ABSTRACT

Diabetes is turning global problem. It is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. Different medicinal branches are striving hard to overcome this global problem at various stages of diabetes such as pre diabetic, diabetes and post diabetes complications. Rasaushadhies (Herbomineral Preparations) such as Bhasmas (Incinerated metals and minerals) in plays important role in Ayurvedic therapeutics. Putiloha Bhasma i.e. Naga (lead), Vanga (Tin) Yashada (Zinc) and Trivanga Bhasma indicated for diabetes since ancient times. But it is not explore due to unavailability of evidence based data on modern research models. Since attempts are going on by means of various preclinical and clinical studies, present paper aimed to review of these studies. After reviewing of papers on clinical and preclinical studies on Putilohas Bhasma it is observed that almost every Bhasma shows satisfactory results in reducing blood glucose level and improve glucose tolerance level in moderation. Therapeutic properties of Naga, Vanga and Yashada Bhasmas shows that it mainly act on Vata, Kapha and Pitta predominant Vikara(diseases) respectively. Trivanga contains all three metals hence its efficacy in terms of anti-hyperglycemic effect and pre and post diabetes complications should be rule out. For animal studies appropriate models which complete the criteria of Ayurvedic principles of treatment is very necessary in order to prove overall therapeutic properties. More clinical trial on these Bhasmas are needed to establish its rejuvenating properties and immune protective action which may prove rewarding. 

Keywords: Diabetes, Trivanga Bhasma, Putiloha, Rejuvenating

INTRODUCTION: Ayurveda is ancient source of medical knowledge. Each and every new disease can be co-related with diseases described in our Samhitas. Madhumeha is one of them which can be correlated with Diabetes in modern medical science. Twenty types of Prameha is described in Samhitas if ignored and not treated properly in time can convert into Madhumeha and become incurable. Now it is turning global problem. Prevalence of diabetes mellitus (DM) is rapidly rising throughout the globe at an alarming rate, where India leads with largest number of diabetics and became “diabetes capital of the world.” Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease and it is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India. Different medicinal branches are striving hard to overcome this global problem at various stages of diabetes such as pre diabetic, diabetes and post diabetes complications. Earlier, herbs were extensively use due to their easy availability and processing techniques. However, later on, the therapeutic values of minerals and metals were also identifies and they occu-
plied an important place in Ayurvedic therapeutics.4 Rasshastra is the branch in Ayurveda that deals pharmaceutics of metal and minerals. Due to specialized techniques of processing of Rasaushadhies (Herbomineral preparation), it attend special therapeutic properties which not only act actively on diseases but also possess immune protective properties. With the evaluation of Nano technology it is confirmed that Metallic Bhasma (Incinerated metals) contains Nano particles that enhance bioavailability of drug which facilitate target based drug delivery system.

Mainly there are seven Dhatus (metals) mentioned in Rasshastra i.e. Gold, Silver, Copper, Iron, Lead, Tin and Zinc. Although almost every Metallic Bhasma mentioned in Rasshastra plays important role in diabetes therapeutically, but some Metal Bhasmas are especially mentioned for diabetes i.e. Putiloha Bhasma (It smell foul while melting) Naga (Lead), Vanga (Tin) and Yashada (Zinc) and combination of these three called Trivanga. As these metals are cost effective as compare to other metals such as Silver and Gold, medicinal values of it needs to explore in terms of scientific researches. In this era of evidence based medicine, it is quite difficult to prove its anti-diabetic activity on the basis of exact chemical entity which act on insulin due to complex nature of these Bhasmas. Since studies are going on to prove its therapeutic value in diabetes by various preclinical and clinical trials in order to get some clues, it will be interesting to understand exact pharmacokinetics of these Bhasmas. Once the active ingredients in Bhasmas are identified, these metal oxides can be synthesized and evaluated as a new chemical entity in modern drug discovery. Present paper is an attempt to put some evidence based facts about these Bhasmas by reviewing some articles on Preclinical and clinical studies on diabetes.

Naga Bhasma (Incinerated Lead): Naga Bhasma mentioned as Snigdha (oily nature) Ushna (Hot nature), Guru (Heavy to digest), Lekhana (Scraping properties) and Madhur-Tikta (Sweet and bitter) in taste. It act as good appetizer, increases peristaltic movements, all types of Vataja vikara (Vata dosha dominant disorders) and alleviates Prameha.10 Deshmukh smita9 et al mentioned in study on Naga Bhasma in alloxan induced hypoglycemic rats to evaluate anti-diabetic activity. Graded doses of Naga Bhasma were administered orally (100-200 mgs/kg) with suspension of milk in normal and control group showed no change in blood glucose level in normal rats. But normalize the impaired glucose tolerance and alloxan induced hyperglycemia in long term treatment. The research concluded with anti-hyperglycemic effect of Naga bhasma on prolong administration.

Naga Bhasma (Lead calx) at a dose of 60 mg twice daily for 28 days provided significant relief in all signs and symptoms of DM. FBS and PPBS were reduced significantly (P<0.05). Moderate anti-hyperglycemic and no hypoglycemic action was reported in experimental animals.10

Vanga Bhasma (Incinerated Tin): Vanga Bhasma mentioned as Laghu (Easy for digestion), Sheetal (Cooling property) Ruksha (Dry) in its properties and little bitter and pungent in taste. Therapeutically it act on Medovikara (Obesity) Kaphvikara (Kapha dosha dominant disorders), Rejuvenate, all types of Prameha etc.11 Wanjari Manish et al mentioned in the study conducted on alloxan induced diabetes rat in graded doses (25 and 50 mg /kg) of Vanga Bhasma intragratistically in experimental and control group of rats.
doesn’t show influence on blood glucose level but normalized impaired glucose tolerance level on long term use. This research concluded Vanga Bhasma on prolong administration exhibit anti hyperglycemic effect. B.J. Patgiri et al (2014) concluded in the study for clinical evaluation of Vanga Bhasma on Madhumeha (Type 2 diabetes) that Vanga Bhasma when used with Sahapana (Guduchi Ghana and Honey) shows moderate anti-hyperglycemic effect in the patients as compare to other group with only Sahapana use for 28 days.

V.Nageshwar Rao et al in the study conducted on streptozotocin induced diabetes of Yashad Bhasma for one month in aqueous suspension through oral route in the dose of 0.5g/kg body weight showed Blood glucose level returned to near normal by the end of the treatment.

Umarani et al (2013) in the study conducted on anti-diabetes activity of Yashad Bhasma on streptozocine induced type 1 and type 2 induced rats for four weeks shows improvement in glucose tolerance level by 16-19%,lower blood glucose level by 20 -33% and reduced serum insulin level by 27-32%.

Trivanga Bhasma(Combined Incinerated Lead, Zinc and Tin): Trivanga Bhasma is used in Ikshumeha, Haridrameha, Lalameha (symptoms of pre diabetic state) and Madhumeha. It is specially mentioned in urinary complaints in Madhumeha such as urgency to micturate, frequency of micturition, dribbling of urine etc.

The clinical study conducted on Trivanga Bhasma in comparison with Asanada(A Proprietary drug on diabetes)on 36 patients of diabetes with dose of 125mg TDS showed that Trivanga lowers blood glucose level fasting by 26% and PP by 21%. It is also observed that is more useful by 40% in urinary tract symptoms than Asanad.

DISCUSSION: Ayurveda science is based on some fundamental principles which cannot be compromised at the cost of recent technological advances. Subjective parameters in patients is quite impossible to correlate with various experimental models of study. Mere rising blood sugar levels on animal models cannot correlate clinical factors involved in Madhumeha. Assessment of overall sign and symptoms along with objective parameters of Madhumeha will complete diagnostic criteria for the disease as the basis of treatment for any disease in Ayurveda depends on Dosh-Dushya (Pathogenesis), Kala (period of treatment), Bala (Physical and mental strength), Vaya (Age of the patients), Prakruti (Nature) etc. An appropriate model addressing the above issues would certainly facilitate in designing research plans satisfying fundamental principles of Ayurveda. Well-designed experimental studies to validate the safety, biological activity, drug interactions, and possible mechanism of action possibly will provide tangible scientific evidence leading to clinical research. Following this, clinical studies adopting suitable models, research plans and scientific parameters may possibly provide a clear insight with a good translational value.

After reviewing of papers on clinical and preclinical studies on Putilohas Bhasma it is observed that almost every Bhasma shows satisfactory results in reducing
blood glucose level and improve glucose tolerance level in moderation. Therapeutic properties of Naga, Vanga and Yashada Bhasmas shows that it mainly act on Vata, Kapha and Pitta dominant Vikara(diseases) respectively. Diabetic patient are predominantly seen with more or less Tridosha(Vataj, Pittaj and Kaphaj) based symptoms. As Trivanga contains all three metals hence possess all the properties of these three metals. But unfortunately very less studies are available on Trivanga Bhasma.

Trivanga Bhasma has very good therapeutic effect on neuromuscular symptoms of diabetes. so it is very important to carry out clinical studies on Trivanga Bhasma on diabetes to reach any concrete conclusion. Also rejuvenating properties of these Bhasma needs to study on complications of post diabetic patients such as Neuropathy, Retinopathy, Skin infections etc.

CONCLUSION: According to Ayurveda Putiloha Bhasmas are absolute in predominant symptoms in diabetes. Trivanga Bhasma contains all three metals hence its efficacy in terms of anti-hyperglycemic effect and pre and post diabetes complications should be rule out. For animal studies appropriate models which complete the criteria of Ayurvedic principles of treatment is very necessary in order to prove its overall therapeutic properties. More clinical trial on these Bhasmas are needed to establish its rejuvenating properties and immune protective action which may prove rewarding.

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