



EFFICACY AND SAFETY OF HERBAL AND ALTERNATIVE MEDICINE

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Abstract

The use of herbal medicine (HM) is increasing on a global scale. Single herb preparations, as well as ethnic and contemporary herbal medicine formulations, are often used as supplementary treatments or to enhance the overall well-being of consumers. Previous research provides a concise overview of prevalent patterns in the use of HM as a supplementary or alternative form of medicine, the training of healthcare practitioners and individuals, and the existing and planned regulations governing the production of HM. We examine the possible interactions between herbal medicines (HMs) and both other HMs and pharmaceutical drugs, which may result in serious side effects if HMs are used without appropriate supervision from medical professionals. Several significant issues have emerged because to the consistent worldwide expansion in the utilization of HM. Interaction between herbal medicine (HM) and conventional medicines (CD) may lead to either underdosing of CD or unpleasant responses. Similarly, interaction between different herbal supplements might result in harmful effects of the formulations. Insufficient knowledge among healthcare professionals and patients about the therapeutic characteristics of herbal medicines has to be addressed at both regional and global levels in order to guarantee the safety of consumers.

Keywords: herbal medicine, conventional medicines, safety, efficacy, ethnic and contemporary herbal medicine.

1. Introduction

Over the course of the last twenty years, herbal medicine (HM) has gained significant global popularity. The use of HM is seeing an increase in the number of individuals [1–3]. HM is a kind of CAM (complementary and alternative medicine) [4]. The majority of HMs are used in combination with conventional treatment rather than as a substitute [5]. Complementary and alternative medicines (CAMs) that include medicinal plants are used for the treatment of nonserious minor medical disorders, the promotion of good health, and the prevention of diseases [5,6]. Based on data from the 2012 US National Health Interview Survey, almost 50%



of adult respondents aged 18 and older reported using complementary and alternative medicine (CAM) to address a particular ailment, while nearly 90% used CAM for general wellness purposes by 2012 [7].

Over the last 50 years, there has been a noteworthy surge in the quantity of publications on complementary and alternative medicine (CAM). This growth in publications indicates the advancement of CAM as a method of treatment, with a rising inclusion of herbal medicine (HM) in medical literature [8]. A prominent study that drew attention to the significance of complementary and alternative medicine (CAM) was a telephone survey conducted in the United States and published by Eisenberg et al. [5].

2. Global consumer attitudes on the use of HM

Although the use of HMs is widespread across all cultures, there has been a noticeable trend in the last decade of regionally unique focuses and patterns in HM use, both within and within nations. China and Japan have a substantial incorporation of herbal medicine with recognized medical practices [9]. Australia, New Zealand, Russia, the USA, Canada, and the European Union (EU) all use HMs to different extents for purposes such as illness prevention, improving health and well-being, or sometimes as an alternative to unsuccessful conventional medicine [10–12].

Herbal medicines (HMs) have a crucial role in Chinese culture and medicine, since they are used to restore equilibrium and promote harmony. Chinese and Western herbal formulations are often standardized and used for the treatment of common ailments, as well as for adjunctive therapy in chronic conditions such cardiovascular disorders and cancer [13–15].

Herbs have a substantial role in the Chinese retail sector [11,12,16] and are highly regarded as components for therapeutic cosmetics, medicated hygiene products, teas, wines, and similar cuisines [9,17,18]. Like China, Kampo medicine, which encompasses herbal medicines, is much esteemed in Japanese culture. It is held in such high regard that it has been included into the fundamental curriculum of Western medical schools across Japan [19].

The use of complementary medicine in European nations is about 50% among both adults and children [22]. Homeopathy (HM) is particularly prominent in Germany and Western Europe as a kind of traditional medicine [2]. Likewise, Russia has a notable history of HM use. This application is used both as a preventive measure and for treating diseases [12]. The primary method employed is the incorporation of biologically active supplements (BAS) into diet to restore active chemicals to their normal levels. More precisely, in the period of 2013-2014, the best-selling BAS (dietary supplements) were those designed to enhance sexual performance, reduce body weight, and enhance reproductive health. This excludes probiotics and supplements containing omega-3 fatty acids [3].

The United States dominates the bulk of the HM (highly mobile) market [23]. Typically, the use of herbal medicines in the United States focuses on promoting overall well-being and

preventing diseases, rather than treating particular health conditions. The substitution of prescription or conventional pharmaceuticals with herbal medicines is not very common. The supplement business includes a substantial segment dedicated to performance and sports nutrition. The national emphasis and monitoring data rely on dietary supplements, including vitamins, minerals, and herbal products [24]. In 2012, the most often mentioned complementary and alternative medicines (CAMs) were probiotics, melatonin, Echinacea, cranberry, garlic, ginseng, and Ginkgo biloba. However, in the previous ten years, there was a significant decline in the use of Echinacea, garlic, ginseng, Ginkgo biloba, and saw palmetto [18,25–27]. Canadians use alternative medicines to manage their health and well-being, including for treating current diseases and preventing illnesses [28]. In 2010, Canada documented a substantial use of natural health products (NHPs). More precisely, the usage of non-vitamin natural health products (NHP) was mostly made up of omega 3 fatty acids, herbal teas, herbal treatments, and antioxidants [28].

3. The attitudes of doctors and patients towards the use of mental health interventions

MHs may be used by a diverse range of healthcare professionals, including physicians, osteopaths, and naturopaths, as well as traditional healers from Chinese, Native American, Tibetan, or Ayurvedic backgrounds [29]. Herbalism courses exhibit variability in their course material [29]. Herbal practitioners mostly focus on chronic diseases and address the root causes of these ailments [29]. A study conducted in Australia among natural therapists revealed a significant level of collaboration between these therapists and mental health practitioners. Approximately 75% of natural therapists reported referring or suggesting their patients to mental health professionals [30]. Referrals were mostly made for the treatment of depression and anxiety because to the increased likelihood of self-harm or suicide that is linked with depression [30]. A minority of natural therapists had received recommendations from mental health experts, but more than half engaged in various forms of communication with mental health professionals. The majority had a favorable attitude towards establishing a close connection with mental health professionals [30].

Physicians should be open to discussing the use of herbal medicine with patients in order to facilitate informed decision-making in healthcare [31]. In order to do this, physicians must possess comprehensive knowledge on the effectiveness and safety of herbal medicines (HMs). As a result, it is imperative to integrate evidence-based teaching within the medical school curriculum [31]. It is important to promote research on HMs and establish educational initiatives for doctors and the general public in medical colleges [31]. Jump et al. conducted a research which revealed that doctors who had just completed their training had a more favorable outlook on complementary and alternative medicine (CAM), presumably because they were exposed to it more often throughout their training [32].

According to the research, younger doctors found HM to be more genuine, yet only 3.6% of them had actually prescribed HMs [32]. Mikail et al. conducted a study to assess the knowledge of HM in medical residents and discovered a deficiency in this domain. The researchers

concluded that a live lesson had a substantial positive impact on knowledge, as shown by a considerable improvement [33]. Most doctors exhibit a favorable disposition towards Complementary and Alternative Medicine (CAM) and Holistic Medicine (HM), but they express a lack of confidence in their ability to provide sufficient guidance to patients on their use [34]. Physicians acknowledge the need for further expertise in HM, the need to enhance their communication with patients, and the desire for further education in HM [33,34]. Hence, it is crucial to guarantee that doctors are proficient in accessing electronic herbal databases and doing fundamental search operations. Despite the existence of these databases for a considerable period, the majority of physicians still encounter challenges in locating trustworthy information on herbal medicines [34]. Japanese Western medical institutions have established a model for training doctors in Kampo medicine [9].

There is well-documented evidence that patients are hesitant to reveal their use of complementary and alternative medicine (CAM), which highlights the necessity for clinicians to proactively initiate talks on this topic [34]. Eisenberg D.M. et al. [5] discovered that around 25% of Americans who seek medical attention for a severe ailment may also be using an unconventional treatment in addition to traditional care. Nevertheless, there exists a deficiency in the exchange of information between patients and doctors, since a significant proportion of patients, ranging from one-half to two-thirds, fail to disclose their use of complementary and alternative medicine (CAM) to their healthcare providers [32,35]. In a study conducted by Gardiner P. and colleagues [36], it was shown that a mere 34% of patients revealed their use of herbal remedies to healthcare providers. Furthermore, the majority of these patients were also using prescription and over-the-counter pharmaceuticals. Over 50% of individuals who used both herbal and pharmaceutical medications failed to disclose this information to a healthcare provider [36].

4. The use of HM as a supplementary treatment

Over the last two or three decades, there has been a worldwide trend towards combining conventional and alternative care, leading to the emergence of a new field called integrated medicine [8]. A study undertaken at a cancer hospital in the USA in the mid-1990s revealed that patients expressed a desire for more integration of conventional and complementary therapies. As a result, a multidisciplinary group was established at that institution [37]. In a 2011 study conducted by a team from The Netherlands and Sweden, individuals with joint illness expressed a desire for general practitioners to possess information about alternative medicines [38]. As of 2011, about 90% of medical practitioners in Japan were prescribing alternative medicine in some capacity [39]. Comparable patterns are also seen in other geographical areas.

There are few instances in the literature where HMs have been specifically used as an auxiliary or complementary treatment (AT). A study shown that the use of aloe vera gel, in addition to scaling and root planing, was successful in treating periodontitis. This therapy resulted in a significant decrease in periodontal infection compared to the use of a placebo gel

[40]. This suggests that using HM as an adjunctive therapy might provide additional possibilities for individuals who are at a higher risk of experiencing severe damage to their gums, either due to chronic periodontitis or diabetes mellitus with periodontitis [40].

A study conducted by Aruoma O.I. and colleagues shown that fermented papaya has both hypoglycemic and hypolipidemic effects, making it a potential treatment for diabetes [41]. Research has shown that fermented papaya may effectively regulate blood glucose levels, reduce excessive inflammation, and modulate the harmful effects of free radicals in different types of cancer. This suggests that fermented papaya might be a valuable addition to the treatment of both diabetes and cancer as a nutraceutical adjunct. [41]

Psyllium seed husks, which contain soluble dietary fiber, have been shown to be an effective therapy for lowering cholesterol. However, patients should be warned about the occurrence and temporary nature of gastrointestinal side effects that may develop from the treatment [42]. The study shown that psyllium seed husks effectively reduced total cholesterol and LDL cholesterol levels in individuals with mild-to-moderate hypercholesteremia during a span of 3 weeks [42].

5. Interactions between HM and conventional drugs

Anticipating possible interactions between HMs (herbal medicines) and CDs (conventional drugs) is crucial for effectively managing diseases in daily life, given the increasing number of patients being prescribed several CDs and the growing popularity of HMs as supplemental therapy. Frequently, healthcare practitioners underestimate and patients are unaware that herbal medicines (HMs) or herbal formulations might have interactions with conventional drugs (CDs). Consequently, both parties do not anticipate any change in the effectiveness of CDs or an increase in toxicity. An obstacle we face is the ability to anticipate the outcomes that arise from the interaction between herbal formulations that comprise several herbal medicines (HMs) and chemical drugs (CDs). The research conducted by Tae-Young Jeong and colleagues indicate that using herbal treatments alone is generally safe. However, when herbal remedies are used in combination with conventional drugs, there is an increased risk of liver damage.

The number of publications examining the connections between HM and CD has risen in the last 10-15 years, with the majority of them originating from Asia (53%, including China, Japan, South Korea, Hong Kong, and India) and North America (23%, including the USA and Canada) [43]. The study in these papers has mostly examined the interactions between HM and medications used to treat illnesses of the circulatory system and oncologic diseases. Hepatotoxic substances (HMs) may impact the way medications are absorbed, metabolized, and eliminated from the body. They can do this by interfering with the function of drug-metabolizing enzymes and transporters (such as CYP450 and P-Glycoprotein), displacing pharmaceuticals that are attached to proteins, and altering the way drugs are cleared by the kidneys [44]. Furthermore, it is important to realize that HMs might interact with CDs in a synergistic or antagonistic way, either enhancing or diminishing the effectiveness of the CD [44,45].

6. Conclusion

The use of HM as a supplementary treatment or alone to enhance consumer welfare has significant promise. Herbals have been used for ages and are generally regarded as safe. The scientific foundations for the use of these formulas that have been in existence for centuries, however, are not always evident. An exemplary instance is the use of Chinese Traditional Medicine formulations, which consist of a combination of various herbs, animal organs, and minerals [9]. Over the last five years, significant efforts have been made to elucidate the reasoning used by ancient healers in selecting certain herbal medicines for inclusion in formulations.

Further investigation is required to ascertain the effects of individual herbs, vitamins, and minerals included in contemporary herbal formulations and dietary supplements, as well as how their physiologically active components are interacting with one another. Furthermore, it is important to determine if these interactions have positive effects or whether they include certain components that might enhance the toxicity of other substances. Several instances of severe adverse health responses to hazardous materials (HMs) were documented in the United States, Japan, China, and other nations, leading to substantial morbidity or fatality [9–12]. Predicting HM-HM interactions in multicomponent herbal medicines is challenging.

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