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A TRADITIONAL COMPREHENSIVE SYSTEM OF MEDICINES, ORIGINATES IN ANCIENT INDIA- A REVIEW

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ABSTRACT

Medicinal plants based traditional systems of medicines are playing important role in providing health care to large section of population, especially in developing countries. Interest in them and utilization of herbal products produced based on them is increasing in developed countries also. To obtain optimum benefit and to understand the way these systems function, it is necessary to have minimum basic level information on their different aspects. Indian Systems of Medicine are among the well known global traditional systems of medicine. In this review, an attempt has been made to provide general information pertaining to different aspects of these systems. This is being done to enable the readers to appreciate the importance of the conceptual basis of these system in evolving the material medica. Ayurveda holds the strength to treat diseases from holistic angle in accordance with the body-mind constitution and other psychopsychological attributes of the patients and as such is proven to be effective in the treatment of chronic, metabolic and life style diseases for which satisfactory solutions are not available in conventional allopathy medicine. The aspects covered include information about historical background, conceptual basis, different disciplines studied in the systems, Research and Development aspects, Drug manufacturing aspects and impact of globalization on Ayurveda. In addition, basic information on Siddha, ayurveda, allopathy systems has also been provided. A brief introduction on AYUSH its origin, role in Indian system of medicine, its development in recent times, nutraceuticals has been discussed in this review.

KEY WORDS: Indian System of Medicine, Ayurveda, Allopathy, Siddha, Indigenous systems of medicine, Traditional systems of medicine.

INTRODUCTION

Medical systems such as Ayurveda and Siddha are considered alternative therapies in today's world. Some are quick to dismiss such therapies while others swear by them. Choosing the right kind of treatment – Allopathy, Ayurveda and Siddha – can be a confusing affair. In this article, Sadhguru looks at the merits of each type and stresses on the importance of a holistic approach, rather than supporting any particular treatment as the best. It is a well-known fact that Traditional Systems of medicines always played important role in meeting the global health care needs. They are continuing to do so at present and shall play major role in future also. The system of medicines which are considered to be Indian in origin or the systems of medicine, which have come to India from outside and got assimilated

in to Indian culture are known as Indian Systems of Medicine. India has the unique distinction of having six recognized systems of medicine in this category. They are Ayurveda, Siddha, and allopathy. Though Siddha came to India in 18th Century, it completely assimilated in to the Indian culture and got enriched like any other traditional system hence it is considered as part of Indian Systems of Medicine. Apart from these systems- there are large number of healers in the folklore stream who have not been organized under any category. In the present review, attempt would be made to provide brief profile of three systems to familiarize the readers about them so as to facilitate acquisition of further information[1,2].

Herbal products have been enjoying renaissance among the customers throughout the world. The quality of

herbal medicine i.e., the profile of the constituents in the final product has implication in efficacy and safety. Due to complex nature and inherent variability of the constituents of the plant based drugs, it is difficult to establish quality control parameter and modern analytical technique are expected to help in circumventing this problem.

The quality control of crude drugs and herbal formulations is of paramount importance in justifying their acceptability in modern system of medicine. But one of the major problems faced by herbal drug industry is non-availability of rigid quality control profile for herbal material and their formulations. The task of laying down standard for quality control of herbal drugs and their formulations involves biological evaluation for particular disease area, chemical profiling of the material and laying down specification for the finished product. Therefore, in case of herbal drugs and product, the word "standardization" should encompass entire field of study from cultivation of medicinal plant to its clinical applications.

Plant material and herbal remedies derived from them represent substantial portion of global market and in this respect internationally recognized guidelines for their quality control are necessary. WHO has emphasized the need to ensure quality control of medicinal plant products by using modern technique and by applying suitable parameters and standards. In order to overcome certain inevitable shortcoming of the Pharmacopoeial monograph other quality control measures must be explored. AYUSH- a term that comprises the traditional system of medicine has been discussed in a brief note in following lines[3].

AYURVEDA

Ayurveda is considered by many scholars to be the oldest healing science. Ayurveda comes from a different dimension and understanding of life. A fundamental part of the Ayurvedic system is about an understanding that our bodies are an accumulation of what we gathered from the planet. The nature of the planet and of the Pancha Bhutas or the five elements that make the planet are very much manifest in this physical body. If you want to handle this body in the most effective and productive way, it is very important that everything you do about this body has a relationship with the planet. Ayurveda says that every root, every leaf, every tree bark found on this planet has medicinal value. The rest of them, we are yet to learn how to use. What this statement is trying to convey is, health is not something that falls upon you from the sky. Health is something that has to grow from within you, because the body is something that grows from within you. The input comes from the earth but it grows from within you. So, if you have a repair job to do, the best place to go is to the manufacturer, not to the local mechanic.

In Ayurveda, we understand that if we go deep enough into the body, this body is not an integrated thing, it is a continuous process which involves the earth upon which you walk. If this relationship does not come through, these subtle systems of medicine which work from within, will fail to work. Without taking care of the whole system, just trying to do one aspect of it may not be very fruitful.

A holistic system does not mean just treating the body as a whole. A holistic system means treating life as a whole, which includes the planet, what we eat, what we breathe, what we drink all of that. Without attending to all those things, the true benefit of Ayurveda will not be seen. If Ayurveda becomes a living reality in our lives and our societies, people can live like gods. Ayurveda does not focus on disease. Rather, Ayurveda maintains that all life must be supported by energy in balance. When there is minimal stress and the flow of energy within a person is balanced, the body's natural defense systems will be strong and can more easily defend against disease[4].

OCTOPARTITE DIVISIONS OF AYURVEDA

Ayurveda is also called as Astanga Ayurveda due to its containing eight branches of the medical knowledge. The eight branches are as hereunder:

1. Kayachikitsa (Internal medicine)
2. Balachikitsa; also known as Kaumarabhritya (Paediatrics)
3. Bhutavidya or Grahachikitsa (Psychiatry)
4. Salakyatantra (Otto-rhino-laryngology and ophthalmology)
5. Salyatantra (Surgery)
6. Visatantra (Toxicology)
7. Rasayanatantra (Geriatrics)
8. Vajikaranatantra (Knowledge of Virilifies including therapeutics of male sterility)

THE CONCEPT OF HEALTH IN AYURVEDA

In India, Ayurveda is considered not just as an ethnomedicine but also as a complete medical system that takes in to consideration physical, psychological, philosophical, ethical and spiritual well-being of mankind. It lays great importance on living in harmony with the Universe and harmony of nature and science. This universal and holistic approach makes it a unique and distinct medical system⁵. This system emphasizes the importance of maintenance of proper lifestyle for keeping positive health. This concept was in practice since two millennium and the practitioners of modern medicine have now taken into consideration importance of this aspect[5].

DIAGNOSIS

The diagnosis is always done by considering the patient as a whole object to be examined. The physician takes a careful note of the patient's internal physiological characteristics and mental disposition. He also studies

other factors like- the affected bodily tissues, humors, the site at which the disease is located, patient's resistance and vitality, his daily routine, dietary habits, the gravity of clinical conditions, condition of digestion and details of personal, social, economic and environmental situation of the patient⁶. The general examination is known as ten-fold examination- through which a physician examines the following parameters in the patient- 1. Psychosomatic constitution, 2. Disease susceptibility, 3. Quality of tissues, 4. Body build, 5. Anthropometry, 6. Adaptability, 7. Mental health, 8. Digestive power, 9. Exercise endurance and 10. Age. In addition to this, examination of pulse, urine, stool, tongue, voice and speech, skin, eyes and overall appearance is also carried out[6].

TREATMENT ASPECTS

The treatment lies in restoring the balance of disturbed humors (doshas) through regulating diet, correcting life-routine and behavior, administration of drugs and resorting to preventive non-drug therapies known as 'Panchkarma' (Five process) and 'Rasayana' (rejuvenation) therapy. Before initiating treatment many factors like the status of tissue and end products, environment, vitality, time, digestion and metabolic power, body constitution, age, psyche, body compatibility, type of food consumed are taken in to consideration[7].

SIDDHA

Siddha system of medicine is practiced in some parts of South India especially in the state of Tamilnadu. It has close affinity to Ayurveda yet it maintains a distinctive identity of its own. This system has come to be closely identified with Tamil civilization. The term 'Siddha' has come from 'Siddhi'- which means achievement. Siddhars were the men who achieved supreme knowledge in the field of medicine, yoga or *tapa* (meditation)[8].

It is a well-known fact that before the advent of the Aryans in India a well-developed civilization flourished in South India especially on the banks of rivers Cauvery, Vaigai, Tamiraparani etc. The system of medicine in vogue in this civilization seems to be the precursor of the present-day Siddha system of medicine. During the passage of time it interacted with the other streams of medicines complementing and enriching them and in turn getting enriched. The materia medica of Siddha system of medicine depends to large extent on drugs of metal and mineral origin in contrast to Ayurveda of earlier period, which was mainly dependent upon drugs of vegetable origin[9].

According to the tradition eighteen Siddhars were supposed to have contributed to the development of Siddha medicine, yoga and philosophy[10]. However, literature generated by them is not available in entirety. In accordance with the well-known self-effacing nature of

ancient Indian *Acharyas* (preceptors) authorship of many literary work of great merit remains to be determined[11]. There was also a tradition of ascribing the authorship of one's work to his teacher, patron even to a great scholar of the time. This has made it extremely difficult to clearly identify the real author of many classics.

PRINCIPLES OF TREATMENT

Similar to Ayurveda, Siddha system also follows ashtanga concept with regards to treatment procedures. However the main emphasis is on the three branches - *Balavahatam* (pediatrics), *Nanjunool* (toxicology) and *Nayana vidhi* (ophthalmology). The other branches have not developed to the extent seen in Ayurveda[12]. The surgical procedures, which have been explained in great detail in Ayurvedic classics, do not find mention in Siddha classics. The therapeutics in both the systems can be broadly categorized into *samana* and *sodhana* therapies. The latter consists of well-known procedures categorized under panchakarma therapy. This therapy is not that well developed in Siddha system, only the vama therapy has received attention of the Siddha physicians.

HERBALISM

The herbal agents used by the siddhars could be classified into three groups: *thavaram* (herbal product), *thadhu* (inorganic substances) and *jangamam* (animal products). The thadhu agents are further classified as: *uppu* (water-soluble inorganic substances that give out vapour when put into fire), *pashanam* (agents not dissolved in water but emit vapour when fired), *uparasam* (similar to *pashanam* but differ in action), *loham* (not dissolved in water but melt when fired), *rasam* (substances which are soft), and *ghandhagam* (substances which are insoluble in water, like sulphur)[13].

SIDDHA TODAY

The Tamil Nadu state runs a 5.5-year course in Siddha medicine (BSMS: Bachelor in Siddha Medicine and Surgery). The Indian Government also gives its focus on Siddha, by starting up medical colleges and research centers like National Institute of Siddha and Central Council for Research in Siddha. Commercially, Siddha medicine is practiced by siddhars referred in Tamil as *vaithiyars*.

AYUSH situation during each 5-year plan

AYUSH is abbreviated as for Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy. These are the six indigenous systems of medicine practiced in India. A department called Department of Indian System of medicine was created in March 1995 and renamed to AYUSH in November 2003 with a focus to provide increased attention for the development of these systems. Very recently, in 2014, a separate ministry was created

under the union Government of India, which is headed by a minister of state. Planning regarding these systems of medicine was a part of 5-year planning process since 1951. During 1st 5-year plan, a diplomatic situation was prevailing regarding the position and future course of development of integrated system of medicine. Planning pertaining to AYUSH high peak on that due course of years. While go thoroughgoing 5-years a progressive development has been observed. The growth was moderate up to 7th plan and become reversed and after that from 8th plan AYUSH development emerged its peak and several innovative development processes could be observed thereafter. At the beginning of the 7th plan there were 4.5 lakhs practitioners of indigenous medicine serving in rural areas of different states in India. This 5- year plan for AYUSH development has many positive vibes in the field of Ayurveda, sidha and so on. There are a number of areas where strategies and recommendations are available in 5-year plan documents, but as far it is the framed documents for the development AYUSH practice in INDIA.

After the 9th 5-year plan a mentioning of different segments of AYUSH was found in the planning documents. It is aimed to improve the quality of primary, secondary and tertiary care in AYUSH. Investment in human resource development for AYUSH to bring marked improvement in the quality of services rendered by these practitioners. In addition, it focused on preservation, promotion and cultivation of medicinal plants and herbs and completion of the pharmacopoeia for all systems of AYUSH. Also aimed at research and development a therapeutic trial of especially on new drug formulation, therapeutic trial of potential drugs through strengthening of the central research councils and coordination with other research agencies. On account of 10th 5-year plan, the AYUSH systems have not realized their full potential because the existing AYUSH systems at all such as primary, secondary and tertiary level health care institutions lack essential staff, infrastructure, facilities and drugs. At the same time, the potential of AYUSH drugs and therapeutic modalities has not been fully exploited.

Medicinal plants have been over-exploited and as a result, the cost of AYUSH drugs has increased and substandard products were getting into the market. On account of 11th 5-year plan was very appealing as the same mentions about mainstreaming of AYUSH by designing strategic intervention for wider utilization of AYUSH both domestically and internationally. "Mainstreaming of AYUSH and Revitalization of Local Health Traditions" to strengthen public health services". The deployment of AYUSH doctors for propitiatory activities rather than specialized services contribute to significant subordination and de- professionalization in the overall health care service delivery. Delays in supply and erratic replenishment of AYUSH medicines have also been observed in one of the Indian states suggestions have been

made for integration of modern doctors with AYUSH doctors for utmost patient care.

ANCIENT MEDICAL MANUSCRIPTS

In these following years, a complete catalog of Indian manuscripts is hard to find. These manuscripts are found scattered in oriental libraries and private custody in India and elsewhere in the world. Furthermore, these manuscripts are found in infloral condition with the families of traditional Vaidyas and nondescript libraries. in these backward conditions irreversible loss of this ancient medical wisdom has to be undertaken. Their retrieval is important to preserve these ancient medical manuscripts which would provide a wealth of knowledge and thrust to research and clinical application. Attempts have been made by few organizations to treasure this medical manuscripts. The initiatives by the Institute of Trans-Disciplinary Figure 1: Percentage of contractual appointment of Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy doctors of Percentage of contractual appointment of Ayurveda, Yoga and Naturopathy, Unani, Sidha and Homeopathy paramedical staffs by Situational analysis and future directions of ISM 352 J Intercult Ethnopharmacol Issue 4 Health Sciences and Technology (Previously known as Institute of Ayurveda and Integrative Medicine), Bengaluru, India with its Center for ISM informatics and Theoretical Foundations are laudable. It was started in 1995 to give increased focus for the modernization of ISM to bring enhanced access for a variety of research purposes. A number of CDs have been prepared by this organization on the medicinal plants on various ISM including Ayurveda, Sidha, Unani, and Homeopathy. The center for development of advanced computing, Pune, India which is a premier research and development (R and D) organization under Government of India is also contributing to this field of knowledge. A software, AyuSoft, has been prepared by this organization on various functionalities of Ayurveda

RESEARCH IN ISM

ISM is the ethnic legacy deeply buried in the cultural belief of Indian population. Some of the treatment procedures, therapies and drugs of ISM have unbroken traditions of acceptance and practice and have been practiced over centuries. Hence, it is not always desirable to validate these practices on modern scientific parameters. The need for fundamental, clinical and therapeutic research in ISM can hardly be over emphasized. Users demand the evidence of safety and efficacy of these systems of medicine owing to the present day focus on evidence-based medicine. For the last 40 years, research councils have been conducting research, yet a lot remains to be done. The major problem with the research in the realm of ISM is that it is not up-to-date which needs to keep pace with time. Very often irrational use of herbal drugs has been reported which is an issue of concern that needs to be monitored

through governmental efforts, research and development and quality control measures in the realm of ISM drugs. Moreover, the present day approach of evidence-based medical care requires research and development to receive wider acceptance among user. Research publications in department of AYUSH are very poor. Although these days improved scientific journals are found in the market, but very few meet the required scientific approach. At present a list of 3 PUBMED indexed journals of Ayurveda, 38 non PUBMED indexed journals, 4 Hindi Ayurveda Journals, 26 Journals of Complementary and Alternative Medicine and 11 magazines of Ayurveda have been documented

ISM Informatics

The present era is a digital era as computer has immensely influenced human life. The field of medical or health informatics is growing very rapidly. However, progress in the field of ISM informatics is not advancing at par with the medical/health informatics. ISM informatics is a specialized field which is a spurious mix of the principles of India systems of medicine and information technology. ISM informatics would be a great shift to bring automated applications in the field of clinical medicine, biomedical research or information storage and retrieval. The urgent need for the development of ISM informatics is also relied to wider acceptance of these systems of medicine owing to their safe and efficacious therapeutics on many of the human diseases. Another glaring picture is that websites are bargaining imparting information, education and communication in matters related to ISM. However, the authenticity of these sources is skeptical which needs to be monitored with governmental effort. In addition, there are several novice areas which could be explored and worked out for better access, operation and above all for better utility. Given the current growth of Indian system of medicine ISM informatics plays an important role in the AYUSH medications. This is the need of the hour as computers can store and retrieve large pool of data which is not the case with manual approach. This can be used for several purposes be it present or future. Digitalization or computerization could be mere online web resources or software for information and decision making. The entire proportions of these developments could be joined together in to a domain known as ISM informatics[14].

Medicinal Plants Used in Alternative/Traditional Medicines

Alternative medicines are being used by about 60 percent of the world's population. These medicines are not only used by the rural masses for their primary health care in developing countries but are also used in developed countries where modern medicines dominate. The Indian subcontinent is a vast constitution of medicinal plants that are used in traditional medical treatments. The alternative medicines in the traditional systems are derived from herbs, minerals, and organic matter, while for the

preparation of herbal drugs only medicinal plants are used. In India, about 70 percent of rural population depends on the traditional Ayurvedic system of medicine. Physicians of these traditional systems of medicine prepare formulations by their own recipes and dispense to the patients. In the Western countries, approximately 40 percent of people are using the herbal medicine for the treatment of various diseases, India is the largest producer of medicinal plants. There are currently about 250,000 registered medical practitioners of the Ayurvedic system, as compared to about 700,000 of the modern medicine. In India, around 20,000 medicinal plants have been recorded; however, traditional practitioners use only 7,000–7,500 plants for curing different diseases. The proportion of use of plants in the different Indian systems of medicine is Ayurveda 2000, Siddha 1300, Unani 1000, Homeopathy 800, Tibetan 500, Modern 200, and folk 4500. In India, around 25,000 effective plant-based formulations are used in traditional and folk medicine. More than 1.5 million practitioners are using the traditional medicinal system for health care in India. It is estimated that more than 7800 manufacturing units are involved in the production of natural health products and traditional plant-based formulations in India, which requires more than 2000 tons of medicinal plant raw material annually. More than 1500 herbals are sold as dietary supplements or ethnic traditional medicines. Alternative medicines are being used by those people who do not use or cannot be helped by conventional medicinal system. Some common medicinal plants having nutraceutical potential and their primary use in traditional medicine.

Expanding Complementary and Alternative (CAM) Approaches

In developing countries like India, most of the people cannot afford for the most basic medical procedures. In our country complementary and alternative practices are popular although proof of their safety and effectiveness is modest. A larger acceptance in India and abroad is receiving results in Evidence-based research in Ayurveda. The National Center for Complementary and Alternative Medicine has been inaugurated as the United States Federal Government's lead agency for scientific research in this arena of medicine. Its mission is to explore complementary and alternative healing practices in the context of rigorous science, support free research, train researchers, disseminate information to the public on the modalities that work, and explain the scientific rationale underlying discoveries. The National Center for Complementary and Alternative Medicine is committed to explore and fund all such therapies for which there is sufficient preliminary data, compelling public health need and morality. Complementary and alternative practices are adjuncts or alternatives to Western medical approaches. Although socio-economic and medical reasons account for most of the appeal of traditional Evidence-Based

Complementary and Alternative Medicine approaches, play a role. It is assumed that users of these approaches choose them because they are cheaper than conventional therapies or systems. Several studies have found that CAM approaches cost the same or more than conventional treatments for the same conditions; thus, people seek them out for reasons other than cost. At least one study showed that financial factors ranked behind such reasons as confidence in the treatment, ease of access, and convenience, in the choice of a traditional healer. Another common misconception is that the poor are more likely to use traditional medicine, but this is not always true. Nowadays people seek CAM techniques because they believe the side effects will be lower. In both developed and developing countries, users of complementary methods also commonly seek conventional care [14].

Nutraceuticals an Evolving Alternative Approach

Nutrition is a fundamental need. Various risk factors related to health result from an imbalance in nutrition. These imbalances in India are widely prevalent leading to adverse outcomes. class population with sufficient purchasing capacity but probably less awareness about their nutrient requirements, leading to imbalanced nutritional uptake. In fact, in our population about 30% in urban and 34% in rural areas consume more than the recommended number of calories with higher than recommended levels of dietary fats and could be the largest contributor in making India the future cardiovascular and diabetes capital of the world. The third population segment, which is about 80 million, consumes nutrients and calories more than those recommended for the lifestyle they have opted for. The main risk factors in developing countries like India are related to nutrition and contribute to nearly 40% of total death and 39% of total disease burden. An estimate of the cost of productivity lost on account of mortality due to nutrition-related disorders was estimated to be 0.85% of the GDP in 2004 and is expected to increase up to 1.2% for India's GDP by 2015. Nearly 340 million people, 30% of the population in urban areas and 34% of the population in rural areas, consume calories more than the norms. Hence, the requirement of external intervention, that can supplement diet to help prevent nutrition-related disorders and promote wellness over treatment of various diseases, has become a necessity, and such products are known as nutraceuticals. A nutraceutical is a food or food component that claims to have health benefits, including treatment and prevention of disease. Nutraceuticals, an emerging concept, can be broadly categorized as products which are extracted from natural sources (nature-like) or manufactured synthetically (man-made), which supplement the diet to provide nutrition over and above regular food and help prevent nutrition-related disorders. Nutraceuticals, foods or food components that help in prevention or treatment of disease, are made from herbal/botanical raw materials. They do more than just

supplement the diet. The application of nutraceuticals is to accomplish treatment goals without side effects. The nutraceutical industry is rapidly growing. The dietary supplements category is expected to be the fastest growing product globally[15].

ALLOPATHIC MEDICINE

Allopathic medicine, or Allopathy, refers to science-based, modern medicine, such as the use of medications or surgery to treat or suppress symptoms or the ill effects of disease. There are regional variations in usage of the term. In the United States, the term is used to contrast with osteopathic medicine, especially in the field of medical education.

The terms were coined in 1810 by the inventor of homeopathy, Samuel Hahnemann. It was originally used by 19th-century homeopaths as a derogatory term for heroic medicine, the traditional European medicine of the time and a precursor to modern medicine that did not rely on evidence of effectiveness. Heroic medicine was based on the belief that disease is caused by imbalance among the four "humours" (blood, phlegm, yellow bile, and black bile) and sought to treat disease symptoms by correcting that imbalance, using "harsh and abusive" methods to induce symptoms seen as opposite to those of diseases rather than treating their underlying causes: disease was caused by an excess of one humour and thus would be treated with its "opposite". Among homeopaths and other alternative medicine advocates, "allopathic medicine" now refers to "the broad category of medical practice that is sometimes called Western medicine, biomedicine, evidence-based medicine, or modern medicine." This description continued to be used to describe anything that was not homeopathy.

CONCLUSION

Traditional Systems especially those which are based on herbal products not only in India but in different parts of the world. However, one of the basic problems that still remained to be solved is related to proving efficacy of the products used in these systems on the basis of controlled clinical trial and complementary pharmacological studies. It is difficult to ensure consistency in the results and components in the products. This is traced mainly to lack of standardization of the inputs used and the process adopted for preparation of the formulations. Government of India has taken these aspects in to consideration and has initiated many projects for standardization of single and compound formulations along with standardization of operating procedures for important formulations. Though standardization is very difficult it is not an un-attainable goal. Once this is done it would help in promoting wider use of these drugs especially in chronic degenerative disorders. Further non-drug therapies and preventive and life management techniques are also

receiving increased attention. Thus this sector seems to be poised for remarkable growth in the coming years.

The above presentation can be considered only as brief introduction to the above systems. Lot of literature and information is available in the published literature citation of which would make this write up voluminous hence not attempted. However the above quoted content provide sufficient information for a beginner. Full complement of information can be obtained by contacting appropriate bodies. No attempt has been made to provide

information about Naturopathy systems because they are mainly non-drug therapies.

1.

Conflict of interest

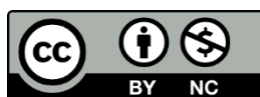
The authors declare that they have no conflict of interest.

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