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New regulations need to be implemented for herbal medicines and dietary supplements

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ABSTRACT - Today, many of the herbal medicine and dietary supplements are apparently safe bearing unsafe characteristics. This gives threat to infringe on consumer's right to safety. The reason is a weakned regulatory affair with regard to its standardization, adulteration; interaction with other herbs & drugs, and merge reports of adverse events available after herbal medicine and dietary supplements have been given. Therefore a dietary supplements and health education act (DSHEA) has been implemented in 1994, under which act, many of the definition of standards and mechanism are described but it was inappropriate towards the safety of public health. In this article many such issues have been described with the need of new regulations to be implemented by FDA of all the countries. The suggestive actions may hamper many of the manufacturers but can act as a safeguard for public who have blind faith on many of the dietary supplements promoted by misleading advertisements. Thus, Government must be active to frame new regulatory safeguards for such products.

KEY WORDS - Herbal medicine, dietary supplements, Regulations, DSHEA, FDA.

INTRODUCTION

In 2001, $17.8 billion was spent in the United States on dietary supplements, $4.2 billion of it for herbs and other herbal remedies (1). The popularity of these products has increased over the past decade, probably stimulated by sharp increase in price of prescription drugs, restricted access to physicians imposed by managed care, media reports of adverse effects of prescription drugs, and, most important, the enactment in 1994 of the Dietary Supplement and Health Education Act (DSHEA). By broadly defining herbs and other botanicals as "dietary supplements," the DSHEA substantially altered the definitions, standards, and mechanisms under which claims about the effectiveness and safety of these products are evaluated and enforced (2). This classification, which we believe to be inappropriate, has resulted in a serious and growing public health problem. In this article, we summarize problems inherent in the manufacture, analysis, and post-marketing surveillance of herbal medicines and propose new legislative regulations to address these issues. Such legislation would increase governmental oversight and manufacturers' responsibilities for ensuring the safety of consumers at the high level citizens have come to expect.

This is not surprising, since herbals are complex mixtures of chemicals, described by Robbers and Tyler as "crude drugs of vegetable origin," (3) many of which are potentially toxic. In the past year alone, the Food and Drug Administration (FDA) was compelled to issue warnings about nephrotoxic, hepatotoxic, and carcinogenic effects associated with herbal products containing kava, comfrey, and aristolochic acid — all herbal remedies used widely in the United States and Europe (4). Other factors influence efforts to ensure the safety of herbal products are discussed below.

LACK OF STANDARDIZATION

Consistency in composition and biologic activity are essential requirements for the safe and effective use of therapeutic agents. However, herbal preparations rarely meet this standard as a result of problems in identifying plants, genetic variability, variable growing conditions, differences in harvesting procedures and processing of extracts, and above all, the lack of information about active pharmacologic principles. The use of chromatographic techniques and marker compounds to standardize herbal preparations promotes batch to batch consistency but does not ensure consistent pharmacologic activity or stability. Moreover, analysis of purportedly standardized herbal preparations reveals that herbal products often do not

contain the amount of the compound stated on the label (5, 6).

LACK OF REPORTING OF ADVERSE EVENTS

The FDA maintains surveillance of prescription drugs by requiring prompt reports from manufacturers of all adverse effects brought to their attention. Nevertheless, it is estimated that only 10 percent of serious adverse effects associated with the use of prescription drugs are ultimately reported to the FDA (7). Pre-marketing safety testing is not required for dietary supplements, and there is no mandatory requirement for manufacturers of supplements to record, investigate, or forward to the FDA reports of adverse effects they might receive. Although some adverse reactions to herbal medicines are acute and symptomatic, others, such as renal failure and cancer, have a delayed and gradual onset. Furthermore, the relation of the prior consumption of an herbal remedy to a medical problem with delayed onset may not be readily apparent.

The lack of reporting of adverse events to the FDA has generated concern at the level of the federal Office of the Inspector General (7). In 2001, the FDA received approximately 500 reports of adverse events related to dietary supplements, and poison-control centers in the United States received 19,468 reports, (8) up from 6914 in 1998. In addition, the FDA is often unable to investigate the reports it does receive, either because the consumer's identity and address cannot be obtained or because the ingredients in the supplement and the identity and address of the manufacturer are unknown. The Inspector General's report (7) estimates that less than one percent of adverse events caused by dietary supplements, including herbs, are reported to FDA. Only a fraction of these are adequately investigated.

CURRENT REGULATION OF HERBAL MEDICINES

Regulation of food and drugs has always been strongly resisted by industry, and Congress has acted in this case only in response to strong pressure from the public. The Food and Drug Acts passed in the 20th century, which provided important protection to the public, were subverted by the passage of the DSHEA. This misguided legislation freed the dietary supplement industry from effective oversight by the FDA, transferring the burden of proof for establishing the safety of herbal medicines from the manufacturer to the FDA. Dietary supplements are now subject to lower safety standards than food additives. Consumers are provided with more information about the composition and nutritional value of a loaf of bread than about the ingredients and potential hazards of herbal medicines. The way in which the restrictions imposed by the DSHEA hinder the FDA from promptly removing dangerous products from the market is illustrated by the problems posed by the herbal supplement ephedra. Ephedrine alkaloids are present in many supplements marketed to induce weight loss and to boost energy. Like their chemical relative methamphetamine, or "speed," these preparations act as powerful stimulants to both the cardiovascular and the central nervous systems, and their use has been associated with strokes, cardiac arrhythmias, seizures, acute psychosis, myocardial infarction, and death (9, 10). More than 1200 serious reactions related to ephedra have been reported to the FDA, though the actual number of events is undoubtedly far greater. An estimated 12 million people in the United States take Metabolife 356, a product containing ephedra, caffeine, and several herbs. It was recently revealed that 13,000 complaints have been registered with the manufacturer. Included were reports of several hundred people who required hospitalization and 80 incidents of serious injury or death (11). Under current regulations there is no penalty for withholding reports of adverse effects. However, the Justice Department, at the FDA's request, has initiated a criminal investigation because of false statements that claim an absence of adverse effects. Canadian -but not U.S. - health authorities have requested the voluntary recall of health products containing ephedra, noting its enhanced toxicity when combined with caffeine (12).

THE NEED FOR NEW REGULATIONS

Public awareness of the hazards of dietary supplements has increased in recent years, and a majority of the U.S. public supports the idea of new rules that would require the FDA to review the safety of new dietary supplements before their sale; that would give increased authority to the FDA to remove unsafe products from the market; and that would regulate advertising claims about the health benefits of dietary supplements (13). However, for the FDA to be effective in carrying out such a mandate, new legislation and resources are required. We believe that six legislative proposals, outlined below, could accomplish this goal without denying consumers access to a popular class of products.

1. The address and telephone numbers of all companies, as well as the names of the responsible persons, involved in manufacturing dietary supplements for sale in the United States should be registered with the FDA. The FDA is

currently hampered severely in its efforts to investigate the adverse effects of dietary supplements by the lack of information about manufacturers and distributors.

2. The manufacturers of dietary supplements should provide evidence of good manufacturing practices, and the FDA should be given the authority to inspect manufacturers' records. In 1999, the FDA held public meetings and published an advance notice of a proposed rule that addresses this issue. Though the announcement of a proposed rule is said to be imminent, the herbal industry has consistently blocked such a proposal. The extension of good manufacturing practices to manufacturers of herbal products would go far toward preventing adulteration and improving the standardization of marketed herbal products.
3. The manufacturers of dietary supplements should obtain pre-marketing approval from the FDA by demonstrating that their products present no substantial or unreasonable risk of injury under conditions of recommended use, as suggested on the label. Manufacturers of supplements should assume and bear full responsibility for ensuring the safety of their products, including paying the relatively low costs of conducting appropriate testing, as is required for prescription and over-the-counter drugs.
4. The manufacturers of dietary supplements should be required to report all adverse effects promptly to the FDA. This essential element of post-marketing surveillance is required for all prescription drugs and some over-the-counter drugs.
5. The labels of dietary supplements should contain a list of constituents that unambiguously identifies herbs by their herbal and common names. Information about possible adverse effects, including the potential for herb–drug interactions, should be included.
6. The Department of Health and Human Services should organize expert panels to review the safety of all dietary supplements, except for essential nutrients and single-vitamin and multivitamin preparations. This process should be modeled after the National Academy of Sciences Drug Efficacy Study, which completed the complex task of evaluating the safety and efficacy of 4000 drugs in just three years.

CONCLUSION

The present issues conclude that the medical community has been slow to respond to the public health and educational problems resulting from the weakened regulation of herbal medicine and dietary supplements. Now its time to ensure all traditional herbal medicinal products used in different countries have to be screened for acceptable level of safety and efficiency (14). The legislative reforms we propose here are likely to be opposed by powerful political and economic forces (2, 15) and by many proponents of complementary and alternative medicine. For this reason, vigorous and concerted action is needed to educate the public and concerned regulatory committees about the critical need for new regulatory safeguards and for the government funding to implement them.

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