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REVIEW ARTICLE

Status of Evidence-based Ayurveda Dietetics and Challenges in Research: A Review

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ABSTRACT

Diet is considered one of the basic need for good health since it is the critical reason for disease as well as the preservation and promotion of health. According to Ayurveda, in both the conditions, viz. health and disease, diet is a prime factor to be thought about. Basics of clinical nutrition, one of the important disciplines in modern medicine can be traced out from the concepts of dietetics in Ayurveda. Though the research of the past few years has focused on various aspects of dietetics mentioned in classical texts of Ayurveda, a systematic review of these studies is still not available. A comprehensive review of evidence-based research works carried out different aspects of Ayurveda dietetics can be an indicator of present lacunae challenges and future strategies. Though few attempts were made to establish some of the basic aspects of Ayurveda dietetics, individualized approach, seasonal diet, contradictory food (*viruddhaahara*), contraindication of certain diet are still to be studied systematically. Diet-medicine-lifestyle interface, pharmacovigilance of Ayurvedic diet, systematic review or meta-analysis, preclinical and Randomised Controlled Clinical Trials with standard control in the field of dietetics in Ayurveda are some of the prime areas requiring more attention.

Keywords: Ayurveda, Dietetics, *Pathya*, Research.

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INTRODUCTION

Ayurveda lays stress on positive health, a blend of physical, mental, sensorial, social and spiritual welfare and this holistic medical science considers three important factors while dealing with the health and disease, i.e. *Oushadha* (drug and therapies), *Ahara* (diet) and *Vihara* (practices). Most health problems develop due to the wrong eating habits and cooking methods. Ayurveda deals with the *pathya vyavastha* (planning of diet-dietetics) in a comprehensive and individualistic way. Ayurvedic classical literature attributes prime importance to dietetics and separate texts viz. *Bhojanakutuhala, Kshemakutuhala, Vaidyajeevanam, Charucharya, Bhavaprakasha* and dedicated chapters in major texts such as *Charakasamhita,*[1] *Sushrutasamhita,*[2] *Astangahrudaya,*[3] and *Kasyapasamhita,*[4] etc. are available on this subject.

Chronic diseases are largely preventable yet are the most common cause of death in the world and present a significant burden for society and health care providers. Particularly, diseases such as obesity, diabetes, cardiovascular disease, cancer originate from faulty lifestyle including diet. Therefore the scope for Ayurveda way of life has expanded for preventive health and management of diseases. Scientific evidence is essential to extensively incorporate Ayurveda-based practices into the public health system even though they have an extensive history of use, measured over thousands of years.

Various research institutions, universities, organizations and individuals are working in the area of Ayurveda dietetics. The research on contemporary dietetics is carried out by several government organizations such as National Institute of Nutrition, Hyderabad, CSIR-Central Food Technological Research Institute, Defense Food Research Laboratory in Mysuru who bring out guidelines and publications from time to time. Since collective information on the status of research done in the field of Ayurveda dietetics is lacking, there is a need to explore the same. Hence a literature search was done to review the status of research in Ayurveda dietetics during the period of October to November 2016.

MATERIALS AND METHODS

An electronic search of the literature on Ayurveda dietetics was done on PubMed, DHARA, Medknow, Ayush Portal, Open J-Gate, Google Scholar, Google by using keywords such as *Ahara,* Ayurveda diet, dietetics, *Pathya*. The physical search of the publications such as Journal of Research in Ayurveda and *Siddha*, Ayurveda

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Maha Sammelan Patrika, Heritage Amruth, Journal of Indian Medical Heritage, Indian Journal of Traditional Knowledge, Ayurvedline, Sachitra Ayurved, Deerghayu International were also searched, and relevant publications were compiled.

RESULTS

Ayush Portal had a maximum number of articles on *Pathya* (38) and dietetics (38). The keyword *Ahara* showed 1677 articles out of which 46 articles were directly focused on dietetics and others had just mentioned the word "diet "in the publication. In this way, about 100 articles were available in electronic form. Out of about 25 articles searched physically from the library, almost 50% were also uploaded on various internet sites. The analysis of available articles showed that there was not a single systematic review, meta-analysis or randomised controlled trials with standard control. The black box design, supposed to be the best research method in this area was also not available.

The majority of the articles were reviews of the ancient literature.[5-7] Publications on preclinical and clinical studies on food ingredients like dairy products, pomegranate, garlic, and other spices[8,9-11] Some clinical work on the effect of a particular diet on a specific condition has also been done.[12-24]

However, the research work was found to be inconclusive with basic lacunae such as lack of standardization and standard operating procedure for preparation and administration of diet without a watch on compliance and specific outcome. The studies also had considerably short duration, conducted on a small and non-representative sample. Unique features of Ayurveda such as individualized approach, seasonal diet, contradictory food (*viruddhaahara*), contraindication of certain diet were not taken up for scientific work.[25-27]

Health benefit of vegetables has long been identified by the authors of various classical texts of Ayurveda.[28] Based on this leads from Ayurveda literature, food supplements and prophylactic nutritional interventions may be developed.[5] Different review articles, focusing on the role of classical vegetables mentioned in Ayurveda indicated as *Pathya* in diabetes,[29]cardiovascular diseases,[30]skin disorders,[31] respiratory diseases,[32] male infertility[33] and gastrointestinal diseases[34] have also been reported. But, no attempts have been made to identify the active principles, to examine the long-term beneficial effects, and to understand the mechanism of action of these classical vegetables to establish their dietetic importance.

DISCUSSION

Crichton et al. reported the challenges of dietary intervention trials.[35] The diet planning mentioned in Ayurveda is more intricate though rationally based on certain principles. Importance is given to the diet with regard to its processing, quality, quantity and so on. Due consideration is given to the atmosphere, psychosomatic constitution, age, habitat, status of health, digestion, liking, etc. of the person while planning a complete diet. Therefore the diet is precisely individualized and variable with different given conditions.

The diversity of raw materials, watch on compliance in adopting gold standards in designing research proposals. The diet component is difficult to test on animals for the efficacy. There is a lack of appropriate models in consonance with basic principles of Ayurveda. There are several differences between Ayurveda and modern understanding of dietetics, e.g. curd is contraindicated in *Amavata* (rheumatoid arthritis) however, allopathy does not have any such recommendation. Mutual understanding of the issues between Ayurveda and conventional practitioners is essential for planning the appropriate study. There is an enormous opportunity for conducting basic research by using systems biology approach. According to Singh, truth-trust-teamwork is the vital chain in interdisciplinary research, which has been lacking and has been the main cause of failure of otherwise well-conceived projects.[36] Poor publication culture and publication bias is a major problem in any research. There is no research culture among students and practitioners.

Therefore the need of the hour is developing coordination between all interested organizations and individuals to plan whole system research by incorporating contemporary technology and tools. Single case studies are ideal for generating pilot data. The case series in selected communities and a small group study can be undertaken based evidence. Several authors in the fast recommended black box design, whole system analysis. Multidisciplinary approach at every stage of research planning like involving biostatistician, botanist, chemist, pharmacist, pharmacologist, nutritionist, food scientist. The protocol should focus on Ayurvedic principles, which need to be tested through rationally used contemporary techniques. Maintenance of uniformity of the ingredients, finished products, standard operating procedures for preparation, storage, way of eating gives reliable and replicable results. Research orientation to huge students and practitioners will ensure generation of the enormous amount of data. Publication in peer-reviewed journals will help in the generation of evidence and wide dissemination of the information. This will facilitate the better understanding of Ayurveda by the research scientists, medical practitioners, academicians, manufacturers,

health authorities as well as the general public. This will also encourage the integration of the mainstream health service delivery system.

CONCLUSION

There is ample scope for research on Ayurveda diet intervention in the prevention and management of lifestyle disorders. The research should focus on fundamental aspects mentioned in Ayurveda. There is a need to prove the importance of traditional diet scientifically with the help of evidence focusing on wholesomeness and not just nutritional or disease pacifying activities. The diet-medicine-lifestyle interface needs to be documented to ascertain the complementary role of food and lifestyle to potentiate the effect of the medicine. The pharmaco-vigilance of Ayurvedic diet to prove the concept of wholesomeness and unwholesomeness of food articles is also essential.

There is need of systematic review or meta-analysis, preclinical and randomised controlled clinical trials with standard control in the field of dietetics in Ayurveda using black box design to generate data as complementary as well as standalone therapy for lifestyle disorders as well as wholesomeness and unwholesomeness of food for prevention of diseases.

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हिंदी सारांश

प्रमाण–आधारित आयुर्वेद आहार विज्ञान की स्थिति एवं अनुसंधान में चुनौतियों की एक समीक्षा

सुलोचना भट, राघवेंद्र नाईक, सायली देशमुख, विनोद के लवानिया

आहार को अच्छे स्वास्थ्य की मूलभूत आवश्यकता के रूप में माना जाता है क्योंकि यह बीमारी के साथ–साथ स्वास्थ्य के संरक्षण और संवर्द्धन के लिए मुख्य कारण है। आयुर्वेद के अनुसार, स्वास्थ्य और बीमारी, दोनों स्थितियों में, विचार करने योग्य एक प्रमुख कारक आहार है। नैदानिक पोषण के मूलतत्व, आधुनिक चिकित्सा के महत्वपूर्ण विषयों में से एक हैं जिनका पता आयुर्वेद में आहार विज्ञान के अवधारणाओं से लगाया जा सकता है। हालांकि पिछले कुछ वर्षों के शोध ने आयुर्वेद के शास्त्रीय ग्रंथों में वर्णित आहार विज्ञान के विभिन्न पहलुओं पर ध्यान केंद्रित किया है, लेकिन इन अध्ययनों की व्यवस्थित समीक्षा अभी भी उपलब्ध नहीं है। आयुर्वेद आहार विज्ञान के विभिन्न पहलुओं को प्रस्तुत करते साक्ष्य–आधारित शोध कार्यों पर व्यापक समीक्षा, वर्तमान खामियों, चुनौतियों और भविष्य की रणनीतियों का संकेतक हो सकता है। यद्यपि आयुर्वेद आहार विज्ञान के कुछ बुनियादी पहलुओं को स्थापित करने के लिए काफी प्रयास किए जा चुके हैं, व्यक्तिगत दृष्टिकोण, मौसमी आहार, विरोधाभासी भोजन (विरुद्धाहार), नियत आहार के निषेध के लिए अभी भी व्यवस्थित रूप से अध्ययन किया जाना शेष हैं। आयुर्वेदिक आहार विज्ञान के क्षेत्र में आहार–चिकित्सा–जीवनशैली अंतराफलक, आयुर्वेदिक आहार के फार्माकोविजिलेंस, व्यवस्थित समीक्षा या गहन–विश्लेषण, प्रिक्लिनिकल और यादृच्छिक नियंत्रित क्लिनिकल परीक्षण के साथ मानक नियंत्रण एसे कुछ प्रमुख क्षेत्रों में अधिक ध्यान देने की आवश्यकता है।