

Hypoglycemia Induced by Arabic Gum. A Case Report

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Abstract- Nowadays, the traditional medicine begins to use frequently as a preventative method or even as treatment worldwide and one of the most used plant is Arabic Gum which is a fibrous product made of the natural hardened sap of two types of wild Acacia trees. One of the Arabic gum's side effect is the hypoglycemic effect. In this report we present a case of hypoglycemia induced by Arabic Gum in 43 years old Saudi female, medically free, no known allergy, presented to ED of tertiary hospital in Saudi Arabia complained of dizziness, abdominal pain associated with fatigability, nausea, vomiting, tiredness, palpitation and sweating after drunk an Arabic Gum's powder in water to relieve epigastric pain. She had a low RBG 42 mg/dL and high blood pressure 143/100 mmHg. The patient diagnosed with hypoglycemia induced by AG, she admitted for blood glucose monitoring until it normalized to 117 mg/dL then patient discharged to home.

Index Terms— Arabic Gum, Blood Glucose, Hypoglycemia, Traditional Medicine, Emergency Department.

1 INTRODUCTION

Nowadays, the traditional medicine begins to use frequently as a preventative method or even as treatment worldwide and one of the most used plant is Arabic Gum which is a fibrous product made of the natural hardened sap of two types of wild Acacia trees. Around the world, Arabic gum goes by many names, including acacia gum, acacia powder, Senegal gum, Indian gum and others. (Levy J.,2018). A double-blind Randomized controlled trial approved that regular ingestion (30g/day) of AG has hypoglycemic effect on type 2 diabetes patients, there was a significant decreased in fasting blood glucose by 26.24% and HbA1C by 8.8 % in Arabic gum group. (Babiker R.,2017) Moreover, another clinical trial done in Saudi Arabia, the results showed that used (10g/day) of AG cause a significant decreased in FBG (mmol/l) 158 to 91 and HbA1c (%) 6.62 to 5.21 in diabetic patient pre and post treatment respectively. (Nasir O., 2016) Hence, hypoglycemia is a common side effect of diabetic therapy but, in patient without diabetes it is a clinical syndrome happened when plasma glucose level (<70 mg/dL) lead to autonomic and neuroglycopenic symptoms like, sweating, palpitation, tremor and paresthesia. (John F.,2019).

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2 Case presentation

Detail 43 years old Saudi female, medically free, no known allergy, presented to ED of tertiary hospital in Saudi Arabia at 2:30 pm with dizziness and abdominal pain. Patient was at her usual state of health till she eaten heavy breakfast she started complaint of dizziness and abdominal pain after she drunk Arabic Gum (unknown amount) in water to relieve epigastric pain, she started to have, fatigability, nausea, vomiting 3 times, tiredness, palpitation and sweating. Patient brought by her supervisor and RBS was 42 mg/dL, she has no history of fever, change in bowel habit, hematochezia, hematemesis, no symptoms suggestive of sepsis or other systematic illness. On examination the patient was vitally stable except for blood



pressure 143/100 mmHg, she was conscious, alert, oriented, the abdomen was soft, lax with mild epigastric tenderness, no organomegaly. Chest was clear no add sounds, CVS: normal s1+s2+0. Patient diagnosed with hypoglycemia secondary to Arabic Gum.

Fig. 1. (a) Raw Arabic gum. (b) Arabic Gum's powder.

Labs	Normal range (units)	Admission 10/10/2018
RBS	70-140(mg/dL)	42
Hemoglobin	12-16 (g/dL)	11.7
RBC	4.2-5.5 (Mil/ul)	6.14
MCV	80-94 (fL)	60.9
MCH	27-32 (pg)	19
MCHC	32-36 (g/dL)	31.2
RDW	11.5-14.5(%)	16.8
BUN	7-18 (mg/dL)	6
LFT	-	NL
Mg	1.8-2.4(mg/dL)	NL
Amylase	25-155(U/L)	NL
Lipase	73-393(U/L)	NL

Table 1. Laboratory test results at admission

She referred to internal medicine to admission for blood glucose monitoring and to rule out other electrolyte abnormalities. Patient discharged to home at the same day 6:30 pm RBS: 117 mg/dL.

3 DISCUSSION

Double-blind RCT, conducted done in Sudan. It was conducted on 100 patients with type 2 diabetes had HbA1C \geq 6.5% were randomized to AG and placebo groups. The Arabic Gum group was given 30 g of AG and the placebo group was given 5 g of placebo daily for 3 months. The results showed a significant decreased in fasting plasma glucose by 26.24% and HbA1C by 8.8 % in AG group. (Babiker R., 2017) Furthermore, a questionnaire study done in Tunisia among (n=200) diabetic patients chosen randomly and the information about diabetes was taken directly from the patients records. 46 out of 200 patients admitted to consuming or having consumed hypoglycemic plants representing 23% of the population studied. 28.3% of the population consuming plants have type 1 diabetes and 71.3% have type 2 diabetes mellitus. The main plants used was Arabic Gum, 71.7% which approved to has hypolipidemic and hypoglycemic effects and 72.4% of patients admitted to having reduced the doses of drug treatment due to the occurrence of hypoglycemia. (Othman R., 2013). Moreover, a clinical trial was done in Saudi Arabia. It was conducted in 40 participants aged between 35 to 60 years with a daily supplement of powdered Arabic Gum (10g/day), for a period of

16 weeks in a healthy subject, pre-diabetics, patients with type 2 diabetes mellitus and patients with diabetic nephropathy (n=10). The results showed a significant reduction in glucose fasting level(mmol/l) 113 to 90, 158 to 91 in pre-diabetic group and diabetic group respectively and for HbA1c the reduction was from 5.4 to 4.8, from 6.6 to 5 in pre-diabetic group and diabetic group respectively. (Nasir O.,2016) All results showed a significant hypoglycemic effect of Arabic Gum by decreased fasting blood glucose and HbA1c. In our case the random blood sugar after ingested of Arabic gum' powder in water was 42 (mg/dL), associated with hypoglycemic symptoms including dizziness, fatigability, nausea, vomiting, tiredness, palpitation and sweating. On the other hand, there is a Quasi-experimental study done in Sudan. It was conducted on 49 type II diabetic patients were provided with AG and educated to add 60 g/day (divided into two portions 30 gm) to their meals for three months. Results showed that regular intake of 60 g/day of Gum Arabic for three months produced a slight change in HbA1c (no significant difference). It could be due to small size number or due to other factors like, uncomplete compliance of patients who suffer from nausea represented by (26.6%), and (12%) for constipation and diarrhea. Also, there are (75%) of patients had increased carbohydrates intake, while (25%) decreased intake with gender significant differences. (Ibrahim N.,2017)

4 CONCLUSION

It could be concluded that, there are a limited trail about hypoglycemia induced by Arabic Gum especially on human but, most of the studies showed that the Arabic Gum has an anti-diabetic and hypoglycemic effect by decrease FBG, HbA1c and increase serum insulin.

5 TAKE HOME MESSAGE

Arabic Gum has an anti-diabetic and hypoglycemic effect, so we have to check random blood glucose and stabilize the patient who came to Emergency Department first.

We should spread this awareness because many people think it is safe although we need more studies to conduct on humans include diabetic and non-diabetic.

We should approve these evidences and to know the exact dose that can be used as therapeutic or that can be harmful.

6 ABBREVIATION

- ED (Emergency Department)
- RBS (Random Blood Glucose)
- FBG (Fasting Blood Glucose)
- RCT (Randomized Controlled Trail)
- AG (Arabic Gum)

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- [7] 7- Table 1. Laboratory test results at admission, King Fahd Hospital of the University (KFHU) in Khobar, Saudi Arabia.

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