Relevance of Modern Parameters in Ayurvedic Research

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Abstract

Ayurveda, the science of life, is an age old system of medicine which is mainly based on Karya Karana Siddhanta (Cause and effect theory). This theory is nothing but the miniature of the so called modern times Research. During the last decade, practice of Ayurveda has expanded globally and has gained popularity. It has not only continued to be used for primary health care of the poor in developing countries, but has also been used in countries where conventional medicine is predominant in the national health care system. However, scientific research is needed to provide additional evidence of its safety and efficacy. Hence in the present paper an attempt is made to understand and adopt the relevance of modern parameters in Ayurvedic research.

Keywords: Ayurvedic Research, Parameters, Pramanas

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INTRODUCTION

During the last decade, practice of Ayurveda has expanded globally and has gained popularity. It has not only continued to be used for primary health care of the poor in developing countries, but has also been used in countries where conventional medicine is predominant in the national health care system. However, scientific research is needed to provide additional evidence of its safety and efficacy. In conducting research and evaluating traditional medicine, knowledge and experience obtained through the long history of established practices should be respected. Despite its existence and continued use over many centuries, and its popularity and extensive use during the last decade Ayurveda has not been officially recognized in most countries. Consequently, education, training and research in this area have not been accorded due attention and support. The quantity and quality of the safety and efficacy, data on ayurvedic medicine are far from sufficient to meet the criteria needed to support its use worldwide. The reasons for the lack of research data are due not only to health care policies, but also to a lack of adequate or accepted research methodology for evaluating ayurvedic medicine.

Review of safety and efficacy literature

A review of the literature should identify the current level of evidence for the safe and effective use of an herbal medicine. The study design should be evaluated, taking note of, for example, the number of patients, specific diagnosis, dosage, duration of administration, criteria for evaluation (such as improvement of symptoms), absence of simultaneous therapy, and valid statistical analysis.

Research in Ayurveda – A Need

Research is the prime need of contemporary Ayurveda, but modern research on Ayurveda has not been very rewarding for Ayurveda itself. Much of it uses Ayurveda to extend modern bioscience. In contrast, Ayurveda needs research designed to test and validate its fundamental concepts as well as its treatments. In this context, if Ayurveda is to be truly explored and validated in all its aspects, scientific inputs should conform to Ayurveda’s principles and philosophy. While its evidence base, established since antiquity, may need further verification, research should now focus on the Science of Ayurveda, rather than merely looking for new drugs based on Ayurveda herbals; in-depth research is needed on Ayurveda. Such research will require teamwork between scientists and vaidyas based on truth and trust.

Ayurveda research methodology requires the ‘whole system testing approach’, global participation with protocols evolved through intense interface with modern science, regulatory reforms to eliminate barriers, and to be investigated ‘as it is’, using approaches adapted from its own basic principles.

Ayurvedic researches undertaken during the last 50 years have not been very rewarding, except for the extremely useful exercise of literary research, which has at least made a few of the classical Ayurvedic texts accessible to contemporary readers and researchers. Similarly, a number of literary reviews published in recent years have helped create a conceptual interface between Ayurveda and modern science. However real laboratory-based new research is still awaited. Such a scientific stalemate-based new research is still awaited. A scientific stalemate warrants developing newer strategies for research in Ayurveda with appropriate methodology in keeping with the fundamental principles of Ayurveda-as-it-is, without distorting it to suit the application of modern research technology.

In any research, the goal of research should not be compromised to suit the convenience of research methods. But unfortunately in Ayurvedic research, there has always been a reverse compromise, and in my perception this attitude is the main reason for failures in this otherwise potentially most fruitful field of contemporary medical research. The so-called scientific research of several decades has helped neither Ayurveda nor modern medicine to any significant extent except in creating awareness. There is a strong need to explain fundamental principles of Ayurveda in a modern context. Further, we must also address the growing demand for an "evidence-base." Hence research is the prime need of contemporary Ayurveda.

Problems in the advancement of Ayurvedic research

- U G Students, though literary research is carried out, it is very difficult to understand the concepts of Ayurveda thoroughly.
- PG Scholars, research is meant for the development and strengthening of Ayurveda as a system. But practically, problems arise just at the starting of research work.
- In case of disease or drug or any other work when apply the parameters mentioned in classics those are not accepted by the modern science and if modern parameters are applied for each and every Ayurvedic research, those are insufficient to express the results of study in true sense and the question of strengthening Ayurvedic methodology remains unsolved.
The hospitals where PG researches are carried out have patients of specific in-come group. So, random selection is not possible and the study becomes biased.

Ayurveda practitioner is a true implementer of research methodology. Many practitioners work hard to find newer ways of diagnosis and treatment but are lacking the standard Ayurvedic research protocol for documentation and presentation of cases.

Pharmaceutical companies to do all types of research constantly including literary, fundamental, drug research clinical trials etc. To find out different medicines as per the need of time.

Government has laid down some rules and regulations for the manufacturing and marketing of medicines and their patency which come under the GMP.

Some herbal, animal and metallic originated drugs are banned by government due to their toxic effects to the human.

Role of Research Methodology in Advancement of Ayurveda

Remember that nobody knows everything about doing research and that asking questions and getting advice along the way is not only accepted, it is highly recommended. Research as a global phenomenon and prepare for the whole gestalt of project but always make sure are preceding in a logical and organized fashion. However, if the ayurvedic concepts are not properly understood and interpreted in globally accepted language; the tremendous efforts in research would go meaningless and futile. It is therefore strongly needed to utilize the tools derived from the advancement in technology in the new millennium for re-establishing concepts Ayurveda in current perspectives.

Objectives

1. To develop globally acceptable new standards or parameters for understanding of ayurvedic concepts.
2. To explore the possibilities of meaningful correlations of ayurvedic concepts & modern scientific discoveries.
3. To re-establish relevance of ayurvedic principles in current perspectives using recent tools.

Challenges

- Major hurdle in any research effort in ayurvedic concept is that controlling forces like vata pitta and kapha etc. do not lend themselves to measurements. In a nutshell there are no objectives or measurable parameters for assessment of concepts in Ayurveda.

- A critical literary and conceptual study of Ayurveda basic concepts viz. Dosha, Dhatu, Mala, Agni, Ama, Ojas, and Srotas as well as Rasa-Guna-Veerya-Vipak-Prabhava, etc. is necessary. We have to present these concepts in understandable language, suitable for creating an appropriate scientific interface for developing appropriate research methods. This part of the study will need collaboration between senior Ayurvedic and Sanskrit scholars, and scientists’ expert in fundamentals. The goal would be to describe “Ayurvedic biology” objectively

- In this century, methodology of drug research is designed to suit the drug development process for modern medicine. However, there is basic difference in fundamental principles and physical substratum between two medical systems, eg: Pancha mahaboota and Sankhya theory in Ayurveda and molecular reductionist approach in modern medicine.

- In current research practice, in hurry of development of cost effective and safe drugs, importance is given to clinical part, many times without taking into consideration the basic fundamentals of Ayurveda.

- The long-term goal in Ayurvedic research should be the "whole systems testing approach," but in view of the high degree of system complexity, and conventional science's limitations to handle that. Development of appropriate measurable markers for the above-mentioned Ayurvedic bio factors and the development of Ayurvedic clinical-sense for tridoshic diagnosis, implicating the important facets of rogi-rogapariksha and Pulse diagnosis, are important challenges which can be addressed only by a close and transparent interface between Ayurveda and contemporary science.

- The reverse pharmacology approach to drug evaluation, together with additional therapies based on the above holistic approach, could help restore recognition of Ayurveda's validity as a system of life and health science. In addition to the immediate goal of treatment testing for quality assurance, safety, and efficacy, the GMP Regulations should be implemented early. This task should be seriously addressed globally, and a research methodology with suitable research protocols evolved through intense interface between ancient tradition and current science.

- The parameters chosen for evaluation should reflect the essence of Ayurveda. For example, there are a number of functional parameters in Ayurveda, such as deepana, pachana, samshodhana, samsha-mana, anuloma etc. used to understand the pharmacological action of Ayurvedic drugs. It would
therefore be more appropriate to use these in evaluating the quality of Ayurvedic drugs that are prepared according to Ayurvedic principles and methods. These methods are very different to how allopathic medicines are prepared.

**Approaches**

1. To develop globally acceptable new standard parameters for basic concepts of Ayurveda, through the physics, chemistry, biology and mathematics.
2. New tools are to be developed for understanding and measuring the principles in their true essence by using advanced and sophisticated medical instrumentation technologies.
3. Cultivation of multidisciplinary research approach, mainly by integration with basic sciences. For this purpose, orientation programme & short credit courses for understanding of relevant sciences like molecular/cell biology, human genetics, medicine, bio-physics & statistics should be conducted for ayurvedic experts and vice versa.
4. These orientation and interactive training programme should result into inter disciplinary schools of research in ayurvedic principles
5. Reverse pharmacology approach or evolution or retrograde methodology for better understanding of basic principles.
6. Health technology and bio medical engineering should be cultivated as separate discipline for assessment of ayurvedic principles.

**Methods to be adopted for Ayurvedic Research**

The methodologies for research and evaluation of ayurvedic medicine should be based on the following basic principles. On the one hand, the methodologies should guarantee the safety and efficacy of herbal and Herbo-mineral medicines and traditional procedure-based therapies. On the other hand, however, they should not become obstacles to the application and development of Ayurveda.

The overall spectrum of contemporary research activities in Ayurveda includes literary and conceptual study, clinical and therapeutic research, and drug development research including drug standardization and new drug development. Ayurveda requires a two-pronged research enterprise:

1. Scientific research,
2. Therapeutic research.

Earlier attempts were overwhelmed by drug research without any real breakthrough outputs. Now the paradigm seems to be shifting towards research on Science of Ayurveda as evidenced by Valiathan’s project on “Science Initiatives in Ayurveda”. The author quotes – “My experience of collaborative research on Ayurveda during the last several decades prompt me to think that Ayurvedic research needs more collaboration with basic scientists than with professional medical doctors, because Ayurveda is more easily explainable in terms of basic sciences like physics, chemistry, and basic life sciences than in the language of conventional biology and medicine”.

The critical scientific approach of Ayurveda is evident from its Pramana Vijnan. The ancient concept of evidence is based on fourfold testing. Classical methods are:

1. Pratyaksa (direct observation),
2. Anumana (inferential evidence),
3. Aptomadesa (scriptural evidence), and

But in spite of all this primary strength, one cannot deny the need to develop supportive new scientific evidence, without which contemporary Ayurveda will not be able to become a really global science, accessible to humanity at large, for their wider benefit. In spite of many attempts at research in Ayurvedic therapeutics, no noteworthy outcome has emerged. Equally, no initiatives have so far been taken to study the core science of Ayurveda. Potentially valuable treasures in Ayurveda’s unique concepts and theories remain unexplored. Thus, research in Ayurveda during the last several decades has not produced any major breakthrough. Most so-called scientific studies have yielded negative results, warranting a serious reconsideration of the very approach of research and on-going research methodology. Many serious researchers now consider current research approaches to be inappropriate, and that a major paradigm shift to in-depth Ayurveda-oriented research on Ayurveda is needed.

Ongoing research is proceeding in such a way that it is of more value to modern medicine than Ayurveda. It does not strengthen Ayurveda and Ayurvedic practice. Ayurvedic research outcomes have not yet trickled down to professional use, nor do they benefit Ayurveda students or practitioners. Inadequacies in currently available regulatory laws are also proving a barrier, because many drugs and formulations developed through new research have no drug status particularly for Ayurvedic practitioners.
DISCUSSION & CONCLUSION

There is thus a need for new strategies and new methodologies in Ayurveda research. Ongoing research using conventional methodology may bring some minor benefits to conventional modern medicine but will never result in any major breakthrough. Major inputs to Ayurveda from this kind of research are even more remote.

Hence, Ayurveda has to be studied and investigated as it is, specifically adapting an approach in tune with Ayurveda’s basic principles. However, technical tools will have to be suitably adopted from modern basic and biosciences developed afresh through intense interactions between Ayurveda and counterpart sciences.

It should also be noted that there are published and unpublished data on research in ayurveda in various countries, but further research in safety and efficacy should be promoted, and the quality of the research should be improved. The term complementary and alternative medicine is used in some countries to refer to a broad set of medicines that are not part of the country’s own tradition and are not integrated into the dominant health care system.

Compound formulations designed by Agnivesha (Charaka Samhita) such as Chyavanaprasha, Punarnavadi Mandura, Chitrakadi Vati, Navayasa Lauha, Pushyanuga Churna, and Talisaadi Churna, etc. are still being prescribed by Ayurvedic practitioners and by this time millions of patients would have consumed them, but documentation of data about the activity of those formulations is lacking in terms of modern evaluation. It is a fact of facts that all the drugs reported in Ayurveda classics were evaluated only in human beings but not in animals. The need of the hour is to conduct evidence based clinical trials for the proper scientific validation. Globally there is a positive trend towards holistic health integrative sciences, system biology approaches in drug discovery and Ayurvedic doctrines will be of immense help for herbal research.

Facts require to be supported by figures and that figures can emerge out through research. Unless Ayurveda is dilated, expanded, made elaborate, it cannot catch up with other sciences ever progressing and expanding. For re-modeling of Ayurveda, new materials and methodology should be supplemented. Whatever concepts and experiences are accepted as established facts in Ayurveda and stood the test of time should be re-examined and their validity in the present era through acceptable scientific parameters. The old concepts require to be re-evaluated in the light of present theories and experiences.

The holistic approach to health problems is another reason for the revival of interest in indigenous systems of medicine like Ayurveda. Notwithstanding this increased interest, a series of questions is being raised about the scientific basis of the system, standardization of the medicines, use of modern parameters to define Ayurvedic parameters etc.

Conventional medical research is always driven by problem identification and the demands made by allopathic doctors. These are often patient or treatment specific questions. Scientists from different disciplines such as chemistry, physics, engineering, biochemistry, pharmacology, mathematics, biology etc. work in unison to address the questions put forth by the medical fraternity. Since research in Ayurveda is being carried out along the lines of allopathic medicine and science, it would be interesting to see whether a similar situation exists in the case of current Ayurvedic research. In other words, is the scientific research in Ayurveda carried out in response to the queries and demands put forth by Ayurvedic physicians? The answer is sadly a “no”.

Just as research in allopathic medicine takes the system forward and helps in its advance, research in Ayurveda should also help in the development of the system and in taking it forward.

Research in Ayurveda should be categorized into two aspects. One is to improve the science, and the demand for this should come from the Ayurvedic community. The second aspect of Ayurvedic research is due to present day compulsions, and under this would come studies such as quality control of drugs, clinical trials, documentation, studies on metallic preparations and toxicity studies of these drugs.

There is a huge scope of research in Ayurveda from the view point of each factor mentioned above. For carrying out any research, there should be some steps or procedure by which a hypothesis is studied. It is very important, therefore, to use the right methods and parameters to arrive at fruitful results. The challenge lies in choosing the appropriate experimental and clinical models and addressing the right questions. Great ingenuity would be required in the design of these studies, and if done properly, the results could be very rewarding.
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