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Brief report

Extended honeymoon period in a type 1 diabetic child by Iranian Traditional Medicine treatments, a case report

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ABSTRACT

We present a 4-year-old newly diagnosed T1DM boy who presented with severe polyuria and polydipsia and HbA1C of 9.3%. Coincident with onset of ITM program insulin doses were tapered and the baby got free from insulin soon. Only three months after traditional anti-diabetic medications, his HbA1C improved to 5.8%.

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1. Introduction

Type 1 diabetes mellitus (T1DM) is an autoimmune condition that results in low plasma insulin levels due to the destruction of beta-cells of the pancreas [1]. As a part of the natural progression of this disease, some patients regain beta-cell

activity transiently. This period is often referred to 'honeymoon period' or 'remission of T1DM' [2].

In Iranian medicine, the term *Ziabites*, was used to describe diabetes. This disorder was categorized into two main types, hot and cold *Ziabites*, according to the intensity and mode of symptoms. Etiologically, hot and cold *ziabites* results from endo or exogenous extra heat and extra coldness (distur-

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bance in heat balance equation) in whole body or some organs such as kidneys, liver, . . . , respectively. Therefore hot *ziabites* patients have an impaired capacity to tolerate heat contrary to the cold *ziabites*. On the management, lifestyle modification – specially diet – as well as herbal therapy are recommended [3–6].

2. Case presentation

2.1. Medical history and examination according to modern medicine

The patient, a four-years-old boy without significant past medical history, showed polydypsia, polyuria, and mild weight loss since 1 week before medical visit. His fasting plasma glucose was 301 mg/dl and hemoglobin A1c (HbA1c) level was 9.4%. He was referred to a hospital for further evaluation. Blood and urine analyses showed hyperglycemia and presence of ketone bodies. The patient was diagnosed with T1DM. Accordingly, intensive insulin therapy was initiated, but before favorable glycaemic control was achieved with insulin, the patient was discharged from the hospital with written parental consent.

2.2. Medical history, examinations, and treatment according to Iranian Traditional Medicine

During the first ITM visit, the patient's parents signed an informed consent form before the treatment; the patient was diagnosed with a case of hot *Ziabites*. For management, lifestyle modification, specially an intensive diet [7] for hot *ziabetes* as well as herbal therapy for three weeks [8,9] were recommended and the use of insulin was only advocated while his blood sugar level was more than 300 mg/dl. During his follow-up visit immediately after treatment with herbal anti-diabetic medications, the patient had no symptoms of hyperglycemia or DKA, and had to take insulin only one time—in the first night as per the report. He was asymptomatic during this visit. At that time, the patient did not restart insulin, and his glycaemic status was frequently monitored. After three months, his HbA1C was 5.8%. 12 months after T1DM diagnosis, he was still under observation in a healthy condition, the patient's FPG levels had been 70 mg/dl and his HbA1C was 5.8%, while the patient had no hypoglycemia or hyperglycemia, indicating a complete remission of at least 12 months' duration, without requiring insulin therapy. Fifteen months later, his plasma glucose increased gradually and did not control with ITM protocols. Three months later, the patient's FPG elevated to 350 mg/dl, his HbA1C increased to

10%, and his parents was forced to restart insulin therapy. Serial changes in plasma glucose and HbA1c levels during the follow-up are described in Table 1.

The main drug used in the ITM program was a single dose (100 g per day) of aqueous extracts of *Rosa damascena* Mill (Flower), *Prunus domestica* L. (Fruit), *Tamarindus indica* L. (Fruit), and *Elaeagnus angustifolia* (Fruit). A decoction of 5 g of *Juglans regia* L. (walnut shells) was used if the blood sugar level was more than 150 mg/dl before meals.

3. Discussion

Complete remission refers to T1DM patients with well-controlled blood glucose levels without the requirement of any insulin or oral anti-diabetic medication [2,10]. Pathogenesis of this recovery is not clearly understood [11]. Complete remission incidence rates ranged between 0 and 20% at 6 months, and 0 and 10% at 12 months after the initiation of insulin therapy in a newly diagnosed T1DM patient [10]. Various factors seem to influence the remission rates and its duration. These include (but are not limited to) the C-peptide level, serum bicarbonate and HbA1C levels at the time of diagnosis, duration of T1DM symptoms, the sex, and the age of the patient [2,12]. The present case can be considered as a complete remission and long term honeymoon period influenced by ITM management.

Concerning the treatment of *ziabites* by employing ITM, 46 different medicinal herbs were found as a cure for hot or cold types of *ziabites* [3,5]. Recently, several single herbal drugs mentioned in classical literature have been experimentally and clinically evaluated, and reported as hypoglycaemic agents [5,6,13,14]. But our search through databases revealed no clinical study about ITM treatment effects on T1DM.

The most considered mechanisms of *Rosa damascena* Mill and *Juglans regia* L., are their inhibitory effect on α -glucosidase and suppression of carbohydrate absorption from the intestine [15,16]; and for *Tamarindus indica* L., the most studied mechanisms are the inhibition of glucose-6-phosphatase, and the reduction of glutamate oxaloacetate transaminase and glutamate pyruvate transaminase activity [17]. Although these mechanisms have not been recognized clearly in the management of T1DM; some studies report successful use of α -glucosidase inhibitor, acarbose, to manage post prandial hyperglycemia in patients with type 1 diabetes [12,18].

Despite lack of measurements of plasma insulin, C-peptide and antibody levels in this retrospective case, available data (presentation with ketoacidosis and final need to insulin) confirms T1DM in this patient.

Table 1 – Serial changes in PG, HbA1c, levels, Urine ketone and Urine glucose during the follow-up.

	At the initial phase of the ITM treatment	After 3 months of ITM treatment	After 12 months of ITM treatment	After 18 months of ITM treatment
Fasting plasma glucose (mg/dl)	301	78	70	350
2 h post prandial plasma glucose (mg/dl)	–	75	98	–
Hemoglobin A1c (%)	9.4	5.88	5.85	10
Urine ketone	+2	Negative	Negative	–
Urine glucose	+3	Negative	Negative	–

This case suggests that ITM may have some beneficial effects in extending honeymoon period of T1DM patients, but should never replace main treatment of the disease, i.e. insulin.

The present study describes only one patient and lacked control subjects; therefore, a long-term study on a larger population is required to elicit other aspects of T1DM remission.

4. Conclusions

Along with global trends toward complementary and alternative medicine, many parents who have T1DM children may discontinue insulin and replace traditional remedies for them. Although this case study revealed that ITM may exhibit a positive short term response in extending honeymoon period of T1DM patients, it should never replace insulin in hyperglycemic conditions, and just can be used as a complementary management.

Conflicts of interest

The authors state that they have no conflict of interest.

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