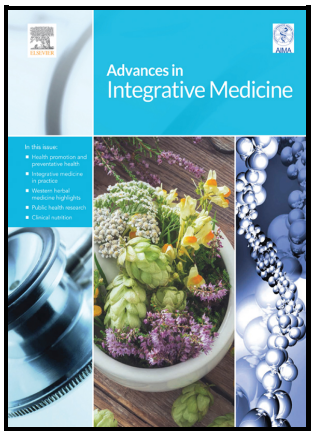
Journal Pre-proof



Successful use of "Ma'oljobon", a Persian medicine product, in a patient with severe chronic cough: A Case Report

Amir-Mohammad Jaladat, Keivan Ranjbar, Reza Shahriarirad, Zahra Salehi

PII: S2212-9588(21)00045-8

DOI: https://doi.org/10.1016/j.aimed.2021.05.002

Reference: AIMED291

To appear in: *Advances in Integrative Medicine*

Received date: 7 March 2020
Revised date: 13 May 2021
Accepted date: 19 May 2021

Please cite this article as: Amir-Mohammad Jaladat, Keivan Ranjbar, Reza Shahriarirad and Zahra Salehi, Successful use of "Ma'oljobon", a Persian medicine product, in a patient with severe chronic cough: A Case Report, *Advances in Integrative Medicine,* (2020) doi:https://doi.org/10.1016/j.aimed.2021.05.002

Successful use of "Ma'oljobon", a Persian medicine product, in a patient with severe chronic cough: A Case Report

Amir-Mohammad Jaladat[a], Keivan Ranjbar[b,c,*], Reza Shahriarirad[b,c], Zahra Salehi[d]

[a] Research Center for Traditional Medicine and History of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

[b] Thoracic and Vascular Surgery Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

[c] Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran

[d] Department of Persian Traditional Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding author: Keivan Ranjbar, Thoracic and Vascular Surgery Research Center, Shiraz University of Medical Sciences, Shiraz, Iran, Postal code: 71936-13311, Tel: +98 917 770 6658

E-mail: Keivan.rjr94@yahoo.com

ABSTRACT

Persian medicine is a branch of complementary and alternative medicine that tries to offer simple and suitable approaches and methods for treating diseases and health protection. Ma'oljobon is known as a kind of whey protein. It is a remedy with various characteristics, such as removing viscous wastes from the body without causing any dryness and moistening, while also providing nutrition. A 7-year-old boy with severe chronic cough refers to Traditional Persian Medicine Clinic due to allergic rhinitis. Formerly he had multiple failed attempts of treatment. The cough resolved with a 12-week period administration of Ma'oljobon. This is the first report evaluating the remedial effect of Ma'oljobon on allergic rhinitis.

Keywords: Traditional Medicine, Ma'oljobon, Allergic Rhinitis, Cough, Case report

1. Introduction

Allergic rhinitis is paroxysms of rhinorrhea, sneezing, and nasal obstruction accompanied by cough and itching (1-3). The prevalence of Allergic rhinitis is increasing in developed countries. In some countries such as the United States, 10-30 percent of the population suffer from this condition (3-7). Unfortunately, misdiagnosis of allergic rhinitis has a heavy economic burden on countries due to the unnecessary prescription of medication, physician visits, and disturbing school performance (8-13). Nowadays, pharmacotherapy and allergen avoidance are choices for managing symptoms of allergic rhinitis. Due to self-treatment with over-the-counter medications, that have significant side effects, the clinicians' obligation is to ensure that the patient receives essential medication with the lowest side effects (14-16).

Ma'oljobon is derived from cow milk. It is an Arabic word which consists of "Maå" (water) and "jobon" (cheese) (17). It is a pale green-colored liquid, derived down in the course of the cheese-producing process by adding either rennet or acid (citric acid, lactic acid, acetic acid, etc.) or by adding vinegar or oxymel (syrup of honey and vinegar) to hot milk to separate liquid and coagulated part (17, 18). Ma'oljobon is a kind of whey protein (17-22). Twenty percent of cow protein is whey (23). The major biological components of whey protein are lactoferrin, beta-lactoglobulin, alfa lactalbumin, glycomacropeptide, immunoglobulin (18, 23). Beta-lactoglobulin and alfa lactalbumin are the principal whey proteins that account for 80% of the total product (24), while other components include lactose, mineral, growth factor, lactoperoxidase, and lysozyme (25, 26). Whey protein is a functional food with several health benefits (23), such as anti-inflammatory and antioxidant activity (27). Also, it has a role in increasing immunity, along with its anti-viral and anti-bacterial activity due to its rich protein and immunoglobulin (28-30). However, there is controversy about the temperament of Ma'oljobon; It is a product with wet and cold temperament in some studies (18, 19, 31), and wet and warm in some other references (32, 33). This is the first report evaluating the remedial effect of Ma'oljobon on allergic rhinitis.

2. Case presentation

A 7-year-old boy visited our traditional medicine clinic with a chief complaint of severe, intractable chronic cough from 3 years ago. The patient's cough was dry and occurred during both the day and night time, however, he usually needed to visit medical centers to receive oxygen in an outpatient or inpatient setting during the attacks and due to his dyspnea. The cough usually started after a common cold. The duration of the cough has not been similar throughout the past three years. Furthermore, he usually needed hospitalization at least once a year, in which following admission, the duration of cough was shorter and lasted about a week, but with

outpatient treatment, the cough persisted and occasionally lasted up to 4-5 weeks. He experienced more frequent attacks in the fall and winter.

He was referred to multiple medical centers for this problem, in which different diagnostic work-up was done. Spirometry and chest radiography were normal. The allergy skin prick test had been performed several times, and he was sensitive to spices, plant pollen, and some plants. During those three years, they had several visits to different doctors, and different diagnoses were given. For the diagnosis of asthma, there were controversies between physicians, and most physicians suggested allergic rhinitis due to the symptoms of nasal congestion, cough, and prick test, which showed allergens.

Different antihistamines, including cetirizine, loratadine, ketotifen, and various inhalation sprays, including salbutamol and fluticasone and nasal mometasone spray, were used. In general, it was mentioned that in some episodes, the medication was continued until his symptoms resolved. In his last admission, an oral corticosteroid was administered for him, but after a week, he developed an abnormal movement of the upper extremity, and in EEG, epileptic discharge was detected; therefore, corticosteroid was discontinued. At the time, 5 cc of Desloratadine syrup 2.5 mg/5ml was used daily for 1 month, two puffs of Ceretide spray (fluticasone + salmeterol 125/25 ug) was used twice a day for two months and one puff of Momethasone nasal spray in each nose daily for two months.

On May 26, 2019, the patient was referred to a Traditional Persian Medicine Clinic. In physical examination, he had normal breathing sound, thready pulse with dry skin and mucosa. According to these findings and the dry cough history, dry lung dis-temperament was diagnosed for him, so Ma`oljobon was prescribed as a tablespoon on fasting in a glass of hot water. He used

Ma'oljobon produced by the GIAH ESSENCE PHYTOPHARM Company in the Golestan province. It was 100% whey protein, converted to dry powder, available in a 250g dark polyethylene container.

Cow oil was used on the palm and plantar areas and also used intermittently for reliving lung dryness. Cow oil is animal oil made from cow's milk, in which one of its effects is moisturizing. According to Avicenna's idea in "Canon of medicine," one way to increase moisture in the body is by applying oil on the palms of hands and feet (32).

The second visit was on July 29, 2019. It was mentioned that the patient had a common cold without a cough one month ago. Ma'oljobon was continued for him.

The third referral was on September 16, 2019. He mentioned that he did not experience any episodes of the common cold during this period and only had mild and occasional coughs. In the third visit, 250 cc glass apple juices were prescribed daily for three months for moisturizing (softening the tissue and increasing the moisture in the surface layers and mucous membranes of the body) while continuing Ma’oljobon.

On the fourth visit on November 20, 2019, the patient reported no cough since his last visit. The patient's appetite had improved, and the patient's weight had increased by one kilogram (21 kilograms) compared to the first visit. After three months of consumption, the response to Ma’oljobon was significant. For maintaining his appropriate condition, the patient did not stop taking Ma’oljobon every morning for six months. Eight months after the first visit in the winter, the mother stated that his cough had been resolved and patient is satisfied with his treatment.

During visits that were mentioned, the patient had no episodes of severe cough, even in the following year's autumn and winter. The previously prescribed chemical drugs were not used during all visits.

3. Discussion

In our case, a twelve-week consumption of Ma'oljobon relieved cough in the patient with the diagnosis of allergic rhinitis and intractable cough, which had better performance than inhaled corticosteroid and antihistamines. Allergic rhinitis is one of the most common inflammatory diseases in children (34). Chronic cough is one of the most important allergic symptoms of rhinitis in children (35). The most common diagnosis mentioned for the patient was allergic rhinitis. Furthermore, in our study, factors such as family problems and conflicts, mental issues, and stressors were evaluated, in which the patients cough was not associated with psychological changes and was exacerbated by the onset of cold symptoms. Ma'oljobon, from whey protein, was the main treatment for the patient. It is a remedy with various characteristics, such as removing viscous wastes from the body without causing any dryness and moistening and feeding the body (18, 20). Whey protein is generally recognized as safe (GRAS) (36). In a randomized, double-blind study, an oral supplement was used before gastroscopy containing whey protein and supported it’s safety (37). Raiha NC and Halken S (et al.), in separate studies, also evaluated whey protein in infant's formula and finally further supported it’s safety (38, 39).

Ma'oljobon is an effective and safe product in dry temperament people (31, 32, 40). Ma'oljobon is generally considered a safe product in Traditional Persian Medicine (TPM), but few gastrointestinal side effects were mentioned in some TPM references, including diarrhea,

functional dyspepsia, and nausea, and belching (17). Our patient had no gastrointestinal discomfort.

This is the first clinical report of using Ma'oljobon for treatment of allergic cough; therefore, wider studies on population for evaluating the definite effect of remedy and the comparison of its effects versus inhaled corticosteroids and antihistamines, and also the use of objective markers for evaluating the improvement of the patient's cough and allergic rhinitis is justified. Moreover, this study may provide useful information for developing future clinical studies assessing therapeutic options for allergic rhinitis cough and, eventually, help decrease the financial burden on healthcare systems.

Conclusion

In our study, Ma'oljobon was able to relieve our patient cough remarkably. The advantages of Ma'oljobon as a supplement in comparison with routine pharmacotherapy include easy accessibility all over the world, low-cost, and is generally regarded as safe. Ma'oljobon is effective and safe product in dry temperament people. We believe that further investigation evaluating the role of Ma'oljobon in the treatment of cough can be a turning point in the healthcare system.

Declarations

Acknowledgments

None to declare.

Funding

No financial support was received for this case report.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Written informed consent for publication of their clinical details was obtained from the parent of the patient.

References

1. Wallace DV, Dykewicz MS, Bernstein DI, Blessing-Moore J, Cox L, Khan DA, et al. The diagnosis and management of rhinitis: an updated practice parameter. Journal of allergy and clinical immunology. 2008;122(2):S1-S84.
2. Ng M, Warlow R, Chrishanthan N, Ellis C, Walls R. Preliminary criteria for the definition of allergic rhinitis: a systematic evaluation of clinical parameters in a disease cohort (I). Clinical and experimental allergy: journal of the British Society for Allergy and Clinical Immunology. 2000;30(9):1314-31.
3. Ng M, Warlow R, Chrishanthan N, Ellis C, Walls R. Preliminary criteria for the definition of allergic rhinitis: a systematic evaluation of clinical parameters in a disease cohort (II). Clinical & Experimental Allergy. 2000;30(10):1417-22.
4. Singh K, Axelrod S, Bielory L. The epidemiology of ocular and nasal allergy in the United States, 1988-1994. Journal of Allergy and Clinical Immunology. 2010;126(4):778-83. e6.
5. Wu W-F, Wan K-S, Wang S-J, Yang W, Liu W-L. 10 Prevalence, Severity, and Time Trends of Allergic Conditions in 6-to-7-Year-Old Schoolchildren in Taipei. Journal of Investigational Allergology and Clinical Immunology. 2011;21(7):556.
6. Meltzer EO, Blaiss MS, Derebery MJ, Mahr TA, Gordon BR, Sheth KK, et al. Burden of allergic rhinitis: results from the Pediatric Allergies in America survey. Journal of Allergy and Clinical Immunology. 2009;124(3):S43-S70.
7. Abdulrahman H, Hadi U, Tarraf H, Gharagozlou M, Kamel M, Soliman A, et al. Nasal allergies in the Middle Eastern population: results from the “Allergies in Middle East Survey”. American journal of rhinology & allergy. 2012;26(6_suppl):S3-S23.
8. Vandenplas O, Vinnikov D, Blanc PD, Agache I, Bachert C, Bewick M, et al. Impact of rhinitis on work productivity: a systematic review. The Journal of Allergy and Clinical Immunology: In Practice. 2018;6(4):1274-86. e9.
9. D'Alonzo GE. Scope and impact of allergic rhinitis. Journal of the American Osteopathic Association. 2002;102(6 supplement):2S.
10. Woods L, Craig TJ. The importance of rhinitis on sleep, daytime somnolence, productivity and fatigue. Current opinion in pulmonary medicine. 2006;12(6):390-6.
11. Schatz M, Zeiger RS, Chen W, Yang S-J, Corrao MA, Quinn VP. The burden of rhinitis in a managed care organization. Annals of Allergy, Asthma & Immunology. 2008;101(3):240-7.

12. Bhattacharyya N. Incremental healthcare utilization and expenditures for allergic rhinitis in the United States. The Laryngoscope. 2011;121(9):1830-3.
13. Bender BG. Cognitive effects of allergic rhinitis and its treatment. Immunology and Allergy Clinics. 2005;25(2):301-12.
14. Wallace DV, Dykewicz MS, Oppenheimer J, Portnoy JM, Lang DM. Pharmacologic treatment of seasonal allergic rhinitis: synopsis of guidance from the 2017 Joint Task Force on Practice Parameters. Annals of internal medicine. 2017;167(12):876-81.
15. Seidman MD, Gurgel RK, Lin SY, Schwartz SR, Baroody FM, Bonner JR, et al. Clinical practice guideline: allergic rhinitis. Otolaryngology–Head and Neck Surgery. 2015;152(1_suppl):S1-S43.
16. Dykewicz MS, Wallace DV, Baroody F, Bernstein J, Craig T, Finegold I, et al. Treatment of seasonal allergic rhinitis: an evidence-based focused 2017 guideline update. Annals of Allergy, Asthma & Immunology. 2017;119(6):489-511. e41.
17. Zare F, Parvizi MM, Saki N, Jaladat AM. Applications of Ma'aljobon, a natural remedy from traditional Persian medicine, in dermatology: A journey from past to modernity. Dermatologic Therapy. 2020:e13931.
18. Navabzadeh M, Hashem-Dabaghian F, Shojaii A, Kazemi T, Hadinia J, Ghods T, et al. The effect of a kind of whey protein (Ma'oljobon) on Insomnia: A randomized clinical trial. Complement Ther Clin Pract. 2019;34:275-9.
19. Navabzadeh M, Hashem-Dabaghian F, Kazemi T, Shojaii A, Nakhaei I, Hadinia J, et al. Effect of a Persian medicine preparation, Ma'aljobon, on constipation in patients with hypertension. Journal of Research in Medical Sciences: The Official Journal of Isfahan University of Medical Sciences. 2019;24.
20. Hosseini A, Azadbakht M, Yousofpoor M. 'Maoljobon'A Drug in Iranian Traditional Medicine. Journal of Mazandaran University of Medical Sciences. 2017;26(146):269-78.
21. Naeiji H, Mokaberinejad R, Aliannezhadi V. Reporting a Case of Nine-Year Resistant Toe Joint Pain Treated Based on Principles of Iranian Traditional Medicine %J Asian Journal of Traditional, Complementary and Alternative Medicines. 2018;1(Issue 1-2):32-40.
22. Alyasin S, Nabavizadeh SH, Esmaeilzadeh H, Heydari ST, Mosavat SH, Parvizi MM, et al. Efficacy of oral supplementation of whey protein in patients with contact dermatitis: A pilot randomized double-blind placebo-controlled clinical trial. 2020:e14260.
23. Keri Marshall N. Therapeutic applications of whey protein. Alternative medicine review. 2004;9(2):136-56.
24. Schmidt RH, Packard VS, Morris HA. Effect of processing on whey protein functionality. Journal of Dairy Science. 1984;67(11):2723-33.
25. Qi P, Onwulata C. Physical properties, molecular structures, and protein quality of texturized whey protein isolate: Effect of extrusion moisture content. Journal of Dairy Science. 2011;94(5):2231-44.
26. Walzem R, Dillard C, German JB. Whey components: millennia of evolution create functionalities for mammalian nutrition: what we know and what we may be overlooking. Critical reviews in food science and nutrition. 2002;42(4):353-75.
27. Sugawara K, Takahashi H, Kashiwagura T, Yamada K, Yanagida S, Homma M, et al. Effect of anti-inflammatory supplementation with whey peptide and exercise therapy in patients with COPD. Respiratory medicine. 2012;106(11):1526-34.
28. Tong LM, Sasaki S, McClements DJ, Decker EA. Mechanisms of the antioxidant activity of a high molecular weight fraction of whey. Journal of Agricultural and Food Chemistry. 2000;48(5):1473-8.
29. Min S, Harris LJ, Krochta JM. Antimicrobial effects of lactoferrin, lysozyme, and the lactoperoxidase system and edible whey protein films incorporating the lactoperoxidase system against Salmonella enterica and Escherichia coli O157: H7. Journal of Food Science. 2005;70(7):m332-m8.
30. Orsi N. The antimicrobial activity of lactoferrin: current status and perspectives. Biometals. 2004;17(3):189-96.

31. Aghili M. Kholasat-ol-Hekmaa. Tehran: Ismaeelian Publisher; 2011.
32. Avicenna. Qanun fi al Tib [Canon of Medicine]. Beirot: Ehyaol Toras al-Arabi Press; 2010.
33. Korasani A, MH. Gharabadian-e-Kabir. Tehran: Mahmoudi Publication; 2000.
34. Greiner AN, Hellings PW, Rotiroti G, Scadding GK. Allergic rhinitis. The Lancet. 2011;378(9809):2112-22.
35. Lack G. Pediatric allergic rhinitis and comorbid disorders. Journal of allergy and clinical immunology. 2001;108(1):S9-S15.
36. Ramos OL, Pereira RN, Rodrigues R, Teixeira JA, Vicente AA, Malcata FX. Physical effects upon whey protein aggregation for nano-coating production. Food Research International. 2014;66:344-55.
37. de Aguilar-Nascimento JE, Caporossi C, Metelo JS, Tanajura GH, Canevari-de-Oliveira M, da Cunha Costa R. Safe intake of an oral supplement containing carbohydrates and whey protein shortly before sedation to gastroscopy; a double-blind, randomized trial. Nutricion hospitalaria. 2014;29(3):681-6.
38. Halken S, Host A, Hansen L, Østerballe O. Safety of a new, ultrafiltrated whey hydrolysate formula in children with cow milk allergy: a clinical investigation. Pediatric Allergy and Immunology. 1993;4(2):53-9.
39. Räihä NC, Fazzolari-Nesci A, Cajozzo C, Puccio G, Monestier A, Moro G, et al. Whey predominant, whey modified infant formula with protein/energy ratio of 1.8 g/100 kcal: adequate and safe for term infants from birth to four months. Journal of pediatric gastroenterology and nutrition. 2002;35(3):275-81.
40. Gorgani S. Zakhire Kharazmshahi. Qom: Ehyae Tebe Tabiei; 2012.

Author Statement

Amir-Mohammad Jaladat, Keivan Ranjbar, Reza Shahriarirad and Zahra Salehi had full access to all of the data in the report and take responsibility for the integrity of the data and the accuracy of the case report. Zahra Salehi and Amir-Mohammad Jaladat planned and evaluated the results. Keivan Ranjbar and Reza Shahriarirad wrote the manuscript. Zahra Salehi edited the manuscript. Amir-Mohammad Jaladat was the principle investigator. All authors have read and approved the manuscript.