



An Observational Study to Analyse Usefulness of Rauwlofia Serpentina Mother Tincture in Management of Hypertension - A Theoretical Approach

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ABSTRACT

In India, hypertension is an evolving issue, with the prevalence increasing among different age groups. It is caused by a variety of factors, including psychological ones like stress and anxiety. While all age groups are experiencing higher levels of stress and anxiety, middle-aged individuals (20-45) are particularly affected due to their multiple responsibilities as working adults, spouses, parents, and caregivers for their adult children. Homeopathy provides a safe and cost-effective treatment for these health concerns.

In this article, the author reviews the scientific literature regarding the use of Rauwlofia in the treatment of hypertension.

Keywords: Hypertension, Homoeopathy, Rauwlofia, Resperine.

Introduction

In India, hypertension is an evolving issue, with its prevalence increasing across age groups.. It is directly responsible for 57% of all stroke deaths and 24% of all CHD deaths in India.(1)

According to the National Family Health Survey (NFHS) 4 National Fact Sheet,,there is a significant difference in high blood pressure rates between rural and urban populations(2). The increasing incidence of high blood pressure can be attributed to population growth, aging, and behavioral risk factors such as unhealthy diets, harmful alcohol use, lack of physical activity, excess weight, and chronic stress. (3). Anxiety is anticipated to be a major factor in the development of high blood pressure.(4)

In this article we are reviewing literature for ascertaining the scope of Rawolfia serpentina in management of hypertension

Rauwlofia (Rauwlofia serpentina) is an evergreen shrub that belongs to the dogbane or Apocynaceae family.(8) More than 100 species are classified under the Rauwlofia genus, which is native to tropical and subtropical regions, including Europe, Africa, Asia, Australia, and Central and South America. (9)Rauwlofia serpentina specifically originates from the moist, deciduous forests of Southeast Asia, including India, Burma, Bangladesh, Sri Lanka, and Malaysia.(10) These leaves are elliptical or lanceolate in shape and are arranged in whorls of 3 to 5.. (11)

History and Folk Use

Rauwlofia serpentina has been used in folk medicine in India for centuries to treat a variety of ailments, including snake and insect bites, fevers, malaria, abdominal pain, and dysentery..It is also known as sarpagandha and chandrika.(12)

The genus *Rauwolfia* was named in honor of the 16th-century German physician Dr. Leonhard Rauwolf, who studied plants during his travels in India. The name *serpentina* was chosen for study due to the plant's long, tapering, snake-like roots.(13) Mahatma Gandhi, the Indian political leader, was known to use *Rauwolfia*; he reportedly made tea from the root and consumed it in the evening to relax after a busy, overstimulating day. (14)

Clinical evidence and Research on role of Rawlofia in Hypertension

Indian physician Rustom Jal Vakil is credited with introducing *Rauwolfia* to Western medicine. He published a groundbreaking paper on the antihypertensive properties of *Rauwolfia serpentina* in the *British Medical Journal*, detailing results from his treatment of 50 patients with high blood pressure using the root of *Rauwolfia*. (15)

It has been observed that the roots of *R. serpentina* exhibit antihypertensive, sedative, and hypnotic properties in experimental animals :(16,17)

A clinical study has shown that 1x potency of *R. serpentina* in aqua presents no adverse effects, Along with the total alkaloids, the plant also contains certain antitoxic agents.(18)

In 1952, Vida conducted research in Germany and Austria, reporting a drop in blood pressure among 25 patients with hypertension.(34). Arnold and Bach observed a favorable response in 37 out of 50 patients, with an average decrease of 30 mm Hg in systolic pressure and 15 mm Hg in diastolic pressure (34). In 1953, Meissner found *Rauwolfia* to be effective in 90% of the participants in his study, with a reduction in systolic blood pressure ranging from 15 to 40 mm Hg. That same year, Loffler in Switzerland reported a decrease in blood pressure in 51 Swiss workers with hypertension(34).

in 1954, Goto in Japan noted lower blood pressure in 12 out of 15 patients with hypertension. Doyle and Smirk in Zealand also reported in 1954 that reserpine led to a significant drop in blood pressure within 4 to 6 hours of administration.(34)

In 1952, a purified, standardized, isolated alkaloid extract known as alseroxylon was introduced in the United States.(35) The active components of this purified extract were a blend of reserpine and rescinnamine. In this study, 346 patients with hypertension were treated on an outpatient basis in both public and private hospitals, with their initial blood pressures exceeding 150/100 mm Hg upon admission. During the control period, patients received a placebo, while those treated with the alseroxylon extract consistently showed a decrease in blood pressure readings of more than 20 mm Hg.

A *Rauwolfia* product called *Serpina* was administered to over 100 patients for periods ranging from 1 month to 1 year. No serious side effects were reported. Thirty-nine patients with an average blood pressure of 192/122 mm Hg and a pulse rate of 82 were treated with *Serpina* alone. The average blood pressure decreased to 165/95 mm Hg, and the average pulse was reduced to 70. Blood pressure was controlled in 13 out of the 39 patients, returning to a normal reading of below 150/90 mm Hg.(36)

A preclinical study(6) on the homeopathic medicine *Rauwolfia serpentina* indicated its efficacy in reducing systolic blood pressure. Case reports (7), observational studies, and randomized controlled trials have shown positive effects of homeopathy in managing high blood pressure

Reserpine from CIBA Pharmaceuticals was administered at a dosage of 20 mg twice daily to 15 individuals with initial blood pressures between 160/98 and 240/150 mm Hg. For these patients, the average drop in systolic blood pressure was 30.7 mm Hg, and the average decrease in diastolic blood pressure was 19 mm Hg. . The researchers concluded that the drug was a valuable and potent agent for managing severe as well as mild hypertension in some patients.(37)

A Cochrane Database Review was conducted to investigate the dose-related effects of reserpine on blood pressure, heart rate, and withdrawals due to adverse effects.(38) The authors concluded that reserpine was effective in reducing systolic blood pressure to the same extent as other first-line antihypertensive drugs (39)

Chemical Composition

Rauwolfia contains a variety of phytochemicals, including alcohols, sugars, glycosides, fatty acids, flavonoids, phytosterols, oleoresins, steroids, tannins, and alkaloids. The most significant alkaloids found in this plant are indole alkaloids, with more than 50 of these compounds having been isolated.(19) The plant, including the stem and leaves, contain indole alkaloids, but the highest concentration is found in the bark of the root(21). The identified indole and indole alkaloids include ajmalidine, ajmaline, ajmalinine, ajmalicine, aricine, canescine, coryanthine, deserpidine, isoajmaline, isoserine, isoserpine, lankanescine, neoajmaline, papaverine, raubasine, raucaffricine, rauhimbine, rauwolfinine, recanescine, rescinnamine, reserpiline, reserpine, reserpinine, sarpagine, serpentine, serpentinine, thebaine, yohimbine, and yohimbinine.(22,23)

Pharmacology

Reserpine is one of the major alkaloids found in the plant. The concentration of reserpine in the plant has been found to range from 0.03% to 0.14% of its dry weight. (24) Other alkaloids present in the plant have also been identified as having biochemical medicinal properties, including canescine, deserpidine, recanescine, and rescinnamine. (25) Reserpine has a molecular mass of 609 g, and it has a bitter taste. (26) Reserpine is present throughout the body, including the brain, liver, spleen, kidney, and adipose tissue. (27,28) .

Mechanism of Action

Reserpine binds to protein receptors known as vesicular monoamine transporters (VMATs) located in the organelle membranes of specialized secretory vesicles in presynaptic neurons (19,20). Reserpine prevents intracellular neurotransmitters from binding to VMAT proteins and inhibits secretory vesicles from taking up neurotransmitters. It binds with a strong affinity and almost irreversibly to specific receptors on VMAT, particularly VMAT2. (31)

Reserpine functions as a hypotensive agent by depleting catecholamines, while rescinnamine inhibits the angiotensin-converting enzyme (ACE), preventing the conversion of angiotensin I. This leads to a decrease in plasma angiotensin II and ultimately lowers blood pressure. Ajmaline primarily acts by blocking sodium channels, demonstrating its antiarrhythmic effect against *R. serpentina*. (32,33)

HOMOEOPATHIC HISTORY

Homoeopathic proving was conducted in 1954 by Lesser and Schrenk at the Robert Bosch Hospital in Stuttgart. The proving was carried out on 24 doctors using 1x and 3x potencies for a period of 14 to 28 days. W. Lee Templeton also conducted a proving at the Faculty of Homoeopathy in London during 1954-55 on 6 provers, using 3x, 6x, 12c, and 30c potencies for a period of 6 months. Finally, Julian undertook detailed clinical studies to determine the range of action of *Rauwolfia* in homoeopathic potencies. The preparation of Homoeopathic *Rauwolfia* Q and potencies was done according to H.P.I. Volume 1. (40)

- **Family:** Apocynaceae. **Common names:** *Rauwolfia* root, *Serpentina* root, Chotachand. (41)

- **Part used:** Roots. (41)

- **Preparation:**

(a) Mother Tincture Q: Coarse powder of *Rauwolfia serpentina* root 100g, 200ml purified water, strong alcohol 824ml to make one thousand milliliters of mother tincture. (41)

- **Sphere of action:** Mind, heart, circulation, and arteries, skin. (41)

The chief action is on the blood vessels, particularly the arteries that undergo degenerative changes. Constrictive congestions of the blood vessels and localized congestions travel along the cardiovascular channel. (41)

Guiding symptoms (42)

- Constricting, paroxysmal pain in the heart accompanied by tightness in the chest; palpitations worsen when lying down, standing, or walking.

- Elevated blood pressure with a hard, irregular pulse following exertion.

- Dry skin with scaly eruptions, cracked lower lip, and dryness and cracking of the feet and heels.

- A general sensation of heat throughout the body, which feels better in open air.

- Hot perspiration paired with red discoloration of the skin.

- Symptoms worsen with warmth, in wet weather after exertion and climbing, after eating, in closed rooms, and in the morning. The patient generally feels better in open air, with cold applications, hard pressure, and continued motion.

- High blood pressure without significant atheromatous changes in the vessels, accompanied by an irritative condition of the central nervous system, insanity, and violent maniacal symptoms.

Conclusion

Based on the review of literature, *Rauwolfia* appears to be a safe and effective treatment for hypertension. However, the scientific validation of its mechanism of action in homeopathy requires further research and extensive drug provings to better understand its effects on constitution from a holistic perspective.

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