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Original Article

Complementary and alternative medicine use in thalassemia patients in Shiraz, southern Iran: A cross-sectional study

Mohammadreza Bordbar ^a, Mehdi Pasalar ^b, Sanaz Safaei ^c, Roza kamfiroozi ^d,
Sohelia Zareifar ^a, Omidreza zekavat ^a, Sezaneh Haghpanah ^{a,*}

^a Hematology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

^b Research Center for Traditional Medicine and History of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

^c Islamic Azad University, Isfahan (Khorasgan) Branch, Iran

^d Amir Oncology Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

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ABSTRACT

This study aimed to determine the frequency and pattern of complementary and alternative medicine (CAM) use in thalassemia patients in south of Iran. The survey was done using a validated questionnaire which was distributed among 122 thalassemia patients. Only 108 questionnaires were completed and turned back (response rate 88.5%). Patients referred to an outpatient thalassemia clinic in Shiraz, southern Iran for blood transfusion. The mean age of the patients was 22.9 ± 7.9 years (range 4–45 years) with female/male ratio 1.84. Seventy four (68.5%) of the responders used CAM at least once during their life, and about half of them used it concurrently with their conventional treatments. The most reported CAM product was mint juice (50%). The most common reason of CAM use was increased general health. The most common information source about CAM was physicians who were the most trusted source as well. CAM is frequently being used in thalassemia patients to ensure their sense of well-being and help them overcome the complications of their illnesses.

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1. Introduction

Complementary and alternative medicine (CAM; 補充與替代醫學 *bǔ chōng yǔ tì dài yī xué*) is recently being used frequently for chronic medical illnesses. The rate, kind, and cause of its use differs in our region^{1–3} and fluctuates in various nations and ethnic groups and has been reported up to 90% in some medical conditions.⁴ The rise in quality of life of CAM users may clarify the tendency toward these methods universally.⁵ Patients with chronic hemolytic anemia and hemoglobinopathies are among chronic diseases which are subjected to CAM use. In the field of hemoglobinopathy, there are a lot of reports on the use of CAM in sickle cell disease for their pain control.^{4,6,7} In this regard, some herbal products have been shown to have antioxidant and anti-sickle cell anemia effects.^{8,9}

Thalassemia (地中海貧血 *Dizhōnghǎi pínxiè*) is a chronic hemolytic anemia caused by beta-globin chain mutations leading to ineffective erythropoiesis. Patients with thalassemia are usually dependent on regular blood transfusion to maintain their normal life. Chronic blood transfusion put them at risk of iron overload which is the leading cause of their mortality. Iron chelation with different medicaments such as deferoxamine, deferiprone and deferasirox has long been the mainstay of therapy to reduce their iron burden. However, the biggest problem is the matter of compliance and adherence to treatment. Therefore, a large proportion of patients with thalassemia suffer from iron overload and its complications due to non-compliance with their medical treatments particularly iron chelators.¹⁰

On the other hand, researchers have been trying for a long time to introduce suitable alternatives to blood transfusion which may subsequently result in less iron overload in the long-term. Fetal hemoglobin induction by drugs such as hydroxyurea, butyrate, mithramycin, andrapamycin was found to have some effects in decreasing the transfusion requirements of some thalassemia patients especially those with thalassemia intermedia.^{11–13} Despite

* Corresponding author. Hematology Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, P.O. Box: 7193711351, Shiraz, Iran. Fax: +98 713 6473239.

E-mail address: haghpanah@sums.ac.ir (S. Haghpanah).

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acceptable efficacy and safety especially with hydroxyurea, some scientists are still concerned with the long-standing carcinogenicity of these drugs. Introduction of novel hemoglobin F inducers like simvastatin and some herbal products such as Wheatgrass, Piceatannol, and Resveratrol has brought some hope to patients to get rid of transfusion with the aid of natural products.^{14–19} Furthermore, there are promising results that some botanical products as well as CAM practices such as cupping therapy (*Hijamat*) may help to decrease serum ferritin and reduce iron burden in thalassemia patients.^{19–22}

Regarding the paucity of surveys on the frequency of CAM use in thalassemia patients²³ and the importance of CAM therapies in iron level and hemoglobin production of this category of patients, the aim of this study was set to determine the frequency, types and pattern of CAM use in a group of transfusion-dependent thalassemia patients in south of Iran.

2. Methods

2.1. Study design and sample

A retrospective cross-sectional study performed with structured interviews from December 2015 until March 2016. This survey was done in an outpatient clinic in Shiraz, southern Iran where patients with transfusion-dependent beta-thalassemia were being visited and regularly transfused. The target population was 468 patients who were registered in our clinic for at least 12 months and were transfused every 2–4 weeks. A random pilot study was firstly performed showing the prevalence of CAM use as 65%. Subsequently, considering $\alpha = 0.05$ and $d = 8.5\%$, sample size calculated as 122 thalassemia patients and they were selected using simple random sampling. All families accepted to take part in the interview but only 108 questionnaires were completed and turned back (response rate 88.5%).

2.2. Study instrument

The questionnaire was taken from a similar survey on children with chronic illnesses done in Canada by Adams et al.²⁴ Firstly, the original questionnaire was translated into Persian language by a professional translator. Due to the cultural differences, some questions about the specific CAM products or practices which were unavailable or odd to our patients were changed and replaced with suitable alternatives. Lastly, it was pilot-tested in a convenience sample of thalassemia patients and parents who brought their children to a general pediatric clinic to ensure its face and concept validity. The backbone of the questionnaire was kept unchanged compared to the original English version and included 19 questions about the patients and their family demographics, general health status, the specific CAM products and practices used, reasons of use and non-use, perceived effectiveness, self-reported adverse effects, concurrent use with conventional medicine, and the source of information about the CAM used.

2.3. Data collection process

A trained nurse distributed the questionnaires between the patients or their care givers while they were waiting to be transfused or visited by their physicians. Then the completed forms were collected and checked to be filled appropriately.

2.4. Statistical analysis

Data were analyzed by SPSS software version 21. Descriptive data were summarized as mean, standard deviation, frequency and

chart. Comparison of categorical and quantitative data was performed by Chi-square test and Student t test between two groups of patients, respectively. P values less than 0.05 were considered statistically significant.

3. Results

One hundred twenty-two individuals accepted to participate, but only 108 questionnaires were completed and turned back (response rate 88.5%). The study population consisted mostly of female patients (64.8%) with a mean age of about 23 years. The age range of the patients was 4–45 years old (Table 1). A minority of parents (13.9% of fathers vs. 4.7% of mothers) had achieved a university degree while almost 20% of them were illiterate. Most of the families (86.6%) reported that they had annual household income of less than 300\$ per month. Patients and their parents were asked about their general health status that 80.6% of the patients, 83.3% of mothers, and 65.7% of fathers responded that they were in good or excellent general health (Table 1).

The frequency of consumption of different CAM products and practices by patients with thalassemia as well as the most common reasons of use and their effectiveness has been demonstrated in Figs. 1 and 2, and Table 2. Overall, 74 out of 108 patients (68.5%) used at least one of CAM products or practices in last 6 months before the study. About half of the patients (53 patients, 49.1%) used CAM concurrently with their conventional treatments. The most common CAM product and practice which was used were mint juice (50%) [薄荷汁 Bòhé zhī] and faith healing (50%) [信仰癒合 Xìnyǎng yùhé], respectively. The other popular CAM products in decreasing order of frequency were vitamin C (39.8%), garlic (29.6%) [大蒜 Dàsuan], and chamomile (28.7%) [洋甘菊 Yánggānjú]. The most common reasons of CAM use were increased general health, appetite, and well-being (mentioned by 57 patients) in the product subgroup and improvement of osteoporosis (mentioned by 19 patients) in the practice subgroup. Most of the patients were satisfied with the CAM products or practices that they used (Table 2). Massage and acupuncture, which were used by 5 and 2 patients respectively, were reported to be 100% effective. On the other hand, jinseng was perceived to be the least helpful CAM product by the patients (Table 2).

Sixty three percent of parents reported that they have used some kind of CAM, and it was significantly associated with the use of CAM by their children. Children whose parents used CAM were 5.54 times more likely to use CAM ($P < 0.001$, 95% CI: 2.22–13.78).

Forty patients experienced some kind of adverse effects while using CAM that all of them were mild or moderate. There were no significant differences regarding age (patient or his/her parents), gender, fathers' or mothers' level of education, annual household income, and general health status (patient or his/her parents) between those used CAM and the opposite group ($P > 0.05$). The most common reason ignoring CAM use which reported by patients or their parents was "lack of knowledge about CAM" (56.8%).

The most common information source about CAM was physicians reported by 57 patients, followed by friends and families (41 patients) and grocery (41 patients) (some participants reported more than one source of information). The patients rated their level of trust to different sources of CAM information on a 10-point scale (1 = no trust, 10 = full trust). Among different sources, the most trusted source of information was reported to be physicians (mean: 8.86 ± 1.76 , 95%CI: 7.53–10.24) (Table 3).

When they were asked to whom they have talked about using CAM, 55 out of 73 responders (75.3%) answered that they have informed their responsible physician, while 10 patients (13.7%) had never talked about this issue to anyone.

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