Role of pharmacology for integration of modern medicine and Ayurveda

Medical research has no frontiers. Patients chose any effective medical system in reach. The goal of medicine is to provide palliative or permanent relief from diseases. What do we expect to gain by integration of modern medicine (MM) with Ayurveda (AY)?

The cost of MM drugs has escalated with cumulative expenditure on chemical procedures, preliminary animal experiments, clinical trials, and marketing. The increase in cost of medical education, expensive diagnostic procedures and surgeries, and hospital charges made MM expensive and beyond the reach of the common man. Further few MM doctors practice in rural areas.

In India, AY is practiced for centuries and adapted to changing times and at times economical when compared to MM. Patients find AY economical and beneficial for minor ailments or in diseases with no satisfactory remedies in MM.

Government of India (GOI) created AYUSH (AY, Yoga, Unani, Siddha, and Homeopathy) Indigenous systems of medicines as a department in 2003 and full-time ministry in 2014. GOI supported research institutes, recognized AY colleges and registered AY practitioners. In the last two decades, 301 colleges in AY have been offering graduate courses in AY leading to BAMS. PG degrees are available in Research Institutes at Jaipur, Jamnagar, New Delhi and Kolkata. Now GOI is keen to create awareness of the efficacy of the indigenous systems domestically and internationally. There are suggestions to start a Department of Indigenous Systems of Medicine and Homeopathy in all medical colleges.

In India, potential of AY was recognized by MM early but limited to “Screening individual Medicinal plants.” Tropical School of Medicine (RN Chopra), Central Drug Research Laboratories and Ciba Research Centres isolated active principles or synthesized similar substances. Indian Council of Medical Research (ICMR) published books on “Medicinal Plants in India.” Qualified both in AY and MM, Satyavati of Medical Research (ICMR) published books on “Medicinal plants or synthesized similar substances. Indian Council of Medical Research Laboratories and Ciba Research Centres isolated active principles or synthesized similar substances. Indian Council of Medical Research (ICMR) published books on “Medicinal Plants in India.”

With the scarcity of MBBS doctors in rural areas AYUSH doctors are permitted to prescribe allopathic medicines and adopt homeopathic formulations. AY adopts simultaneously holistic approach of yoga, faith, meditation, and nutrition. AY are revised constantly over centuries with field experience though not after clinical trials as we are familiar. Even MM relied originally on extracts from plants and later switched over to pure ingredients presented in expensive modern pharmaceutical formulations. AY adopts simultaneously holistic approach of yoga, faith, meditation, and nutrition.

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What are the Advantages of Ayurveda?

AY is already established for clinical use in India for several centuries with effective recipes and knowledge from oldest texts in Sanskrit like “Charaka Samhita” dating back to 1500 BC. Their recipes are cheap, prepared locally and do not need big laboratories. The plant resources in India are plenty with experts in pharmacognosy to identify them.

The prescription pattern is similar in MM and AY. Both use multiple drugs – “Basis” and “Adjuvans” with similar action – “Corrigens” against side effects and a “Vehicle.” In AY, other constituents in the plants reduce side effects. AY recipes are revised constantly over centuries with field experience though not after clinical trials as we are familiar. Even MM relied originally on extracts from plants and later switched over to pure ingredients presented in expensive modern pharmaceutical formulations. AY adopts simultaneously holistic approach of yoga, faith, meditation, and nutrition.

AY recipes are prepared using heat, light, or fermentation involving chemical interactions, sometimes using metallic ingredients. It is noteworthy that many plants in nature have constituents with opposing actions in same plant - opium (morphine and papaverine). We observed opposing ingredients in the same spice Carum Copticum Omum and in Tylophora Indica. The whole plant may minimize side effects by pure active principles.

Need for Integration

Instead of promoting competition it is necessary to integrate MM and AY for research and clinical use as an economical approach. GOI is keen to create awareness of the efficacy of the indigenous systems domestically and internationally. There are suggestions to start a Department of Indigenous Systems of Medicine and Homeopathy in all medical colleges. GOI supported research institutes, recognized AY colleges and registered AY practitioners. In the last two decades, 301 colleges in AY have been offering graduate courses in AY leading to BAMS. PG degrees are available in Research Institutes at Jaipur, Jamnagar, New Delhi and Kolkata. Now GOI is keen to create awareness of the efficacy of the indigenous systems domestically and internationally. There are suggestions to start a Department of Indigenous Systems of Medicine and Homeopathy in all medical colleges.
alternative. However, both systems remained parallel with minimal integration though under the same Ministry of Health. The reasons are many:

- **MM finds it difficult to understand the principles of AY -** theory of three humors (Tridosha) seven body tissues (Saptadhatu) and the basis of diagnosis and treatment in AY. With original texts in Sanskrit, interpretation of the recipes and procedures differ from region to region, identification of plants in the local dialect, the terrain of availability, and seasons of the collection (pharmacognosy). The procedures of preparation of the final products also differ from center to center and are often kept as family secrets like patents of drugs in MM. The main barrier is that efficacy of AY recipes is not portrayed in framework familiar to MM.

- **Dialogue or exchange of information is unlikely to succeed in an atmosphere of mutual suspicion distrust and claims of superiority.** Thus, a proposal for a Common Research Institute where patients treated by Experts of Traditional Systems of Medicine to be monitored by team of MM (pharmacologist, physician, and pathologist) was not found acceptable[4]

- **MM has not made any attempt for integration. However, AY adopted MM in its institutes by adding:** X-ray unit; pathology and biochemistry laboratories for immunological, serological tests; Department of Chemistry, Phytochemistry, Pharmacognosy Pharmacology, and Animal House for Pharmacological and Toxicological Studies.

- **The aim of integration of MM and AY is to identify selective AY therapeutic regimens and recipes and link them with related MM diagnosis.**

### Pharmacologists as Medium of Integration of Modern Medicine and Ayurveda

Since clinicians of MM and AY do not interact pharmacologists without clinical attachment to Allopathic and Ayurvedic hospitals are likely to be accepted by both. They can serve as a useful bridge of communication for a meaningful dialogue to bring the therapeutic potential of AY to both systems. Even in MM publications such as US Dispensatory, Martindale Extra Pharmacopoeia include herbal drugs. In India, National Formulary represents MM and Ayurvedic Pharmacopoeia relates to standards of Ayurvedic Preparations. Data of useful indigenous drugs for various diseases is collected by Central Drug Research Institute. The BAMS syllabus includes treatment of individual diseases and selected plants and an outline of Pharmacology. AY textbooks in major clinical specialties contain recipes to specific diseases, but difficult to be followed by MM.

There is no manual to present AY to MM to understand and use. Study of individual medicinal plants is slow taking years and did not help the integration of the two systems. Single institutions studying AY exclusively with limited patients do not help integration.

### Proposal for Online Registry for Case Reports on Ayurveda

A quicker process is to collect massive, rapid field case reports of prevalent AY practices in respect of diseases and symptoms. This information can be pooled “online” on a website designed exclusively for this purpose. Such academic website registries are now established for groups of diseases. The case reports should be obtained by direct observation from private and public AY hospitals and AY institutes.

This is how pharmacologists can help. A pharmacologist employed on the staff of 301 AY colleges can teach modern pharmacology and also record individual case reports for upload to the website. Pharmacology is a subject in the curriculum of BAMS course. Correspondents should first get registered with their credentials and consent of the institution to get direct access to the website. Those actively reporting should be given honorarium. Field teams can include pharmacologists, public health personnel, and PHC doctors. Even AY doctors can give honest information. Experts with dual qualifications in MM and AY can actively help.

A proforma can be prepared in MM terminology with columns for – patient age sex address, diagnosis, stage of disease in chronic conditions, symptom, treatment procedures, duration of treatment, prognosis, and final outcome (positive negative or doubtful). This record in “Excel” format gives numerical information. This compilation of case histories serves as field clinical trial with AY recipes. Even single case reports of cure or relief in conditions such as cancer, diabetes, hypertension, and rheumatism when followed can lead to a promising treatment. Recommendations for hypertension are often based on a retrospective study of case reports.

The pooled data can be studied in 4–6 regional centers quarterly with a team of open-minded MM and AY specialists. They can investigate individual cases reported and authenticate the success for further follow-up. Data from all centers can be processed and finalized by an apex academic committee of MM and AY specialists. These therapeutic options can form a quasi-official manual to validate many AY recipes for MM and AY practitioners both for diseases and symptoms. This may take 3–4 years, but definitely much faster than studies with individual herbs and isolated clinical trials.

The Objective of this study is not to fit a pattern for publication in MM journals. It can be published as a medical formulary, vade-mecum or reference manual giving information of successful recipes, prescriptions, and procedures of AY for clinical use or research by MM practitioners. National Formulary of India (MM) and Ayurvedic Pharmacopoeia of India (AY) do not serve this purpose.

This project can be undertaken by the Pharmacological Society or Consortium of Interested Societies, Research Councils and Pharmaceutical Companies with a genuine interest. Maintenance of website and honorarium to volunteers has to be pooled from the consortium.

Even domestic remedies can be recorded for minor complaints. Spices used in food, as well as AY recipes, contain large amounts of choline and release acetylcholine on roasting. They also possess smooth muscle relaxing effects (gripe water). Some spices have been shown to have anticancer properties. Discoveries like curare quinidine caffeine were from field observations in tribal medicines.

Pharmacologists can function as an acceptable channel for integration of MM with AY. An “online registry” for current case
reports from AY can help preparation of a reference manual for clinical use and research.

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