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HURDLES IN PRESENT AYURVEDIC RESEARCH SENERIO

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ABSTRACT

Ayurveda is an ancient science. It is an aprociate way, called as called as "science of life". It has root in Indian culture. Ayurveda is a comprehensive scientific system of medicine developed through ancient wisdom, clinical experiences and experimentation evidences of clinical experiences for centuries excist in various classical texts and compendia of ayurveda. However, one of the key challengs facing by the ayush systems including ayurveda generatingscientific evidence on quality based data, saftey & efficacy of formulation /theriapies & other intervention including basic principles. Research is a continuously evolving process which makes the generation of new knowledge & validates or rejects the present knowledge. The important part of ayurveda is also its preventive aspect which holds significance in the presentera. This abstract discusses about the problems in the basic research in Ayurveda. To prove theefficacy of the Ayurvedic drugs it is essential to achieve complete and detailed information about the Pharmacodynamics of the Ayurvedic drugs. But so far such research has not been done and the clinical research has been done which is difficult to prove on the scientific basis. For example a drug has not been studied scientifically means its pharmacodynamics and pharmacokinetics is not studied and still it has been proved in many diseases.

KEYWORDS: Ayurveda, pharmacokinetics, pharmacodynamics, Basic principles.

INTRODUCTION

Research is a continuously evolving process which makes the generation of new Knowledge and validates or rejects the present knowledge. The modern system of medicine has been

evolved with the rigorous clinical trials of a particular drug, the detailed study of the safety and efficacy of the drug. The pharmacodynamics and pharmacokinetic properties of the drug has been studied in detail and the evidence has been proved time to time. The most important part is that the modern system of medicine has used advancements in the knowledge of basic life sciences like physiology, biochemistry, microbiology, pharmacology and pathology. Conversely, in *Ayurveda* the basic concepts of *Ayurveda* has not been yet defined or explained and the clinical trials of the drug has been carried out and said effacacious. For example *Ekangveer Rasa* is a famous Herbomineral preparation useful in *Vatavyadhi.* But the mode of action of this drug has been not studied in detail yet. How may it be able to affect the nervous system? If it gets absorbed in the gastrointestinal tract and what alterations are caused after its absorption? If it enters through portal circulation into the liver? Can it reach in the central nervous system circulation? How it acts on the brain and muscles? There might be so many questions like this.

METHODS

The important part of Ayurveda is also its preventive aspect which holds significance in the present era. Apart from the detailed treatments there is detailed description of preventive measures which is described earlier than the treatment part. The daily regimen i.e. *Dincharya* and seasonal regimen i.e. *Ritucharya* are important part of the treatment but the scientific explanation behind the rationale of the *Dincharya* and *Rituchary* is not explained. The *Dincharya* starts from waking early in the morning. This kind of treatment i.e. *Adravyabhuta chikitsa* is also an important part of *Ayurvedic* treatment. The blood flow to the brain, the secretion of neurotransmitters in the brain may play an important role to create a special condition of mind during early morning. Similarly each component of *Dincharya* should be scientifically studied. Same is the truth regarding the increase of particular *Dosha* as per the day night cycle, changes due to food and age. The increase in particular *Dosha* due to ageing. The minute changes in the body due to day night cycle are considered in the modern system ofmedicine as circadian rhythm.[2] The study on the *Ritucharya* can be performed in the same way. If the physical power is studied in the form of capacity of exercise, body weight and muscle mass the concept of *Aadana Kala* and *Visarga Kala* can be revalidated. The *Tridosha* theory The Tridosha theory is the backbone of Ayurveda but the research on the *Tridhosha* theory has been yet not done adequately.

Dosha can be divided into 2 types

1) *Dosha* which are responsible for physiological functions of the body

2) *Dosha* which are responsible for causing various diseases *in Prkopa Avastha*

3) The *Dosha* which run the body in the physiological conditions cannot be seen by eyes or cannot be removed from the body; conversely, the *Dosha* causing various diseases can be expelled from the body in the Panchakarma procedures like *Vamana* where *Kapha* and *Pitta* can be seen by eyes, measured scientifically. The *Vata Dosha* cannot be seen in either condition as it does not have any shape. But the research on the concept of *Tridosha* has been not carried out systematically. During Panchakarma procedure like *Vamana Karma* the *Dosha* are increased and removed from the body. Whether these *Dosha* means increased cellular waste products? Or toxins? If the terminology of the *Dosha* is explained it will be great advantage for *Dravyagun Vigyan.* If the *Dosha* terminology made clear then a particular drug increase or decrease particular *Dosha* will be simple to prove on a single laboratory test. *Ayurveda* mentioned all the details of the *Ayurvedic* herbs but proving it in the laboratories is difficult. Therefore once the *Tridosha* theory made clear in modern physiological terminology further research in the pharmacotherapy and pathology of *Ayurveda* will be easy. There is no clear-cut clinical correlation to the concept of *DoshaPrakopa*.

There are 2types of *Dosha prakopa*

1) *Dosha Prakopa* with *Chaya* example Pitta *Dosha Prakopa* in the *Sharad Ritu*

2) *Dosha Prakopa* without *Chaya* example Pitta *Dosha Prakopa* due to anger

Here again since the *Dosha* ter minology is not clear these concepts are not demonstrated. Whileperforming the Panchakarma there is provision of performing the Panchakarma in the *Doshavridhi* (increased dosha) and the signs and symptoms of *Dosha Vridhi* are mentioned in the *Sutrasthana* of *Charak Samhita* those are *Avipaka, Aruchi, Sthaulya* etc. As earlier mentioned since the *Tridosha* theory in Ayurveda has not explained in detail therefore these sign and symptoms of *Ayurveda And Their Possible Solution of Doshavridhi* cannot be explained in modern medical terminology.

Ayurvedic concepts like *Agni, Koshtha, Prakrati* needs detailed scientific explanation yet.

Pharmacology in *Ayurveda*

The research in *Ayurveda* faces the biggest problem in the field of *Ayurvedic materia medica*. There are various types of formulations used in the *Ayurveda* from simple crude drug to complex metallic preparations. The *Ayurvedic* medicines can be roughly dividedinto

- Herbal preparations

Herbomineral preparations

Metallic preparations

Among the herbal preparations sometimes single herb is used and sometimes multiple herbs are used.

Analytical study of *Ayurvedic* drugs

The biggest difficulty in Research in Ayurveda is that the drugs used in Ayurveda cannot be studied analytically. The pharmacodynamics and pharmacokinetics of the drug cannot be studied. Even in the single herbal drug say *Sunthi* (*zinziber officinale*) if taken orally since it contains many alkaloids what happens to the drug in the stomach, small intestine and liver cannot be studied due to presence of many alkaloids. The radiological tagging of the drug or biological marking is still not possible mainly because of presence of many alkaloids. Therefore the efficacy of the *Ayurvedic* drugs cannot be proved in the laboratory and the evidence cannot be produced. In *Ayurveda* generally single herb are not used and multiple herbs are used so it becomes further difficult to make analytical study to predict about pharmacodynamics, pharmacokinetics and biotransformation of the drug. In case of Herbomineral and metallic preparations their safety studies have been carried out and some drugs are declared as unsafe causing metallic toxicity.

Safety of *Ayurvedic* drugs

The metallic preparations of *Ayurvedic* drugs means the preparations of *Rasashastra* faculty of *Ayurveda* has been under scanner since 2004 Saper[4] et al. found that 20% of *Ayurvedic* medicines sold in the Boston area contained high concentrations of lead, arsenic and mercury above daily permissible limits. *A.Raviraja* and colleagues published[5] an article "three cases of lead toxicity associated with consumption of *Ayurvedic* medicines." In his study he observed that *Mahayograj Guggulu, Pu shpandhva Ras* contained highest concentration of lead are almost certainly responsible for the lead associated symptoms in the patient. In the same article he mentioned another patient showing lead toxicity after consuming *Gulkand* (an *Ayurvedic* medicine prepared from roses). In an another research paper by *Krishna S. Guntutru*[6] observed lead poisoning due to consumption of an *Ayurvedic* drug, Jmbrulin. In his paper he further mentioned that from 2000 to 2003, the Centers for Disease Control reported 12 cases of lead poisoning in adults associated with *Ayurvedic* medication intake occurring in five different states. Some Ayurvedic preparations have been found to contain

contained lead and/or mercury at 100 to 10,000 times greater than acceptable limits. In this scenario it is the need of hour to standardize the *Ayurvedic* medicines and take rigorous trials on them with special reference to their safety. It is noteworthy to mention another research paper on study of *Ayurvedic Bhasma*[7] by nanotechnology. In this paper *Suvarna Bhasma* has been said safe and effacious to treat breast cancer. This is an example how latest technology can be used toprovide evidence of safety of *Bhasma* in Ayurveda.

Clinical research in *Ayurveda*

For clinical research in *Ayurveda* fair and unbiased clinical trials should be performed. However during the post graduate education student is given a particular topic for research. It has been found that in this research ABC medicine mentioned in *Ayurveda* has been used to treat XYZ disease mentioned in Ayurveda. Such type of research is not quotable since there is no any research done on the diagnosis in Ayurveda. Diagnosis as per *Ayurveda* is an unexplored area. At most instances *Ayurvedic* diagnosis of a disease is obscure or subjective. For example *Ayurvedic* diagnosis of *Pandu* is often obscure, moreover in the research diagnosis is done by Ayurveda and diagnosis by modern system of medicine is also added by adding suffix with special reference to for example topic[8] "study of efficacy a controlled clinical study between *vachadi yog* and atorvastatin in management of *medovruddh*i with special reference to hyperlipidemia". In such topic there is no clarity that if the researcher is treating *Medovrudhi* or hyperlipidemia with *Vachadi yoga*. Since every patient of hyperlipidemia will not show sign and symptoms of *Medovridhi*. Instead if this topic was made as study of *Vachadi yoga* on hyperlipidemia it would have been a clearcut study. Removing the part of Ayurvedic diagnosis make the research simplistic and realistic however most of the scholars and their guides try to avoid such topics since there might be possibility of negative outcome of the research. Therefore it is a surprise that outcome of the most of the research topics in *Ayurveda* is always positive and never negative which itself indicate how really the research is done.

For the diagnostic methods and *Ayurveda* diagnosis it is essential that the protocols for the research and nomenclature should be changed. *Ayurvedic* diagnosis of a particular can be sometimes closer to the diagnosis from modern system of medicine and sometimes not. For example if *Pandu* is the *Ayurvedic* diagnosis of a patient Anemia is diagnosis from the modern system of medicine which is logical however in a female patient of DUB (dysfunctional uterine bleeding*) Ayurvedic* diagnosis was Tiryak *Rakttapitta* and it was cured

by the treatment of the same indicating that the diagnosis was correct. The same will be correct in many instances for example *Ayurvedic* diagnosis like *Gulma*, *Udavarta*,*Visarpa* etc. In short it is essential to make research on the core concepts of Ayurveda first and then only clinical topics can be correlated. In Ayurveda variability factor is more important for example Ayyurvedic treatment of the same disease will differ as per *Prakrat*i, *Koshtha*, *desh*a etc therefore different protocols should be tried out in Ayurveda. In an article need of new research methodology for Ayurveda Dr. M.S. Baghel[9] writes. Dr. Ram Manohar has opined that Ayurveda is based on 5000 years of clinical practice. Hence, in place of conventional evidencebased medicine (EBM) clinical trials, practice- based clinical trials should be organized for Ayurveda.

Research in *Panchakarma*

In the Panchakarma the same type of error has been seen. A procedure is said beneficial without knowledge of that procedure completely. For example complete understanding of Vamanakarma is to be studied still Vamana Karma is proved effective in many diseases. What are the changes made in the body after *Snehana*, *Swedana* and *Vamana*?

How the *Vamak* drugs act? Do they really cross the Blood – Brain –Barrier (BBB) or they act through CTZ (chemoreceptor trigger zone)? Which are the alkaloids responsible for Vomiting? Can they be demonstrated in the circulations? There may be several unanswered questions. The same is the truth regarding the *Virechan Karma*. There are more questions regarding the Basti Karmasome of the research work on pharmacodynamics of *Basti* has been done[10], however many of these questions are still unanswered. Whether the drugs administered through anal route reach up to the illiocaecal junction? How the drug is absorbed? Whether it reaches in the liver? What biotransformation occurs in the liver? What is the final product which reaches in the circulation? There might be several questions in case of other *Panchakarma* procedures like *Nasya*, *Raktamokshana*, *Shirodhara*, *Hridbasti* etc. If the systematic research is done in the Panchakarma it will benefit the other clinical faculties of the Ayurveda too.

DISCUSSION

Research begins from the curiosity and ends in the conclusion drawn from unbiased and sincere attempts to find out the truth. Although for research infrastructure is needed in the form of laboratories, animal house etc primitive research can be carried out without much of the infrastructure. There are so many examples of such research in the history of modern

system of medicine. The need of the hour is to do the research sincerely by the tools we have and make the proper documentation of the findings and investigations.

CONCLUSION

Systematic research in Ayurveda should be carried out in following three faculties 1Conceptual – in this faculty the theories like *Tridhosha* theory, *Panchamabhuta* theory, *Samanya- Vishesh Sidhhant* should be carried out. There should be clear-cut nomenclature to the Ayurvedic component like *Oja* in physiology or *Kala* in anatomy 2 Pathological and pharmacological in this faculty the diagnostic methods of Ayurveda should be reassessed. The nomenclature system of the diseases in Ayurveda should be set in. The emphasis should be given to study pharmacodynamics and Pharmacokinetic properties of Ayurvedic drugs. Toxicity studies of Ayurvedic preparations should be carried out by *Ayurvedic* scholars instead of the scholars from other streams and if the drug is found toxic it should reported to the governmental authorities to curb malpractice in the pharmacy sector of Ayurveda. 3 Clinical –fair and unbiased clinical trials should be carried out. Clinical research in Ayurveda can prove that Ayurvedic drugs are effacious, cheap and safe.

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