

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 to far, 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,

Conclusion:

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References

1. Kletzien R, Harris P, Foellmi L. Glucose-6-phosphate dehydrogenase: a 'housekeeping' enzyme subject to tissue-specific regulation by hormones, nutrients, and oxidant stress. *The FASEB Journal*. 1994; 8(2): 174-181.
2. Almutairi, Meshael Kareem O, Alsayyid, Amnah Abdulrahman H, Nagah Mohamed Abo el-Fetoh, Abdulelah Aziz Eissa Alenzi. Glucose-6-phosphate dehydrogenase deficiency (G6PD) (Favism) in Dammam, Eastern Province of Saudi Arabia. *The Egyptian Journal of Hospital Medicine*. 2018; 70(5): 713-717.
3. Notaro R, Afolayan A, Luzzatto L. Human mutations in glucose 6-phosphate dehydrogenase reflect evolutionary history. *The FASEB Journal*. 2000; 14(3): 485-494.
4. Jennifer E, Frank M. USA, Martin Army Community Hospital, Fort Benning, Georgia. *Am Fam Physician*. 2009; 72(7): 1277-1282.
5. A Minucci, B. Giardina, C. Zuppi, E. Capoluongo. Glucose-6-phosphate dehydrogenase laboratory assay: how, when, and why? *IUBMB Life*. 61: 27-34.
6. A Minucci, K. Moradkhani, M.J. Hwang, C. Zuppi, B. Giardina, E. Capoluongo. Glucose-6-phosphate dehydrogenase (G6PD) mutations database: review of the «old» and update of the new mutations, *Blood Cells Mol. Dis*. 2012; 48: 154-165.
7. Angelo Minuccia, Maria Elisabetta Onori, Giorgia Mazzuccato, Andrea Urbani, Ettore Capoluongo. Molecular basis of favism triggered by ingestion of frozen pumpkin crosscontaminated with fava beans. *Clinical Biochemistry*. 2019; 69: 45-47.
8. Akbar S. Fennel (*Foeniculum vulgare* Mill.): A Common Spice with Unique Medicinal Properties. *Ann Complement Altern Med*. 2018; 1(1): 1001.
9. Badgujar SB, Patel VV, Bandivdekar AH. *Foeniculum vulgare* Mill: a review of its botany, phytochemistry, pharmacology, contemporary application, and toxicology. *Biomed Res Int*. 2014; 842674.
10. Endalamaw FD, Chandravanshi BS. Levels of major and trace elements in fennel (*Foeniculum vulgari* Mill.) fruits cultivated in Ethiopia. *Springerplus*. 2015; 4:5.
11. Gori L, Gallo E, Mascherini V, Mugelli A, Vannacci A, Firenzuoli F. Can estragole in fennel seed decoctions really be considered a danger for human health? A fennel safety update. *Evid Based Complement Alternat Med*. 2012; 860542.
12. Jarić S, Mitrović M, Djurdjević L, Kostić O, Gajić G, Pavlović D, et al. Phytotherapy in medieval Serbian medicine according to the pharmacological manuscripts of the Chilandar Medical Codex (15th,16th centuries). *J Ethnopharmacol*. 2011; 137(1): 601-19.
13. Dymock W, Warden CJH, Hooper D. *Pharmacographia Indica*. 1890. Karachi, Pakistan: Reprinted by The Institute of Health and Tibbi Research. Hamdard National Foundation. 1972; 2: 124-6.
14. Albert-Puleo M. Fennel and anise as estrogenic agents. *J Ethnopharmacol*. 1980; 2(4): 337-44.
15. Kabeeruddin M. *Kitabul-Advia*, Vol. II *Makhzan-al-Mufradat*, Delhi:Aligarh Barqi Press. 1937: 57-8.

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