ETHNOPHYTOTHERAPEUTIC INFORMATION FOR THE TREATMENT OF HIGH BLOOD PRESSURE AMONG THE PEOPLE OF NORTH BASTAR AREA OF CHHATTISGARH STATE, INDIA

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ABSTRACT

Ethnophytotherapeutic information includes the contribution of indigenous knowledge using plants to provide native remedies for varieties of ailment. Kanker area of Chhattisgarh is very rich in medicinal plants. Various species of plants are used in the traditional medicine for the cure of cardio-vascular diseases; high blood pressure is one among them. A questionnaire was used to obtain ethnomedicinal information for the treatment of high blood pressure by the Baiga / Vadhya of this area who are traditionally the ethno healers. Five species - *Cassia tora* (Chakoda), *Catheranthus roeus* (Sadabahur), *Rauwolfia serpentine* (Sarpagandha), *Moringa olifera* (Munga), *Trigonella Foenum greacum* (Methi), Zingiber officinal (Adarak) used for curing high blood pressure were identified from different families. Plants are documented for further research on the basis of chemical composition and active ingredients contained in these plant parts.

Keywords: indigenous knowledge, ailment, ethnomedicinal, traditional

INTRODUCTION

High blood pressure occurs when the body's smaller blood vessels (known as the arterioles) become narrow, causing the blood to exert excessive pressure against the vessel wall. The heart works harder to maintain higher blood pressure. Although the body can tolerate increased blood pressure for months and even years, eventually the vessels enlarge and got damaged (a condition called hypertrophy), and causes injury in the kidney, brain, and the eyes. Hypertension has been aptly called a silent killer with no noticeable symptoms. Herbal treatments are thus necessary to combat against this problem. High blood pressure has been defined by the World

Health Organization (WHO) and International Society of Hypertension guideline as a systolic blood pressure (SBP) - 140 mm/Hg or diastolic blood pressure (DBP) - 90 mm/Hg or being on treatment WHO (1996).

India will soon face an enormous socio-economic burden on the costs of the rehabilitation of stroke-survivors because the population is now surviving through peak years (age 55-65) of occurrence of stroke (CVD) Dalal (2006). Significance of this present study is a step towards the cost effective treatment of high blood pressure. The Global Burden of Disease (GBD) Study (1997) reported 9.4 million deaths in India, of which 619, 000 were from 'Stroke,' and the Disability Adjusted Life Years (DALYs) that were lost, almost amounted to 28.5 million: nearly six times higher than that due to Malaria, Murray & Lopez (1997). In 2005, stroke deaths accounted for 87% of all deaths from developing countries and this burden will increase with ageing population Strong *et al*. (2007). An estimated 5.7 million people died from stroke in 2005 and projected deaths will rise to 6.5 million by 2015 Strong *et al*. (2007).

METHODS

Study of ethnopharmacological information for the treatment of high blood pressure was conducted in 2008 at Kanker area in north Bastar to identify significant medicinal plants used for curing blood pressure by the 'Baigas'. They are the primitive Dravidian tribe of Chhattisgarh Russell & Lal (1916). A survey of the plants used by the people of 6 tehsils were chosen for the study – Kanker, Charama, Antagarh, Pankharjur, Bhanupratappur and Nurharpur. Kanker is chosen as the center and the area survives in thick forest **(Figure 1).** The data of medicinal plants were collected through personal communication and use of questionnaire. Healers were chosen on merit of treatment of various hypertensive ailments. Information on the plants was gathered through oral interview using structured questionnaire from herbalists or traditional healers and other who claimed to have effective prescription on high blood pressure. 45 Baigas were chosen for this study to conduct discussion on the treatment of high blood pressure. Baigas do not keep any written document for their treatment and also shows no interest to share their ethno pharmacological information with other people. One thing was noticeable during the fieldwork that the *Baigas* usually keep their grandson with them while collecting medicinal plants or other related work. Initially, it was very difficult to obtain information from the healers. However, after long discussion they become convinced and partly agreed to share their knowledge. Plant materials were obtained with the help of accompanying practitioners in the

forest and later on identified by the experienced healers. The results showed that the plants claimed to cure hypertension by the herbalists were potent. Throughout the interview, local plant names, useful plant parts, methods of preparation, application mode, dosage and duration of treatments were recorded. Years of practice, source of knowledge, the extent of patient patronage and level of success in curing the ailments were also documented.

RESULTS

The published literature reports on prospective and retrospective surveys for "hemiplegia" presumed to be CVD in India. The prevalence rates (or estimates) for "completed strokes" per 1 lakh persons in North India (Kashmir) is 143; in West India (Mumbai) is 245; in South India (Vellore) is 64 and for East India (Assam) it is 270. The average range being 90- 220/100,000 persons Dalal (1997).

Medicinal plants are known for long decades as essential resources to human health and wellbeing. The traditional use of plant products and their protective and therapeutic importance is most likely related to low cost, easy access and their limited side effects. Part of this appreciation towards culture and plant conservation is the use of plant species for the maintenance of their health. India is rich in plant sources. Various different species are known to occur in the forest regions and most of them have been used for several centuries in traditional medicine and ayurveda for prevention and treatment of disease Sachitra Ayurveda (1979)**.** A single plant part can often control mild to moderate hypertension. More severe hypertension often requires a combination of two or more plant combination. In addition to helping lower blood pressure, herbal medicine also provide health benefits Berman (2000). The use of traditional botanical knowledge as a promising instrument in bio-prospecting of useful plants for human and animal medicine has recently increased. This results in ethnomedical and medical ethnobotanical research methods and techniques which contribute to validation and development of new plant based drugs Quah (2003); Slikkerveer (2001).

Table 1 shows the percentage of respondent in terms of categories of healers in the community. It is apparent that the traditional healers have 33%, followed by the herb sellers (30%). This study demonstrates that these sets of people are those equipped with folk knowledge and the study shows the relative contribution to the healers in the community.

Table 2 shows the percentage of baigas in terms of their ages. It shows that most of the Baigas are in the age group of 40-64 years followed by 20 – 39 years. The youths have the lowest percentage inferring that they are not treated by older people as inheriter of this knowledge. Childrens below the age of 12 years are not shown in the table but they are a part of this work as when they become younger they will become the healer. It is a practice that the traditional healer will only inherit his knowledge to the grandson and not to his son. **Table 3** presents the percentage of respondents in terms of their ages. It shows that the respondents are mostly in the age group of 40-59 years. The adult inferring that they have being diagnosed for hypertension is common as is revealed in the literature Russell (1916). Percentage gender of baiga community is presented in **Table 4**. This shows that the male has the 100% dominance in the field.

Table 5 represents the percentage gender of hypertensive diagnosed patient in the community. This shows that the male has the highest (64%) percentage followed by the females (36%).

DISCUSSION

These findings clearly show that herbal medication still have an important position in folklore medicine and primary health care in Bastar District. Folklore medicine in the area seems to substitute modern medicine and reduce medical care costs. The findings show that a family regularly saves money through relying on plant treatments. It is worth mentioning that all participated families reported the use of medicinal plants for family primary health care. These finding reflects the extent of connection of baigas to traditional medicine and the knowledge related to use of these plants.

The WHO STEPS stroke version 1.1 has been successfully tested in the Indian Collaborative Acute Stroke Study Dalal (2006). which is a prospective multi-centric study on unselected CT-confirmed cases of acute stroke (less than 72 h) admitted to major university hospitals in India. During the study period, 2002–2004, reliable information was available in 2162 acute stroke cases (CT confirmed). It was evident that the incidence of stroke was rising with advancing age – the maximum being in the age bands of 41-70 years. Ischaemic strokes were 77%, haemorrhagic strokes were 22% and unspecified accounted for 2% of all cases. The risk factors identified were hypertension alone in 40%, hypertension with diabetes in 25%, and hypertension with other risk actors (raised cholesterol, ischaemic heart disease) accounted for another 20%. Diabetes and ischaemic heart disease alone were

present in 5% cases. Thus it is evident that hypertension alone or in combination is a major risk factor associated with stroke and hypertension-stroke control programmes for secondary prevention should be of prime importance. In subgroup analysis of age groups, it was evident that younger subjects (<50 years) from LSEG (Lower Socio Economic Group) attended free hospitals whereas older subjects (> 50 years) in USEG (Upper Socio Economic Group) went to private medical facilities Dalal (2006).

Hypertension alone or in various combinations has been a major risk factor in ischaemic and haemorrhagic strokes. The ICMR multi-centric prospective case control study of ischaemic strokes revealed that i) hypertension, ii) raised blood sugar, iii) tobacco use, and iv) low haemoglobin as important risk factors (SPSS Discriminant analysis) Dalal *et al.* (1989).

According to WHO there are claims that there is a shortage of medical doctors and pharmaceuticals product Who (1996). Most of the populations in developing countries still rely on traditional practitioners. The plants with the highest potency according to respondents are *Cassia tora*, *Catheranthus roscus, Rauwolfia serpentine*, *Moringa olifera*, *Trigonella Foenum greacum,*

Zingiber officinal, respectively. The recipes were indicated for only hypertension which is the main aim of this paper. This study denotes that for the people in north Bastar area of Chhattisgarh State, traditional medicines are widely accepted and have a long history. Indeed, majority of the people believed in the effectiveness of herbal medications and the safety of plants materials used in ethno medicine. Some plants are used in combination. The documentation of Medicinal plants are becoming increasingly necessary because of the rapid loss of the species and their natural habitats due to anthropogenic activities.

CONCLUSIONS

In developed and developing countries including India, a review of epidemiology of hypertension pointed out that with current rising incidence of hypertension, India will possibly have largest number of hypertensive subjects Joshi & Parikh (2007). Therefore hypertension– stroke control programme is of supreme importance in primary and secondary stroke prevention. The experience of traditional knowledge of older generations of baiga tribe must be taken into account on the conservation and propagation of herbal plants in large proportion.

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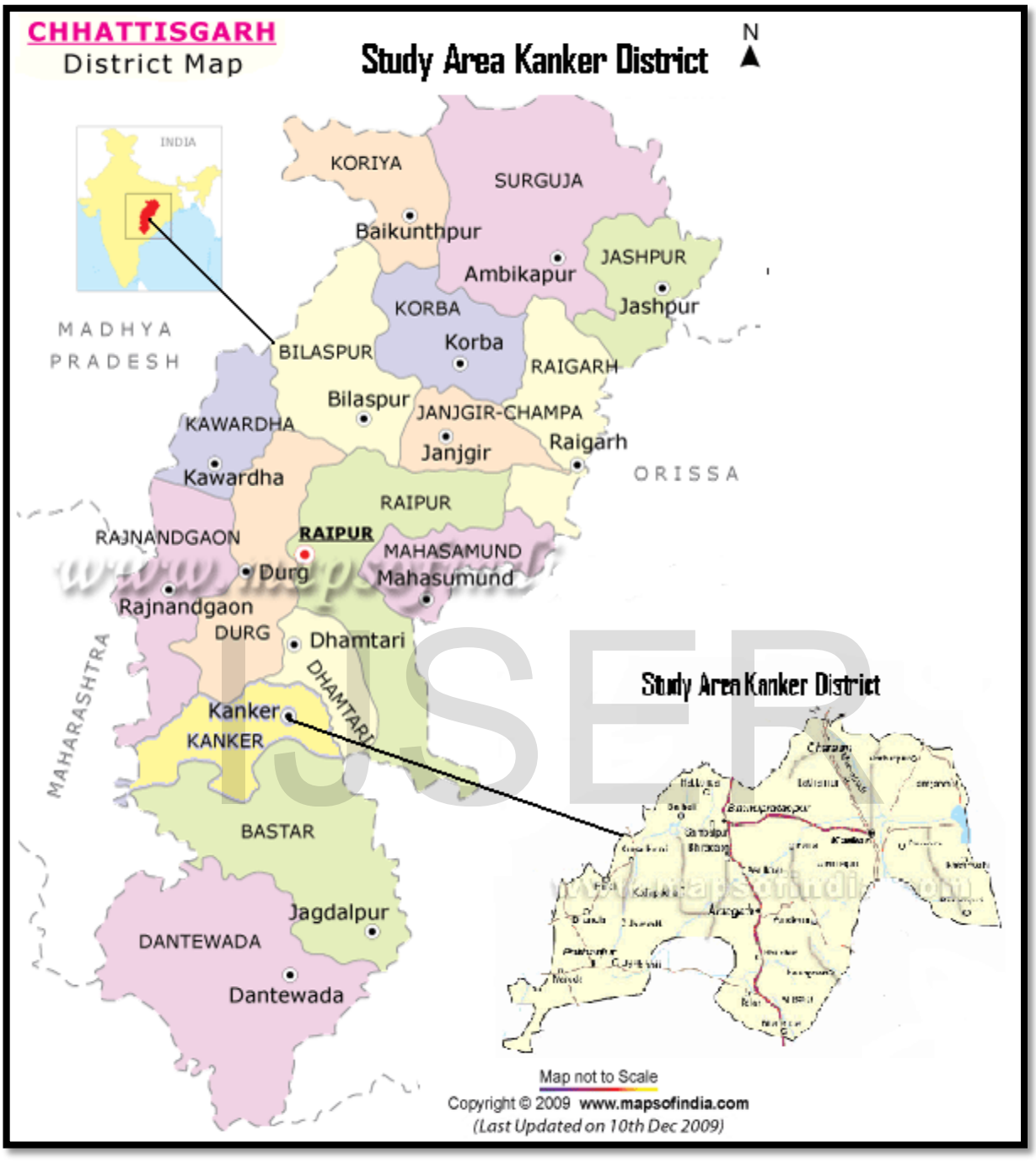

Figure 1: Study area Kanker (Uttar Bastar District).

Table 1. Healers and their percentage in the surveyed Kanker area

Types of healers	**Years of experience**	**Number of healers**	**Percentage of healers (%)**
Herbalists	30	5	11
Traditional healers	70	15	33
Herbs sellers	30	21	47
Inheritance (practical knowledge of herbal remedy)	15	4	9

Table 2. Distribution of *baigas* according to their age group

Age group (Years)	Number of baigas	Percentage of baigas (%)
Youth (20 - 39)	8	18
Adult (40 - 64)	20	44
Elderly (65 - above)	17	38

Table 3. Percentage of respondents according to their age group at healer's site

Age group (Years)	Number of respondents	Percentage of respondents (%)

Youth (20-39)	3	9
Adult (40 - 59)	20	61
Elderly (60 - above)	10	30

Table 4. Sex distribution of selected baigas in the area

Sex	**Number**	**Percentage (%)**
Male	15	100
Female	0	0

Table 5. Sex distribution of hypertensive patients in the area

Sex	Number	Percentage (%)
Male	29	64
Female	16	36

Table 6. Medicinal plants in use for the treatment of high blood pressure by Baigas of North Bastar

Therapeutic indication and associated plants (high blood pressure)	Local plant Name	Plant part used	Medicinal preparation	Dosage	Duration of treatment
Cassia tora	Chakoda	Leaves	Leaf powder with warm rice water is taken	1 tsp twice a day	1-3 months

Catheranthus roscus	Sadabahur	Flowers	Eat flowers in the morning directly	7-9 flowers	15 days
Rauwolfia serpentina	Sarpagandha	roots	Decoction of the root and taken orally	1 gram thrice a day for three days	3 days
Moringa olifera	Munga	Leaves	Infusion and decoction of leaves	Regular once a day	6 days
Trigonella Foenum greacum	Methi	seeds	Infusion in water taken directly	½ tsp Early in the morning before breakfast	20-30 days
Zingiber officinale	Adarak	Rhizome	Juice prepared from rhizome	Once a day with equal amount of honey	10 days