



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2017; 6(1): 93-95
Received: 14-11-2016
Accepted: 15-12-2016

Mohd. Ashfaque

Reader Department of Ilmul
Advia, YFUMC, Kunjkheda,
India

Nisar Ahmad

Professor Department of Ilmul
Advia, AGUMC, Akkalkuwa,
India

Zaheda Begum

Lecturer Department of Amraze
Jild Wa Tazenyat, YFUMC,
Kunjkheda, India

Faizana Nasreen

Reader, Department of Ilmul
Atfal, AGUMC, Akkalkuwa,
India

Evaluation of antihypertensive activity of Sumbul-ut-Tib (Nardostachys jatamansi) in adrenaline induced dog's blood pressure

Mohd. Ashfaque, Nisar Ahmad, Zaheda Begum and Faizana Nasreen

Abstract

Background: Sumbul-ut-Tib has been used in Unani System of medicine since the time of Avicenna. He has described Jatamansi as one of the important cardiac drug in his book "Advia Qalbia". The aim of this study was to determine the antihypertensive activity of Nardostachys jatamansi in dog's blood pressure which is induced by adrenaline.

Materials and Methods: Antihypertensive activity of ethanolic extract of Sumbul-ut-Tib at the doses of 10 mg/kg. b.wt, 20 mg/kg b.wt. and 25 mg/kg b.wt. against adrenaline at the dose of 1 mcg/kg b.wt. in dogs.

Results: The test drug produced fall in B.P. was noted, fall in B.P. was same in doses of 10 mg/kg. b.wt, 20 mg/kg. b.wt, while with the dose of 25 mg/kg. b.wt. more fall in B.P. was noted i.e. 160 mm of Hg to 130 mm of Hg.

Conclusion: This result suggests that the jatamansi revealed hypotensive activity against adrenaline induced hypertension.

Keywords: Sumbul-Ut-Tibb, Nardostachys jatamansi, hypotensive activity, dog's, blood pressure

1. Introduction

Hypertension is becoming a major public health problem in worldwide. It demonstrates iceberg phenomena where unknown morbidity exceeds the known morbidity. The prevalence of hypertension is rapidly rising in developing countries and it is considered one of the leading causes of death and disability among the elderly peoples^[1].

High blood pressure is ranked as the third most important risk factor for attributable burden of disease in south Asia. Prevalence of hypertension in India, for the last three decades has increased by about 30 times among urban residents and by about 10 times among rural residents. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. The WHO rates hypertension as one of the most important causes of premature death worldwide^[2] Age associated increase in hypertension prevalence is due to changes in arterial structure and function accompanying aging process. To emphasize the old age problems World Health Organization celebrated World Health Day 2012 with "Good health adds life to years" as slogan and 2013 theme is focusing on hypertension with the slogan "Control your blood pressure"^[1]

Hypertension is a chronic condition of concern due to its role in the causation of coronary heart diseases, stroke and other vascular complications. It is an important public-health challenge worldwide due to its associated morbidity, mortality, and economical burden on society. Worldwide, it has been seen in about 972 million people in 2000, and the prevalence has been estimated to increase by about 60% to a total of 1.56 billion by the year 2025^[3]

The World Health Organization (WHO) has identified India as one of those nations that is going to have most of the lifestyle disorders in the near future. Hypertension results from a variety of reasons like stress, obesity, genetic factors, over use of the salts in the diet and ageing. As we all know, hypertension is called a killer because it rarely exhibits symptoms before it damages the heart, brain or kidney^[4].

Greeks were all aware of Zaghta-e-damwi (Blood pressure). They were regarded Zaghta-e-Inqabazi as Systole and Zaghta-e-Inbesati as Diastole. The organs of circulation have been described by Ibnul Nafees al Damishqui (1208-1289). The function of heart described by Aristotle has been completely refuted by Ibn Nafees al Damishqui and Zakariyya Qazvini. Unani Scholars described various single and compound drugs have been described for amraze Qalb viz; Abresham, Jatamansi, Amla, Bahi, Mushk, Ambar, Abhal, Parshiyonshan, Zahar Mohra, Chhal Arjun, Khamira Jat etc^[5].

Correspondence**Nisar Ahmad**

Professor Department of Ilmul
Advia, AGUMC, Akkalkuwa,
India

Nardostachys jatamansi DC (Sumbul-ut-tib or Balchhar has been used in Unani Medicine since the ancient time of Ibn Sina. He has described Balchhar as one of the important cardiac drug in his book "Advia Qalbia" [6].

Nardostachys grandiflora DC or Nardostachys jatamansi DC belongs to the family Valerianaceae which have various pharmacological effects such as; hepatoprotective activity, antioxidant activity, anticonvulsant activity, neuroprotective activity, cardioprotective activity, antidiabetic activity, tranquilizers activity, diuretic and analgesic activity [7].

Unani compound formulation which have active ingredient is Balchhar are Anushdaru, Habbe Aiyarij, Dawaul Kurkum, Jawarish Anarain, Khairah Abresham Hakim Arshad Wala, Mufarreh Yaqooti, Majoon Sumbul, Majoon Dabidul Ward, Majoon Juntiana, Majoon Mudir etc [8].

2. Material and Methods

The herb (root of balchhar) under present study and its powder obtained by grinding and proper identification was made on pharmacognostical basis.

The macroscopically study of the herb was conducted by the naked eye. The size, shape, colour and morphological and organoleptic character were observed. The herb was identified with the help of literature. The identity of the drug was confirmed on the basis of literature description available in the Unani classical literature and modern literature, the botanical identification was done by Botanist, Central Research institute of Unani Medicine Hyderabad.

The extract of root Sumbul-ut-Tib (EEST) was prepared by percolation through homogenizer stirrer and flask evaporation method at Dept. of Biochemistry Osmania University Hyderabad. Oily fraction of balchhar obtained and its solubility checked in propylene glycol and dimethyl sulphoxide and found soluble in both chemicals. Hypotensive activity confirmed in dog by experimental techniques of Plummer, Boura and Green procedure.

3. Material Methods

The method of Ghosh, Thompson and Turner was adopted of hypotensive activity of ethanolic extract of sumbul-ut-tib. Experimental techniques used to produce hypertension in dog (dog weighing 16 kg) (Plummer 1967, Boura and Green 1964) this procedure produces a relatively high yield of animals with sustained hypertension, suitable for use in screening and the operation procedure involved is less complex and time consuming than that used to elicit other forms of experimental hypertension [9].

4. Observation & Results

Adrenaline in dose 1mcg/Kg. b.wt. was injected into the femoral vein via rubber tubing. Blood increased immediately giving a Biphasic response first there was an immediate rise in B.P from 160 mm of Hg to 190 mm of Hg. Followed by slight fall i.e. from 160 mm Hg to 150 mm Hg.

Acetylcholine in dose of 1mcg/kg. b.wt. was injected into the femoral vein, blood pressure was decreased from 160 mm of Hg to 150 mm of Hg. When carotid artery was occluded manually for 30 second, B.P. increased slowly and remained raised for some in time from 160 mm of Hg to 200 mm of Hg. When peripheral vagus nerve was stimulated electrically for 2 seconds. Blood pressure was increased from 160 mm Hg to 220 mm of Hg. When central vagus nerve was stimulated electrically for 2 seconds, blood pressure decreased from 160 mm Hg to 140 mm of Hg. After bracket response the test drug was injected, in increasing doses from 10 mg/kg.b.wt.. 20mg/Kg. b.wt. and 25 mg/kg.b.wt. Transient fall in blood

pressure was noted, fall in blood pressure was same in doses of 10 mg/kg.b. wt, 20 mg/kg. b. wt., while with the dose of 25 mg/kg. b. wt. more fall in B.P.,

5. Discussion

Subul-ut- Teeb is drug of plant origin used very extensively in Unani System of Medicine and has gained positive reputation due to its wide and divergent actions on different system of human body [10].

Therefore summary of actions and indications are discussed here mentioned. It is having hot and dry temperament in II degree i.e. theoretically it can be used in disorders of cold and moist types. There is a big list of disorders in which this drug has been used successfully by the Unani physician since the day of Discorrdies to Avicenna till today. The drug has been mentioned in various prescriptions especially for the disorders of heart, brain, stomach, liver and intestine [11, 12]. Therefore I tried to evaluate the hypotensive effect of this.

The effect of EEST in different doses was studied for its hypotensive activity and drug induced hypertension. First bracket response was studied i.e., Inj. Adrenaline in dosage of 1 mcg/kg. b.wt. was injected in to the femoral vein via rubber tubing, B.P increased immediately giving a biphasic response i.e. first there was an immediate rise in BP from 160 mm of Hg to 190 m of Hg followed by slight fall, i.e., from 160 to 150 mm of Hg. Then aceylcholine I dose of 1 mcg/kg.b.wt. was injected, BP decreased from 160 to 150 mm of Hg. When carotid artery was occluded manually for 30 seconds, BP increased slowly and remained raised for sometimes from 160 mm of Hg to 200 mm of Hg. When peripheral vagus nerve was stimulated electrically for 2 seconds BP increased from 160 mm of Hg to 220 mm of Hg. When central vagus nerve was stimulated electrically for 2 seconds BP decreased from 160 to 140 mm of Hg. When EEST was given in gradually increasing doses from 10 mg/kg. b.wt, 20 mg/kg.b.wt and 25 mg/kg b.wt. Transient fall in BP was noted, fall in BP was same in dosages of 10 mg/kg. b. wt. and 20 mg/kg. b.wt, while with a dose of 25 mg/kg. b.wt. more fall in BP was noted.

The exact mechanism through which they produce beneficial effects remain unclear, but it has been found that the use of inhibitors of the renin-angiotensin-aldosterone, usually associated with diuretics, which has been very effective in reducing the blood pressure.¹³ In relation to the aforementioned could be considered that the antihypertensive effect of Nardostachys jatamansi may be because it acts as a diuretic or ACE inhibition or central depressant property and or an antioxidant in renovascular hypertension [14, 15].

6. Conclusion

The hypotensive activity of Sumbul-Ut-Teeb may be resulted through the action on renin angiotensin system and diuretic activity. Further study is required as preclinically and clinically to hidden benefits and clear mechanism of actions.

7. Acknowledgement

I am highly acknowledged to librarian staff and teachers of Govt. Nizamia Tibbi College Hyderabad who provides me fruitfully suggestions.

8. Funding and Conflict of Interest: Nil

9. References

- Hameed S, Chethana K, Brahmabhatt KR, Patil DC, Prasanna KS, Jayaram S. Prevalence of hypertension and its correlates in elderly population of coastal Karnataka.

- Natl J Community Med. 2014; 5(1):25-28.
2. Anchala R, Kannuri KN, Pant H, Khan H, Franco OH, Angelantonio ED. Hypertension in India: A Systematic Review and Meta-Analysis of Prevalence, Awareness, and Control of Hypertension. *J Hypertens*. 2014; 32(6):1170-1177.
 3. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: Analysis of worldwide data; *Lancet*. 2005; 365:217-23.
 4. Vithalani Lalitkumar V, Dalvi Sanjay A, Lele Vinayak T, Sakharkar Bhagyashri V. Hypertension - An Ayurvedic Perspective. *IAMJ*. 2015; 3(1):2323-2329.
 5. Iqbal MN, Ali SR, Ansari AA, Khjn BD, Ahmad N. Concept of Hypertension (Zaghtuddam Qawi) in Unani system of Medicine. *Internationale Pharmaceutica Scientia*. 2013; 3(1):1-5.
 6. Said M. Greco-Arab Concept on cardio vascular disease. 1st edition.1983, 99-124.
 7. Purnima, Bhatt m, Kothiyal P. A review article on phytochemistry and pharmacological profiles of *Nardostachys jatamansi* DC-medicinal herb. *Journal of Pharmacognosy and Phytochemistry*. 2015; 3(5):102-106.
 8. Kabeeruddin M. Al-Qarabadeen. *Daftar Al-Maseeh*. Karol Bagh Delhi. 1929; 2:234-235.
 9. Turner, Hibborn P. Screening method in pharmacology. Academic Press London, New York. 1971; 2:261-262.
 10. Ali S, Ansari KA, Jafri MA, Kabeer H, Diwakar GN. *jatamansi* protects against liver damage by induced by thioacetamide in rats. *J Ethnopharmacol*. 2007; 72:359-363.
 11. Anonymous. The wealth of India- Raw materials; Publication and information's directorate, CSIR New Delhi, 1966, 7.
 12. Ghani N, Khazainul Advia, Idarah Kitab, Us Shifa. 2011.
 13. Velpandian V, Anbu N, Elangovan S, Musthafa MM. Antihypertensive Activity Of *Nardostachys Jatamansi* In Hypertensive Rats Following Renal Gold Blatt Occlusion Method. 2014; 3(8):769-777.
 14. Arora RB, Arora CK, Sha MJ, Shet UK. Animal species variation in hypotensive activity of *jatamansone* with a report in the clinical trial of this drug. *Indian J Med Sci*, 1967; 21:455-460.
 15. Venkatachalapathy V, Balakrishnan S, Musthafa M, Natarajan A. A Clinical Evaluation of *Nardostachys jatamansi* in the Management of Essential Hypertension. *Int. J Pharm. Phytopharmacol. Res*. 2012; 2(2):96-100.