

## Stopping Insulin and Achieving a Good Metabolic Control in a Heavy Drinker Five Months after Stopping Alcohol

Alireza Shahab Jahanlou<sup>1</sup>, Fazollah Ghofranipour<sup>2</sup>, Masoud Kimmiagar<sup>3</sup>, Maryam Vafaei<sup>4</sup>,  
Alireza Heydarnia<sup>2</sup>, and Nader Alishan Karami<sup>5</sup>

<sup>1</sup> Cardiovascular Research Center, Hormozgan University of Medical Sciences, Hormozgan, Iran

<sup>2</sup> Department of Health Education, University of Tarbiat Modares, Tehran, Iran

<sup>3</sup> Department of Human Nutrition, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>4</sup> Department of Psychology, University of Tarbiat Modares, Tehran, Iran

<sup>5</sup> Department of Health Information Management, Hormozgan University of Medical Sciences, Hormozgan, Iran

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**Abstract-** In this case study, we describe a 25 year-old male who showed the symptoms of diabetes after a period of heavy drinking. (HbA1c=13%). Treatment was started with 120 units of insulin. After stopping alcohol consumption and taking an appropriate diet, insulin was tapered down. Five months after the start of treatment, insulin was stopped (HbA1c=5%). The results showed that he was in a good metabolic control after 18 months (HbA1c=5.9%).

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### Introduction

Alcohol consumption plays an important role in many cultures, for example, as a part of meals (1). High consumption of alcohol is also associated with increasing the risk of diabetes mellitus (DM) (2). In an observation, for a heavy alcohol drinker who developed symptoms of diabetes, 120 units insulin was started. When he stopped consumption of alcohol, insulin began to taper down; and after 5 months being under diet therapy, light physical activity, insulin was stopped. The follow-up after 18 months showed hemoglobin A1c in the normal range.

### Case Report

A 25 year-old man (104Kg, BMI=36.41) with symptoms of polyuria and polydipsia was admitted at Emam Reza Hospital, a private hospital in Bandarabbas, Iran, in September 2006. Fasting blood sugar was 371 mg/dl and glucose after 2 hours was 594 mg/dl. HbA1c was 13%, triglyceride and cholesterol were 423 mg/dl and 313 mg/dl, respectively, at the time of admission without any evidences of ketosis. The Sonography of kidneys,

pancreas and liver did not show any abnormal findings. To control blood glucose 66 units of NPH insulin plus 56 units of regular insulin were administered. The patient was also put on anti fat-absorption pills. Blood sugar became normal after 3 days. The patient was followed up in Diabetes Clinic in the University's Hospital. The patient's history showed alcohol consumption from the age of 15, which was gradually increased. One month before hospitalization the patient was in the category of heavy-drinkers with more than 60 g alcohol/ day (>5 drinks per day) (2).

At the time of admittance to the Diabetes Clinic, the patient was interviewed for socio-demographic, self-efficacy and quality of life. The self efficacy of the patient was low. Considering the obtained data required instruction to improve self efficacy was provided for him. In addition, a high protein, low fat, moderate carbohydrates, and high fiber diet was recommended by the dietitian. To teach him about self-monitoring for hypoglycemia by symptoms (e.g. tachycardia, shivering, sweating and general weakness), he and his family were provided with required information in a face to face setting. Alcohol consumption was forbidden and he stopped drinking. Regular exercise started with daily

**Corresponding Author:** Fazollah Ghofranipour

Department of Health Education, Tarbiat Modares University of Medical Sciences, Tehran, Iran  
Tel: +98 917 1613857, Fax: +98 761 333500, E-mail: jahanlu@gmail.com

walk for one hour. The patient was followed by the physician and nutritionist weekly. In 3 months, insulin was tapered off to half and HbA1c reduced to 8.2%, the anti fat absorption pills were also stopped. At that point, the physical activity increased and the patient lost 7 Kg (97Kg, BMI=33.96). The insulin was stopped totally after 5 months when the HbA1c reached to 5%. Follow-up in the 10<sup>th</sup> and 18<sup>th</sup> months showed normal fasting blood sugar and good metabolic control (HbA1c=5.9).

## Discussion

At first glance, the readers may think the patient developed the symptoms of “honeymoon” diabetes or Ketosis-prone type 2 diabetes mellitus. First of all, “honeymoon” diabetes might occur during infections or puberty. In type 1A DM, a “honeymoon” phase may ensue during which time glycemic control is achieved with modest doses of insulin or, rarely, insulin is not needed. However, this fleeting phase of endogenous insulin production from residual beta cells disappears as the autoimmune process destroys the remaining beta cells, and the individual becomes completely insulin deficient (3). This case can not be “honeymoon” diabetes because the patient was already mature and did not have any infections at the time of admission and 13 months after stopping insulin the patient is still in a good metabolic control. Secondly, the patient was not suffering from Ketosis-prone type 2 diabetes mellitus, because he did not have any evidence of ketosis (5).

In diabetic patients, alcohol can have both hypoglycemic and hyperglycemic effects (1). The relationship between alcohol and the risk of type 2 diabetes seems to be complex (2). A J-shaped relationship has been found, according to a review, with a decreased risk in incidence of type 2 diabetes among subjects with a moderate intake of alcohol (one to three drinks per day, corresponding to 12-36 g alcohol/day) compared to non-drinkers, and increased risk among heavy drinkers (>3 drinks per day, corresponding to more than 36 g alcohol/ day) compared to moderate drinkers (2). Although increased insulin resistance is induced by heavy drinking, light and moderate alcohol intake (one to three drinks per day) is associated with increased insulin sensitivity (4). In conclusion, this case strongly suggests heavy drinking in a short period of time can lead to severe symptoms of diabetes, which

may need to treatment with high doses of insulin. In most of cases, physicians do not recommend to stop drinking. This is because some of studies suggest that moderate alcohol consumption of 1-3 drinks per day is associated with lower incidence rates of diabetes (4). While this case showed that stopping alcohol consumption and adopting an appropriate diet along with light physical activity led to treatment of the patient, we suggest more studies on heavy drinking patients with symptoms of diabetes to be carried out because investigations on the effects of ethanol on glucose tolerance and insulin secretion have produced conflicting results (1).

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