Ind J Clin Biochem (Oct-Dec 2017) 32(4):500–501
DOI 10.1007/s12291-017-0678-x

LETTER TO THE EDITOR

Lead Poisoning Due to Herbal Medications

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Received: 13 June 2017 / Accepted: 26 June 2017 / Published online: 22 July 2017

Abstract Many herbal products are harmless or possess minimal toxicity, whereas, some contain toxic ingredients that may not be identified due to lack of quality control or not listed on the label. Over the years, several case reports and studies have documented that herbal medications may contain ingredients that are toxic. Several studies have documented that some herbal medications contained high concentrations of heavy metals, such as lead, mercury, and arsenic. Publications of such case reports and studies have repeatedly reminded us that we have failed in our legal and civic duties of educating users of herbal medications and general population about the grave concerns posed by the herbal medications and their associated toxicities.

Keywords Lead poisoning · Arsenic poisoning · Mercury poisoning · Herbal medications · Ayurvedic medicines · Heavy metal poisoning

I read with great interest a recent case report by Chambial and colleagues on "Lead poisoning due to herbal medications" published in the most recent issue of your journal [Chambial et al. Lead poisoning due to herbal medications. Indian J Clin Biochem 2017, 32(2): 246–247]. A recent report published in Times of India presented a similar case of retired IAS officer and secretary, who found critically ill with severe weight loss (loss of 17 kilos in 10 months), alarmingly low hemoglobin level (7 g/dL), loss of appetite and neurological weakness with wrist drop. This individual was diagnosed with lead poisoning with a high level of lead about 80.9 μg/dL apparently caused by ayurvedic diabetes medication that this individual had started for sugar control. According to the World Health Organization, lead levels in the blood should not be greater than 10 μg/dL for adults and 5 μg/dL for children [1]. Herbal medicines, that are also commonly known as herbalism or botanical medicine, is a medical system based on the use of plants or plant extracts used for healing purposes. Herbal medicine has been widely used by many different cultures around the world to treat illness and to assist bodily functions. Various forms of herbal remedies such as extracts, tinctures, capsules and tablets are recommended by healthcare practitioners of many different disciplines as a practical way to address a wide variety of medical conditions. As per the WHO estimates of 2003, the global market for herbal medicines stood at over US $60 billion annually, where 80% of the population in Africa still rely on traditional medicine, including herbal preparations, for primary health care, whereas in China, traditional herbal preparations accounted for 30–50% of all medicinal consumption [2].

In the United States, in 2007–2012, almost 4 out of 10 adults and over 1 in 10 children of age 4–17 years were users of complementary and alternative medicine (CAM) therapy in past twelve months according to the National Center for Health Statistics Reports [3]. Some ethnic groups are more likely to use herbal medications than the others. In a survey conducted in one New York urban hospital showed that, the Asian population was the highest users of herbal medications (36%), whereas the overall use of herbal medications was 21%.

The United States Food Drug Administration (FDA) considers herbal supplements as foods and not drugs. Therefore, they are not subjected to the same testing, manufacturing, and labeling standards and regulations as the modern drugs. Moreover, herbal supplements are not

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subjected to rigorous clinical trials or to the same manufacturing standards as prescription or traditional over-the-counter drugs.

While many herbal products are harmless or possess minimal toxicity, some contain toxic ingredients that may not be identified on the label or due to lack of quality control. Over the years, several case reports and studies have documented that herbal medications may contain ingredients that are toxic. In addition, the quantities of ingredients listed on the label times vary significantly. Several studies have documented that some herbal medications contained high concentrations of heavy metals, such as lead, mercury, and arsenic [4]. In one study, out of 247 traditional Chinese medicines investigated, 5–15% had arsenic, 5% had lead and 65% had mercury [5]. In a study of 6712 women aged 20 years or older using herbal supplements had lead levels of 10% higher than nonusers. In women using ayurvedic or traditional Chinese medicine herbs lead levels were higher (24%), blood lead levels were 23% higher in those using St. John's wort, and 21% higher in those using kava, valerian, black cohosh, bee pollen, or nettle [5].

Users of herbal medications and general population need to learn best from the scientific evidence available in the literature about toxicities associated with herbal medications. Case report presented by the Chambial and colleagues once again reminded us that we have failed in our legal and civic duties of educating populations and users of herbal medications about the grave concerns posed by the herbal medications and their associated toxicities. Herbal medication industry also needs to be regulated appropriately to introduce strict quality control to avoid health hazards and to improve public health.

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