

Ayurveda based scientific methodology for research in Ayurveda

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It has long been felt that there is a great need of scientific research in Ayurveda. But scientific research does not necessarily mean the Allopathic model of research. It means a science based research in the science of Ayurveda on one hand and the therapeutics of Ayurveda on the other, the former being more important and rewarding. The strength of Ayurveda lies in the strength of its unique principles and approaches. The proposed research model may enable the scientific research of today to throw light on the science of Ayurveda and may also explain the Ayurvedic basis of drug action which is essential for an Ayurvedic practitioner. This approach has been deliberated frequently but is not really followed by researchers because this kind of research warrants close interface between modern science and Ayurveda and an active collaboration. This cannot be done unilaterally because of limitations of expertise and limitation of research facilities in respective sectors. So far, the researchers have invested their entire effort only to drug development ignoring the science of Ayurveda. The researches carried out during last five decades have not yielded any useful outcome and such a research has not benefitted medical practitioners nor it has added any new knowledge to the students of either side. Even drug research has frequently ended with negative or ambiguous results. Many serious investigators have opined that the important cause of such failure studies is the use of inappropriate research methodology. There is a methodology crisis in AYUSH research.

The current trend of research and education in AYUSH has been criticized world over. The recent comments of a

medical educationist and opinion maker from Germany Dr. Christian Kessler, is worth quoting in this context although I don't agree with him fully. His two remarks are pertinent viz. 1. Ayurveda is a critically endangered species of medical knowledge system, 2. Insistence of applying Allopathic methodology for Ayurvedic research is a major postcolonial conspiracy against traditional systems of medicine and is a strategy to windup Ayurveda by pooling all that is good in Ayurveda and fits in well with western medicine, merging into the main stream contemporary medicine, thus emptying Ayurveda.

The success and Failure stories

Ayurvedic research has been categorized by CCRAS into four categories viz. 1. Literary research, 2. Conceptual research, 3. Clinical research, 4. Drug research. The only component which may be claimed to be really successful and really useful and which has helped Ayurveda to become popular and to flourish in academia, is the literary research and literature development. All that is visible in Ayurveda today is from this sector. Till the beginning of 20th century Ayurveda was largely unknown to the rest of world owing to the unavailability of its primary source which was in Sanskrit. But due to activism and scholarship of senior Ayurvedists of the time like Yadavji Trikamji Acharya, PV Sharma, B. Dash and MS Valiathan, now most of the major texts including *Brihatrayi* and *Laghutrayi* have been translated and interpreted in Hindi, English and regional languages of India besides several foreign languages. Now classical Ayurveda is not a mystery, it is

a transparent and progressive science of its own kind, open to any enquiry and investigation using appropriate methodology tuned with the approaches and principles of Ayurveda without any kind of bilateral or unilateral distortions. The remaining three sectors of Ayurvedic research such as conceptual, clinical and drug research, inspite of noticeable efforts have made not much progress and are still standing on the crossroads. However, the medical and bio scientists involved in Ayurveda drug research sector have succeeded to show a tentative path to go ahead with the modern research in Ayurveda on Allopathic model. The ideas like “Reverse Pharmacology” and “Reverse Innovation” projected earlier by Ashok B. Vaidya and Ram H. Singh respectively have gained popularity but lack the scope of application of the due rigor of science and hence some critical science minded experts criticize these ideas and even now plead for conventional approach. Similarly double blind controlled clinical trials have no more remained the gold standard of drug testing due to a range of loop holes when applied to Ayurvedic drug trials.

It is imperative to acknowledge the contributions of a band of brilliant science activists of India such as RN Chopra, B. Mukherjee, KN Udupa, BN Dhawan, RR Choudhury, Ashok B. Vaidya, Saradini Dahanukar, R. Mashelkar, Samir Brahmachari, SS Handa, Bhushan Patwardhan and Urmila Thatte who turned their entire career from pure modern medical science to research in Ayurvedic drugs but did not succeed to produce a breakthrough which may set a trend. This seems to be because of many contradictions prevailing in the application of scientific methods in Ayurvedic research because Ayurveda and its knowledge base is 1. Pronature, 2. Holistic and 3. Personalized in terms of *Prakriti-Vikriti* considerations which are often ignored in modern research protocols. Any research which ignores these basic factors and which does not take into account the denominators of Ayurvedic biology such as 1. *Tridosha* and *Dosha Prakriti*, 2. *Saptadhatu*s and their *Dushyatwa* in disease states, 3.

Ojabala and *Vyadhiksamatwa*, 4. *Agnibala* and *Ama*, 5. *Srotas* status, that kind of research cannot be considered as rational Ayurvedic research. It is merely a blind research endeavor and may not enrich Ayurveda.

Many failures are because of technical mismanagement and planning which are special in case of Ayurvedic plant drugs and formulations. An example of an interesting admixture of success and failure in modern medicinal plant drug research is the story of discovery of Reserpin from *Sarpagandha* which was projected as a big success during late fifties as a powerful antihypertensive drug which flopped within three years and had to be withdrawn from the market because of serious side effects like depression and suicidal ideation while the whole plant drug *Sarpagandha* continues to be in use even today although its action is slow but has high safety. This proved to be a turning point in plant drug research and now even scientists plead for use of whole drug rather than active chemical constituents of a plant drug. Another euphoria has surfaced now after the discovery of Artemisin as an Anti-Malarial from a Chinese medicinal plant sharing a Nobel prize. Let us hope and pray that this discovery do not follow the fate of Reserpin.

The way forward

Standing on the crossroads where there is no consensus, I am inclined to suggest that ongoing conventional research in Ayurveda be continued as per the vision of those who are involved in such a work and sincere attempts be made to incorporate the Ayurvedic biology principles in all protocols with the help of such Ayurvedists who may have clarity on the subject from Ayurvedic point of view so that the Ayurvedic knowledge input may help the science men to develop appropriate indicators, biomarkers (for different aspects of Ayurbiology) and function rating scales and clustering of clinical presentations of different diseases on the pattern of psychiatric diagnosis of different psychoses and neuroses. An alternative strategy could be that core Ayurvedic fraternity prepares itself to come

forward with expertise and research facilities under their control and borrow help from biomedical activists by way of intense interface of contemporary science and traditional wisdom. One thing is sure that both components are equally important. As Albert Einstein said ‘Science without vision is blind and wisdom without science is lame’. Bhartiya Vidya Bhawan gave a slogan many years ago that research in traditional wisdom has to follow the dictum ‘the goal/object is ours from yesterday and the methodology be appropriately redeveloped from science of today’. Obviously currently the two streams are running parallel without any cross links. We need to reduce the gap between the two at different levels, academic, scientific, technical, social, educational, economic as well as political. There is a need for bilateral integration and true and transparent collaboration.

Our Pilot Observations

I have been working with serious limitations of my bilateral expertise and poor working facilities at our disposal, hence under compulsion now after retirement I speak and write more than I work in a laboratory except experimenting on my patients in the University hospital. The preliminary observation of such a small clinical experiment is described below to illustrate my view point.

With the rapid rise in the incidence of Type-II Diabetes mellitus as an Ayurvedic practitioner, I strongly feel that diabetes research now has to look beyond the blood sugar control and should follow the Ayurvedic approach where *Medas* is considered the *Pradhan Dushya*, besides *Ojas* i.e. bodily defense force being another important *Dushya* of this disease. Therefore the Ayurvedic practitioners should create their own professional field of promotive and preventive care of diabetics attempting to promote the *Agnibala* and *Ojabala* in all cases of metabolic syndrome, pre diabetes and diabetes along with evolving strategies of retarding the complications of Diabetes mellitus. The advanced diabetics may be left to conventional doctors who may have powerful

hypoglycemic drugs in their armamentarium.

In this case, Ayush sector needs reasonable tools to monitor the effect of treatment. Hence as an initiative we registered a series of moderate diabetics, some were newly detected and were placed on only Ayurvedic medicine namely *Nisaamalaki* (mixture of turmeric and *Amalaki*) while another group of patients who were already on modern hypoglycemic drugs but were not very well controlled, their ongoing medicines were not stopped but they were added with *Nisaamalaki* too. The blood sugar, *Agni* status and *Ojas* status were measured with the help of a standardized rating scale developed on the basis of rating of functions of *Agni* and *ojas* as described in Caraka and Susruta (CS.Vi.8:89, SS.Su.15:20) quoted below in original. The two scales were 14 items 4-grade scales literally converted from Sanskrit verses into a scale for this purpose shown in Table 1-2. This extremely preliminary pilot investigation produced the effects as shown in Table -3 which suggests that *Nisaamalaki*, a *Naimittika Rasayana* drug of Ayurveda caused moderate lowering of blood sugar PP and simultaneously improved the *Agni* and *Ojas* status of these patients expressed in terms of reduction of negative scores of *Agni* and *Ojas*. If a collaborative research with a willing bioscientist comes forward to develop a suitable biomarker for *Agni* and *Ojas* the whole study could become more robust.

Functions of *Agni*

कार्यं धातुसाम्यं, तस्य लक्षणं विकारोपशमः । परीक्षा त्वस्व-रुगुपशमनं, स्वरवर्णयोगः, शरीरोपचयः, बलवृद्धिः, अभ्यवहायाभिलाषः, रुचिराहारकाले, अभ्यवहतस्य चाहारस्य काले सम्यग्जरणं, निद्रालाभो यथाकालं, वैकारिणां च स्वप्नानामदर्शनं, सुखेन च प्रतिबोधनं, वातमूत्रपुरीषरेतसां मुक्तिः, सर्वाकारैर्मनो बुद्धीन्द्रियाणां चाव्यापत्तिरिति ॥८९॥

Functions of *Bala (Ojas)*

तत्र बलेन स्थिरोपचितमांसता सर्वचेष्टास्वप्रतिघातः स्वरवर्णप्रसादो बाह्यानामाभ्यन्तराणां च तामात्मकार्यप्रतिपत्तिर्भवति ॥२०॥

Table-1: *Agni* Status rating scale (0 to 3)

S.No.	Grading of features of <i>Agni</i> Status	Scores
1.	Appearance of normal voice	0-1-2-3
2.	Appearance of normal complexion	0-1-2-3
3.	Nourishment of the body	0-1-2-3
4.	Physical strength	0-1-2-3
5.	Desire for taking food	0-1-2-3
6.	Appetite for food during meal time	0-1-2-3
7.	Proper digestion of food	0-1-2-3
8.	Normal and regular sleep	0-1-2-3
9.	Feeling of well being	0-1-2-3
10.	Proper and timely evacuation of Vâta	0-1-2-3
11.	Proper and timely evacuation of Mûtra	0-1-2-3
12.	Proper and timely evacuation of Purîca	0-1-2-3
13.	Proper and timely evacuation of X Purîca	0-1-2-3
14.	Status of mind and intellect	0-1-2-3

Table-2: *Ojas* Status rating scale (1 to 4)

S. No.	Grading of features of <i>Ojas</i> Status	Scores
1.	<i>Sthiropacita Mamsata</i> (stable strong muscles)	1-2-3-4
2.	<i>Svara Prasada</i> (graseous voice)	1-2-3-4
3.	<i>Varna Prasada</i> (Luster of skin)	1-2-3-4
4.	Tvak (Sense of touch)	1-2-3-4
5.	<i>Caksu</i> (Power of vision)	1-2-3-4
6.	<i>Srotra</i> (Sense of hearing)	1-2-3-4
7.	<i>Jihva</i> (Sense of taste)	1-2-3-4
8.	<i>Ghrana</i> (Sense of smell)	1-2-3-4
9.	<i>Payu</i> (Bowel function)	1-2-3-4
10.	<i>Upastha</i> (<i>Mutrendriya</i> function)	1-2-3-4
11.	<i>Upastha</i> (<i>Jananendriya</i> function)	1-2-3-4
12.	<i>Mana</i> and <i>Buddhi</i> (Psychological status)	1-2-3-4
13.	<i>Bala</i> (Physical strength)	1-2-3-4
14.	<i>Vyadhi</i> (Disease Propensity)	1-2-3-4

Table-3: Impact of *Nisaamalki Rasayana* in Diabetes Mellitus

Groups	Blood Sugar PP Mean ± SD		Negative <i>Ojas</i> Score Mean ± SD		<i>Agni</i> Status Score Mean ± SD	
	BT	AT	BT	AT	BT	AT
Group-A (n=33) Only Ay. Drug	266.40 ± 71.77	209.40** ± 52.12	10.07 ± 8.45	6.07** ± 6.09	4.94 ± 3.27	0.55** ± 0.62
Group-B (n=23) Add Ay. Drug	242.90 ± 41.38	178.07** ± 24.97	8.21 ± 6.21	5.42** ± 5.37	4.61 ± 4.36	1.09** ± 1.44
Group-C (n=28) Control	237.60 ± 29.00	225.40* ± 31.32	9.50 ± 7.90	9.15* ± 7.34	5.11 ± 3.47	3.39** ± 2.33

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