

Favism, A Genetic Disease, Can be Treated Using Watery Crude Extract of Fennel Vulgare

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Abstract

Favism is a genetic disease resulting from a deficiency of glucose-6-phosphate dehydrogenase (G6PD). The main objective of this study was to introduce a new natural treatment of favism using the crude watery extract of Fennel vulgare. Four cases with favism were presented. The use of Fennel vulgare watery extract inhibits the development of favism symptoms including hemolytic anemia and consequent pathways. Taken together, favism can be treated using Fennel vulgare.

Keywords: Favism; Fennel Vulgare; Watery Crude Extract; Hemolytic Anemia; G6PD Deficiency

Introduction

In all cells, glucose-6-phosphate dehydrogenase (G6PD) is a highly conserved housekeeping enzyme and the rate limiting enzyme of the pentose phosphate cycle [1,2]. G6PD is a widely distributed enzyme that has been detected in a wide range of species, including prokaryotes, yeasts, protozoa, plants, and mammals [3]. The most common enzyme deficiency in the world is glucose-6-phosphate dehydrogenase deficiency (favism). It can induce a variety of problems, including neonatal hyperbilirubinemia, acute hemolysis, and chronic hemolysis. This illness can also be asymptomatic in some people [4].

Patients with G6PD deficiency are difficult to detect since they are asymptomatic until they are exposed to triggers. G6PD deficiency is expected to affect about 400 million people worldwide, with considerable genetic variability, making it the most prevalent clinically important enzyme failure [5]. Approximately, 200 distinct G6PD pathogenic variants (PVs) have been identified worldwide till now, with each ethnic population having its own mutational profile [6]. Due to oxidative stress, G6PD deficiency (G6PDd) frequently appears as neonatal hyperbilirubinemia or acute hemolytic anemia (AHA). Ingestion of fava beans, systemic illnesses, or exposure to specific drugs are all common triggers. G6PDd can also cause chronic non-spherocytic hemolytic anemia, which is less prevalent (CNSHA). The severity of the G6PDd, which is decided by the specific PV, is mostly determined by the age of the red blood cells (RBC), the nature of the trigger, and the severity of the AHA in patients with favism. Only a close relationship between the type of genetic abnormality, remaining enzymatic activity, and clinical manifestations allows for phenotyping these patients [7].

Foeniculum vulgare is a perennial, aromatic plant that belongs to the Apiaceae (Umbelliferae) family and comes in a variety of subspecies and variants. Fennel vulgare subsp. vulgare var. Dulce is known as sweet fennel, whereas Fennel vulgare mill. Bitter fennel is the

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