Herbal Medicine Can Induce Hypertension

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The popularity of natural herbal remedies has increased in the last few years. However, little is known about the toxicity and pharmacological interactions of many of these substances. Hepatotoxicity of herbal medicine has recently been reported [1, 2]. We would like to add a case in which herbal medicine was noted to aggravate hypertension and suggest that ingestion of herbal medicine should be included in the differential diagnosis of hypertension.

A 43-year-old nurse at a pediatric outpatient clinic had headaches and dizziness because of a sudden increase in blood pressure. She had a 5-year history of essential hypertension. Under medical regimen including 2.5 mg enalapril and 1 mg trichlormethiazide daily, blood pressure ranged from 126/90 to 110/90 mm Hg. Trichlormethiazide was stopped in April 1990. One month later her blood pressure rose to 178/100 mm Hg. A physician prescribed 2.5 mg enalapril in the latter part of June. Her blood pressure, however, still rose; blood pressure 182/112 mm Hg was noted. We questioned her about her daily life. She said that she took herbal medicine for allergic rhinitis almost daily. She has seasonal allergic rhinitis and had tried antihistamines, which made her drowsy and affected her work. A friend recommended a herbal medicine that was effective without causing drowsiness. The herbal medicine she took contained Ephedrae herba, Cinnamomi cortex, Asiasri radix, Paeoniae radix, Glycyrrhizae radix, Schisandrae fructus, Zingiberis siccatur rhizoma and Pinelliae tuber. We advised her to stop the herbal medicine and her blood pressure dramatically decreased (fig. 1). After reviewing her chart, it was noted that her blood pressure had risen consistently with her taking herbal medicine in the autumn of 1989, for treatment of seasonal allergic rhinitis and found to be given trichlormethiazide 1 mg in addition to enalapril.

| trichlormethiazide--1

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Diastolic BP

'90

'89 July Oct. Dec. Jan. April June Aug.

Fig. 1. Changes in systolic and diastolic blood pressure (BP) during treatment of hypertension with/without herbal medicine.

The woman had the same body weight before taking herbal medicine and 3 months after stopping. However, her plasma aldosterone level and plasma renin activity were 144.2 pmol/l

(normal below 499 pmol/l), 0.25 ng/l (normal 0.027–0.556 ng/l/s) just before stopping herbal medicine and 258 pmol/l, 0.47 ng/l/s 2 weeks later

340

Itami/Yamamoto/Andoh/Akutsu

after stopping, respectively. These data suggest that *G. radix*, which contains glycyrrhizinic acid, might be related to her recent hypertension. Doses of glycyrrhizinic acid in the range of 0.7 to 4.0 g/day have been found to suppress both renin and aldosterone and to produce hypokalemia and hypertension [3]. Lower doses of glycyrrhizinic acid, in this case, were apparently taken, as clinical features of mineralocorticoid excess, including hypokalemia, was not found. *E. hebra* containing ephedrine can also raise blood pressure. This case suggests that even a small dose of glycyrrhizinic acid and/or ephedrine might cause higher blood pressure in patients with hypertension. Glycyrrhizinic acid and/or ephedrine may also counteract blood pressure reduction by angio-tensin-converting enzyme inhibitor. The pharmacological interactions of other constituents of her herbal medicine, however, cannot be ruled out and further study is warranted. *G. radix* and *E. hebra* are also found in 73.5% and 17.0% of Chinese herb medicines in Japan as a component [4]. We should look for evidence of herbal medicine in hypertension patients supposed to have essential hypertension or experiencing an unexpected rise in blood pressure. Patients who take herbal medicine sometimes do not inform their doctor, believing the herbs to be harmless. Concoction of the herbs is also often unclear and their mechanism of action unexplained, which may cause confusion in modern treatment.

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