



Impact of Thermotherapy on Severe Mitral Valve Prolapse: An Approach from Persian Medicine

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Introduction

Mitral valve prolapse (MVP) is defined as the cephalad displacement of part(s) or segments of the mitral valve leaflets into the left atrium passing the mitral annular ring during the systolic period [1,2]. Based on surgical and pathologic investigations, the expansion of the mitral valve leaflets area due to extended chordae tendineae, chordae tendineae rupture or often mitral annular dilatation is named as the Floppy Mitral Valve (FMV). Clearly FMV should be the basis for the diagnosis of MVP [2,3]. The severity and incidence of abnormalities in FMV/MVP increases with age. Its prevalence in the general population is 2 to 3% [2]. FMV/MVP occurs in a various group of patients with a mild to severe range of hemodynamic anomalies and mitral valve involvement [2]. The most common symptoms in this disease contain orthostatic phenomena (hypotension, tachycardia), palpitations, cardiac arrhythmias, syncope or pre-syncope, exercise intolerance/ fatigue, dyspnea or

chest pain. The symptoms start around the average age of 30, beginning with a wide variety of symptoms [3]. Symptoms may continue for years and may last even after valve surgery [2]. Echocardiography and Doppler echocardiography are the most general and beneficial methods for the identification and follow-up of patients with FMV/MVP [3]. While beta blockers can often alleviate symptoms of MVP, there is no medication to avert or avoid the progression of valve prolapse. Prophylactic Antibiotic against bacterial endocarditis is no longer suggested except when the patient has had a previous recognized endocarditis or has identified endocarditis or undergone mitral valve replacement [1]. Many patients with mitral valve prolapse and severe regurgitation can undertake successful repair throughout a diversity of techniques [1]. We hereby introduce a treated case in which local thermotherapy was used to reduce the symptoms of a MVP patient.

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Intervention and Results

A 12-year-old boy with a long history of tachycardia (2 years), exercise intolerance, fatigue and cardiac pain after exercise, height growth retardation and learning disabilities with a severe mitral prolapse report in cardiac echoes admitted with his parents for use of PM treatments. There were no other signs or symptoms of mitral valve prolapse such as syncope, pre-syncope, cardiac arrhythmias, orthostatic phenomena (tachycardia, hypotension), chest pain, or dyspnea. He consumed 20 mg of propranolol daily. He was recommended to place a cloth bag filled with warmed salt in the left sub-axillary area for 3 minutes every 8 hours. This treatment was carried out for 3 weeks and then echocardiography was rechecked. The patient's standard medication (propranolol) continued during our management. Precautions to prevent possible complications was given including: Local heat should be applied over clothing to avoid severe heating that may cause skin damage or discomfort. It was recommended to stop the treatment if the patient felt unusual heat in the site of administration or heart palpitations during the thermotherapy process.

Four weeks later, the patient's palpitations were reduced and his fatigue decrease significantly. Echocardiography was reported as normal. The symptoms did not recur until 6 months after the end of treatment.

Discussion

In the school of Persian Medicine, the treatment of diseases consists of three major steps: 1. Lifestyle modification, 2. Topical and oral medica-

tions, 3. Manual interventions (*Amal-e-yadavi*) [4]. Some topical heating methods (thermotherapy) are examples of mentioned topical medications that include oils such Qust oil and Liliun oil or placing hot pads on the organ, for instance a hot salt bag [4-7]. In Avicenna's famous book of *Canon of Medicine* and other PM physicians literature, topical (Superficial) treatment methods and orders can be seen under the treatment of heart diseases, [4,5]. Our treatment method in this case report is one type of topical heating methods (thermotherapy).

As mentioned before in introduction, Mitral prolapse may be due to extended chordae tendineae, or often mitral annular dilatation or as a result of the enlargement of the surface of the leaflets [2]. According to Persian Medicine (PM), the state of loosening and widening of the tissues and organs (extension, dilation and enlargement) is known as "*esterkha*" (tissue loosening) which can occur in different tissues of the body [4,5]. Avicenna and other Persian scholars believe that wet and cold distemperaments can weaken the rigidity of the tissues [4,6]. Therefore, controlling the aggravation of moisture in the organs and tissues in particular can prevent the development of abnormal flaccidity. Considering that the main cause of mitral prolapse in Persian Medicine view is known to be excessive cold and wetness of the mitral valve tissue, superficial warming methods may be used to reduce the problem.

In conventional medicine, topical treatments can be found in the treatment of heart disease. External pacemaker and defibrillator can be included in this group of cardiac therapies [8,9].

But topical treatment was not found to treat heart valve problems. Prospective multicenter case control study to reinstate the clinical effectiveness and security of Waon therapy on chronic heart failure (CHF) with a far infrared-ray dry sauna at 60 °C for 15 min and then kept on bed rest with a blanket for 30 min for 2 weeks has been reported. To evaluate the outcome of the intervention, plasma levels of brain natriuretic peptide (BNP), echocardiography and Chest radiography were checked out before and 2 weeks after treatment. Upon the study, Waon therapy is a safe method, develops cardiac function and clinical symptoms and reduces cardiac size in CHF [10]. Although mentioned treatment method may not be the same as topical heat therapy in our case, but external heating has been used to treat them. In another hand from the perspective of Persian Medicine, chronic heart failure may also be caused by cold and wet predominance in heart muscle tissue subsequently causing flaccidity, weakness and failure as MVP. In such conditions thermotherapy may also be considered as a treatment modality although must be controlled and individualized in order to omit side effects and hazards [11].

According to the abovementioned insights and experiences, more extensive clinical trials are suggested to assess the effects of different types of thermotherapy in the category of heart disorders considered to be of a cold and wet nature such as valve prolapse and floppiness.

Conflict of interest statement

The authors declare that there is no conflict of interests.

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