sweaty body, arterial blood pressure of 110/70 mmHg, heart rate of 124 pulse/minute and respiratory rate of 24/minute. The rest of the physical examination was normal. The measured serum glucose (PG) was 30 mg/dl. A bolus of 50% dextrose was administered immediately. The neurological, cardiac and pulmonary examinations and the laboratory tests were normal. The biochemical analysis of the patient's serum revealed normal sodium level. The patient's body temperature was normal and there was no evidence of infection. During the follow-up there was no hypotensive attack. The patient was admitted to the internal medicine ward with a diagnosis of hypoglycemia. The PG was measured hourly. Infusion of 20% dextrose was continued. At the end of first hour, the patient was reevaluated. His consciousness was clear and physical examination was normal. The patient's PG at the 1<sup>st</sup> hour was 146 mg/dl and he was clinically stable. 10% dextrose was administered slowly as an infusion. When the infusion was stopped, PG decreased rapidly, thus the infusion was continued for nearly 12 hours. No symptomatic hypoglycemia was observed thereafter, after stopping the infusion.

The patient had been diagnosed with pre-diabetes before 2.5 years; his body mass index was 31.5 kg/m<sup>2</sup>. He was recommended diet, lifestyle changes, physical activities and metformin therapy. However, the patient was noncomplicated. The patient had performed self-finger stick blood glucose test one month ago and glucose level was 92 mg/dl. Moreover he did not follow the dietary advice. He used to drink a cup of VC juice; he boiled the fruit, filtered it and drank it daily for 2 years. About 1.5 to 2 hours before the development of

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hypoglycemia, the patient had consumed up to 500 mL VC juice and 250-300 gram of LO fruit. Even though he had not taken any medication or followed a dietary advice he developed severe hypoglycemia.

On admissions, HbA1c was 4.9%, insulin was 3.5  $\mu$ U/ml (5-10  $\mu$ U/ml) and HOMA-IR was 0.57. Other laboratory tests were normal. On the next day of admission, the serum fasting PG was 67 mg/dl, on 2<sup>nd</sup> day it was 91 mg/dl and on 3<sup>rd</sup> day it was 96 mg/dl. Eye examination revealed no evidence of diabetic retinopathy. Physical examination and the laboratory findings of the patient remained completely normal and the patient was discharged. The patient came to the hospital after 3 months. He had continued to drink a cup of VC juice daily during these 3 months. Physical examination was normal. Fasting PG was 91 mg/dl, HbA1c was 4.9%, insulin was 2.8  $\mu$ U/ml, HOMA-IR was 0.63, and the rest of laboratory parameters were normal. Then, he discontinued drinking VC juice for latter 3 months. Some 6 months after development of hypoglycemia, his laboratory tests were increased (fasting PG was 105 mg/dl and HbA1c was 5.5).

Hypoglycemia is the most common cause of syncope and it is a complication of treatment with oral anti-diabetics or insulin. Hypoglycemia may also occur in long-term fasting, liver, kidney and adrenal gland failure and in geriatric patients due to poor diet. This patient had no evidence of organ failure, neurological and cardiac diseases or poor diet. He did not take any drug that may cause hypoglycemia. We ruled out insulinoma, as there was no history of weight loss and the insulin/glucose ratio was 0.11 and insulin level was 5.3  $\mu$ U/ml. Additionally, 3 months later, his physical examination and laboratory tests were normal.

Although there was not risk factor for hypoglycemia, the development of hypoglycemia with the use of high doses of these plants suggests that it occurred due to the use of two plants together. Moreover, it is also known that majority of pre-diabetic patients who do not comply with medical treatment, dietary and lifestyle changes develop

overt diabetes. However, the patient's PG and HbA1c levels were within normal range. The levels of PG and HbA1c after 3 months of stopping VC juice were increased. We speculated that VC juice may play an important role in lowering PG level. Naranjo probability scale is generally the most accepted and widely used method for causality assessment in clinical practice.<sup>[6]</sup> This score for our patient was eight and it was, therefore, inferred to be probably an adverse drug reaction of VC juice. The patient had profound hypoglycemia after taking VC juice with LO fruit. This may be an unexpected effect of an interaction occurring between the chemical compositions of the two plants. Both plants can reduce PG levels by reducing oxidative stress and insulin resistance and may be as alternative treatments for diabetes.

## References

1. Çoban J, Evran B, Özkan F, Çevik A, Doğru-Abbasoğlu S, Uysal M. Effect of blueberry feeding on lipids and oxidative stress in the serum, liver and aorta of guinea pigs fed on a high-cholesterol diet. *Biosci Biotechnol Biochem* 2013;77:389-91.
2. Watson EM. Some observations on the effect of blueberry leaf extract in diabetes mellitus. *Can Med Assoc J* 1928;19:166-71.
3. Törrönen R, Kolehmainen M, Sarkkinen E, Mykkanen H, Niskanen L. Postprandial glucose, insulin, and free fatty acid responses to sucrose consumed with blackcurrants and lingonberries in healthy women. *Am J Clin Nutr* 2012;96:527-33.
4. Celep E, Aydın A, Yesilada E. A comparative study on the *in vitro* antioxidant potentials of three edible fruits: Cornelian cherry, Japanese persimmon and cherry laurel. *Food Chem Toxicol* 2012;50:3329-35.
5. Kolaylı S, Küçük M, Duran C, Candan F, Dinçer B. Chemical and antioxidant properties of *Laurocerasus officinalis* Roem. (cherry laurel) fruit grown in the Black Sea region. *J Agric Food Chem* 2003;51:7489-94.
6. Zaki SA. Adverse drug reaction and causality assessment scales. *Lung India* 2011;28:152-3.

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